

Drawing THE Line


Making
Sense of the
Boone and
Crockett Club
Big Game
Records
Species and
Subspecies
Boundaries

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Boone and Crockett's scoring system was designed to be a scientific data set recording the best trophies of North American species. The objective was to categorize measured species or subspecies that could be clearly defined by morphological or habitat differences and that could be evidenced by credible science. In some cases, a subspecies constitutes separate categories. That being said, the integrity of a sub-category should always be based on scientific research. This raises the question of what constitutes a subspecies. As pointed out by Jim Heffelfinger in *Deer of the Southwest*, "The whole concept of subspecies has been under attack for some time. Subspecies boundaries...frequently create a nonsensical pattern of geographic differentiation." First, one must consider what drives a species to make significant changes from its original form so that it becomes a viable and self-sustaining subspecies. For example, after one of the last major glaciations, scientists hypothesized that the mule deer adapted to fill a void left by retreating ice. Mule deer became a species adapted to specialize in an open environment with limited cover and forage.

It is common, as most hunters know, for certain areas to have common traits seen in local populations. This does not warrant a subspecies designation for records-keeping purposes. This type of variation would be along the lines of a common abnormal point in the same location noted on deer in a certain county or a bent antler on an elk that appears in a population of a certain drainage. Regional variations are more likely to warrant a subspecies designation in some literature though usually is not significant enough to create a unique records category. Deer in the Canadian provinces generally appear to have more massive racks, though deer from southern areas, including the Midwest southward into Texas and Mexico, have produced racks of trophy caliber able to compete with those of Canada. While some physiological characteristics may differ—body size, for example—for records purposes there is no reason to separate these possible whitetail subspecies, should they exist. If research shows a definite genetic difference and an analysis of average trophy scores shows a southern species is actually a separate subspecies, perhaps a secondary category could



The separation of whitetail and mule deer is easy. Note the tail and antler configuration of this whitetail.

be implemented; though with the number of entries coming from across the different regions, this is rather unlikely.

Heffelfinger also points out that, "there are rarely sharp contrasts between deer at the boundary of two adjacent species." Boone and Crockett Club has a set of requirements in order for a species or subspecies to be declared and recognized. These include: 1) it must occur over an extensive geographical area, 2) it must occur in huntable numbers, 3) suitable habitat or morphological boundaries can be drawn for its range, 4) the game department(s) responsible for management are in favor of setting up such a category.

Questions of appropriate subspecies classifications are widespread across the field of wildlife management with differing opinions on sheep, moose, caribou, bear, elk, and even walrus. Due to most readers' familiarity, I will discuss the different whitetail and mule deer species and related subspecies. Keeping in mind the aforementioned criteria, we'll now look at some key taxonomic structures and the status of certain subspecies that were considered and ultimately what led to the adoption or rejection of a separate records category.

The separation of whitetail and mule deer is very straight forward. *Odocoileus hemionus* (mule deer) and *Odocoileus virginianus* (whitetail) differ in antler appearance, metatarsal glands, tail, predator avoidance strategy, rut activities, plus many more less noticeable attributes.

The more basic of the two species, evolutionarily speaking, is the whitetail. According to Leonard Rue III, a commonly cited deer specialist, there are 38 subspecies of whitetail ranging from Central and South America into the Northwest Territories. The reader should be aware that this number varies from 38 as a maximum to significantly less, depending on which literature or expert you are consulting. The opinion of many scientists is that a number of these classifications were made by taxonomists eager to have their name published as the identifier of a separate subspecies. These were defined on few specimens, in at least one case, a single deer. At a time when the structure of DNA was still years from being discovered, let alone the identification of particular genes unique to a subspecies, scientists only had appearance and limited bone measurements to use as classification techniques. Heffelfinger contends that many of these subspecies are still recognized today due to a lack of sufficient data to either confirm or disprove these classifications. As

cited by Dr. Valerius Geist in *Deer of the World, Their Evolution, Behavior, and Ecology*, recent mitochondrial DNA (mother's DNA) show very little genetic separation between whitetails.

In comparison to whitetails, mule deer are clearer cut in relation to geographic boundaries. Rocky Mountain mule deer, *Odocoileus hemionus hemionus*, are found in the western third of the United States and Canada from the peak of the Cascades all the way to Kansas. Much of this range overlaps with that of the whitetail deer. Fortunately, whitetail deer have significant differences in antler configuration as well as other morphological traits, such as the length of the metatarsal glands located on the hind legs of deer. The tarsal glands, which are far less apparent, are located on the outer edge while the metatarsals are located on the inside about the midway point down the hind leg. The examination of these glands leaves no question as to species. While cross-breeding is possible, it happens rarely. When it is successful, those offspring rarely, if ever, exhibit antler traits of a mature trophy animal coming anywhere close to B&C minimums.

The Boone and Crockett Club has supported and encouraged new genetic research that may justify changes to boundaries and subspecies categories in the future.

For records-keeping purposes, hybrid specimens must be entered in the category with higher minimums.

Boone and Crockett recognizes subspecies of both whitetail and mule deer including Coues' whitetail, Sitka blacktail, and Columbia blacktail. While the original Boone and Crockett Club categories included the Coues' whitetail as a whitetail subspecies, it is rather amazing that the original developers of the current scoring system had the foresight to recognize that the number of subspecies (currently being verified through DNA) was less than what the scientific community of the time had classified.

The first subspecies recognized was the Coues' deer subspecies, *Odocoileus virginianus couesi*. This smaller version of the whitetail shows morphological adaptations for life in the desert. Some of these traits include smaller body size, darker coloration, large ears, and significantly smaller antlers. All these traits have been studied and analyzed, including body size. One hypothesis for the Coues' deer small body size cites lack

of available nutrition. Another is that the smaller body increases the surface area to body mass ratio, thus increasing heat dispersion. Either way, it is a fact that Coues' deer do not reach the size of other whitetails of North America. The habitat requirements of the Coues' deer also separate it from other whitetail species. It is found from 4,000-7,000 feet (in the United States, they occur slightly lower in the southern part of their range) in areas with semi-desert grassland for forage (Heffelfinger). Coues' deer expansion is limited by the drought and desert found below their 4,000-foot habitat boundary. These same conditions decrease chances of interbreeding between the larger whitetail and the Coues' deer. This is the ideal situation for deer separation in relation to subspecies and record keeping; a distinct line in relation to climate and geographic boundaries that is not in jeopardy of being breached.

The two recognized subspecies of mule deer are Columbia blacktail, *Odocoileus hemionus columbianus*, and the Sitka blacktail, *Odocoileus hemionus sitkensis*. The peak of the Cascade Mountains is the geographic barrier that creates a boundary separating the Columbia blacktail from the mule deer. This is not because the deer cannot cross over the range, but rather the drastic habitat difference created by the presence of this mountain range. For brevity we will not discuss seasonal deer movements but focus on the physical characteristics of

the two species in addition to their overall predator avoidance strategies. A successful, breeding mule deer from open timber and high elevation possesses very large antlers and a predator avoidance strategy of positioning itself where it can scan the entire habitat. When confronted, the mule deer stots over open terrain and then scans the surrounding areas for danger. This behavior and antler configuration is not suited for surviving in the Columbia blacktail rainforest-like habitat of the coastal regions of Oregon, Washington, British Columbia, and California. Other morphological traits greatly differ between the two subspecies as well. The tail and rump patch characteristics of mule deer and blacktail are very distinguishing and probably the best reference. Mule deer have a white rump patch with a thin white tail with a black tip. Both blacktail subspecies lack a noticeable rump patch and have a tail size falling between whitetail and mule deer in size, with the majority of the top of it being black. In addition, other body coloration varies; the most noticeable being one or two very apparent



Columbia blacktail boundary (shaded area) for Boone and Crockett Club records-keeping purposes.

white patches commonly seen on the throat of mature buck blacktails.

The records classification boundary between mule deer and Columbia blacktail is partially made up by the Umpqua, Mt. Hood, and Willamette National Forest western boundary in Oregon and a portion of Interstate Highway 5 in California, which may seem arbitrary choices. They are chosen because they are easily identifiable on maps and are located well within blacktail habitat. This conservative boundary location is to prevent mule deer-blacktail hybrids from being unfairly entered into the records book.

The Sitka blacktail is a slightly different scenario in reference to its habitat overlap with other deer subspecies. This subspecies category was created in 1984. Sitka blacktail are historically found on the islands of southeast Alaska and the corresponding strip of adjacent mainland, but has been transplanted to other Alaskan coastal rainforest locations including Kodiak Island and Prince William Sound. They have also been introduced to the Queen Charlotte Islands of British Columbia. Because their populations are isolated either by water or daunting glaciated mountain ranges, there is no need to adjust boundaries to account for possible overlap.

It is not surprising that most of the largest specimens from each of these subspecies come from areas close to the borders. For example, extreme southeast Alaska has the majority of the Sitka blacktail entries found in the records book. The southeastern edge of Columbia blacktail habitat in Oregon and Northern California also dominates its respective category. Some may surmise that this is caused by genetic overlap but in actuality, I agree with the hypothesis that the habitat at these locations is superior to that of other areas in their range. Secondly, winters are generally less severe in the southern portions of the range. Winter severity is obviously not the sole driving factor of antler size considering entries are not restricted to only southern portions of blacktail ranges, though is worthy of consideration.

Examples of two other familiar deer subspecies that don't have a separate category recognized by the Club's records committee are the Florida Keys deer and the Columbia whitetail. While they have been found to be substantially different, they do not occupy a significant geographic area, are not easily separated by a distinct boundary, and are not hunted in substantial numbers. The Columbia whitetail populations are small and very isolated. Oregon, for example, only has two populations, one around Roseburg in the Umpqua Valley and the

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other on a few small islands in the Columbia and on the adjacent shore near the river. While the state of Oregon was in favor of creating a records subspecies designation for Columbia whitetail, the records committee ruled that due to the very limited hunting opportunities and the ever expanding range of the broad whitetail category, the genetic difference and range did not meet the requirements of a subspecies. A Keys whitetail category was never proposed nor created because of limited numbers and continuing habitat loss.

Additional sources for information on deer habitat, subspecies, and traits may be found in Jim Heffelfinger's book, *Deer of the Southwest* and Dr. Valerius Geist's *Deer of the World, Their Evolution, Behavior, and Ecology*.

Over the past 80-plus years of Boone and Crockett Club's records-keeping efforts, there have been noticeable changes. For example; the Central Canada barren ground caribou category was established as well as non-typical categories for Coues' whitetail, Sitka blacktail, Columbia blacktail, and American elk.

The Boone and Crockett Club has supported and encouraged new genetic research that may justify changes to boundaries and subspecies categories in the future. An example of this is the recently analyzed genetic data on all mule deer subspecies in North America. The information put forth by this research is currently being summarized and will be reviewed by the records committee to confirm or change boundaries currently used. The possibility of confirming subspecies of questionable or unidentifiable specimens or trophies through DNA analysis of antler material is another advantage of having this data available. This is helpful to both records keepers and wildlife managers since the ability to confirm species of older samples can help recognize historic trophies and identify shortcomings of current management.

It is a very exciting time in records keeping to be a part of true subspecies identification. In addition, more and more information is becoming available about nutrition, predator interactions, and habitat requirements, hopefully leading to healthier wildlife populations. The more successful game management becomes and the better we understand certain species requirements, we will undoubtedly need to adjust minimum scores and verify new World's Records. Look to future articles in *Fair Chase* that will summarize the most current research and inform readers of any changes to current policies regarding measuring, categories, and boundaries. ■



Morphological traits greatly differ between Columbia blacktail (left) and mule deer (right).

MULE DEER: White rump patch with a thin white tail with a black tip.

COLUMBIA BLACKTAIL: Lack a noticeable rump patch and have a tail size falling between whitetail and mule deer in size, with the the majority of the top of it being black. In addition, blacktails have one or two very apparent white patches commonly seen on the throat of mature bucks.