One thing I have learned while managing and hunting free-ranging whitetails in South Texas over the last quarter century is the impact rainfall has on antler development. A variety of habitat management techniques can be employed to enhance the habitat such as disking, roller chopping, aerating, burning, even fertilizing, but without deer nutrition rain, these practices are ineffective. The chaparral of South Texas is a harsh environment for deer. To the casual observer, it is simply a desert, but to a trained eye, it is an ecologically diverse ecosystem occupied by a plethora of brush and plant species rich in the valuable components required to support some of the finest deer herds in North America. However, it takes rain in order for the vegetative component to develop and release those nutritional advantages.

To measure the relationship between antler development and rainfall, I compared the Boone and Crockett gross scores of harvested animals to annual precipitation. Based on rainfall records collected in Dimmit County, Texas from 1983 through 2002, the average annual rainfall was 20.27 inches. It ranged from a high of 31.04 inches in 1997, a benchmark year based on antler size, to a low of 9.87 inches in 1988 (uniquely the poorest antler year recorded).

Reviewing quarterly rainfall amounts, January through March of 2002 was one of the driest periods, with only two-tenths of an inch of rainfall recorded. Since 1983, I have recorded less than one inch of rain during this three-month period only twice, once in 1988 when .97 fell and in 1996 when no precipitation was recorded. Uniquely, the lowest average gross Boone and Crockett score for mature bucks in the harvest was recorded in both years with the lowest gross score (128) recorded in 1988.

The frequency of rainfall is paramount to antler size. For example, an above-average rainfall amount (24.85 in.) was recorded in 1999, but when reviewed in quarters, 16.9 inches, or 68%, of the rainfall occurred in the summer period of July through September. Drought throughout the late winter and spring periods of 1999 stagnated plant growth, and antlers developed under less than ideal conditions. Following a flash flood in late summer, nutritional stress was alleviated by a surge in regeneration readily available to deer, resulting in rapid weight gains. Hunters were shooting big-bodied deer, but were bewildered why antler quality was sub par. The same situation occurred in 2002 when 12.76 inches of rain fell during the summer July through September quarter. Rain did not occur early enough to compensate for the negative impact drought had on range conditions. In other words, the antler cycle was virtually complete before the benefits of rain could be realized.

Comparing rainfall records from 1999 through 2001, it becomes obvious how critical timing of rainfall becomes. In 2001, a below average 13.2 inches of rain were recorded, compared to 24.85 inches in 1999 and 25.2 inches in 2000. Yet the average gross score for bucks harvested in 2001 was 153 inches equaling one of the best antler-producing years--1997. Why? Simple—precipitation was evenly distributed throughout the year with 24% falling during the first quarter, 23% in the second quarter, and 31% in the last quarter of the antler-growing period, that is, the bucks consumed an abundance of high quality vegetation throughout the antler growing period. It is equally important to point out that 8.7 inches of rain fell during the last quarter (October through December) of 2000, increasing soil moisture and plant development during the postrut when most bucks are physically drained, even hurt, and dependent on a localized abundance of

forage. The ideal antler-growing conditions in 2001 were the result of late fall and early winter rains of 2000 and timely rains that occurred throughout the year, furnishing deer a consistent high plane of nutrition on a continual basis.

To fully understand the importance of rain and its impact on antler size, I tabulated the antler statistics of the six highest-scoring bucks harvested on one Dimmit County ranch. The reason the top six bucks were selected is because only six hunters were allowed to shoot a deer of their choice, hence bucks displaying undesirable antler qualities make up a higher proportion of the harvest, reducing the overall average. By isolating undesirable antlered bucks from the harvest statistics, a unique opportunity to critique those "highly desirable" bucks becomes available. Based on this data, the highest average annual gross scores since 1990 were recorded in 1993 (174 Boone and Crockett average); 1997 (180 Boone and Crockett average); 2000 (171 Boone and Crockett average); and 2001 (172 Boone and Crockett average). It is important to point out that these animals exist on open range, surviving on native forage.

The one thing all these years have in common except for 1997 is that they were preceded by three years of above average rainfall. The year 1997 was preceded by a rather dry year, but 31.04 inches fell throughout 1997, with 48 percent occurring during the spring antler-growing period.

Antler mass, the sum of eight circumference measurements, four per antler beam, and how it was affected by rainfall was also analyzed. The highest average mass measurements were recorded in 1992 with 36 inches; and 1993, 1997, and 2000, all of which had average mass measurements of 35 inches.

The one thing these years had in common was abundant spring rain, with 47 to 48 percent of the annual rainfall in 1993, 1997, and 2000 occurring during the spring months of April through June, with 37 percent in 1992.

The point is, rain frequency equates to inches of antler.

Droughts of varying degrees have been recorded in South Texas since man has maintained records. The U.S. Weather Bureau defines drought as "a period during which annual rainfall is 75 percent or less of average." From the standpoint of whitetails, however, a drought occurs when vegetation stops developing, and this happens often for various lengths of time throughout any year.

The evaporation rate in South Texas often exceeds annual rainfall. Thus, deer dependent on native vegetation exist with either an abundance or lack of food. In Laredo, for example, the average annual rainfall is approximately 17.9 inches; however, the annual evaporation rate is approximately 114 inches. Thus, it's apparent how harsh this environment can become.

Rainfall has a dynamic impact on native vegetation whenever it occurs, but it is not the only ingredient to the production of a healthy deer herd.

For example, in portions of East Texas where rainfall is not a limiting factor, deer quality, particularly antler size, remains below that of South Texas. Some of this can be attributed to genetics, excessive harvest, etc., but the major problem is a lack of plant species diversity. Much of East Texas simply does not have the variety of nutritionally rich plants that occur in South Texas. But by taking advantage of rainfall, East Texas land managers can establish cool and warm season food plots, affording deer an excellent source of nutrition year round.

In South Texas, particularly the extreme western portion south of San Antonio, summer food plots are extremely difficult if not impossible to sustain because of the dearth of rain and extreme temperatures.

Regardless the amount of rain a particular region receives, additional factors affecting herd quality must be considered. For instance, an overpopulated deer herd can severely damage the habitat by eliminating preferred browse regardless rainfall. The point is, deer numbers must be maintained within the carrying capacity of the land and sex ratios balanced before the benefits from rain can be realized.

Domestic stock and its impact on the environment must also be monitored. It is irrelevant how much effort is spent reducing a deer herd if domestic stock numbers are excessive.

I consider rainfall patterns, particularly its distribution in South Texas, as a natural regulation mechanism for grazing pressure for both wild and domestic stock.

In areas as large as the brush country of South Texas, rain is seldomly distributed uniformly. Even on the 106,000-acre ranch I managed, rainfall amounts varied by locations separated by a mile apart. The fact is, rain is not equally distributed across the entire region. Most showers are spotty, forming a mosaic pattern of areas benefiting from the nutrient-rich liquid. Deer concentrate on these vegetative rejuvenated areas, alleviating the acute demand they placed on the drier areas.

Rain “liquid nutrition” is the paramount ingredient for a strong healthy habitat, which equates to quality deer. This is true for fawns as well. With rainfall the South Texas landscape develops a lush understory affording protection for fawns from predators like the coyote.

Sportsmen often blame below average antler quality on lack of rainfall when the real culprit is poor management. Managed lands always have the potential of producing highly desirable-racked bucks. Non-managed lands have little chance of yielding trophy-class deer, even under ideal conditions. In my opinion, deer populations in the Southwest should be maintained to thrive under less than ideal range conditions. Thus, when ample rain occurs and range conditions peak, the production of trophy bucks comes closer to reality.