

Records of North American Big Game

A BOOK OF THE BOONE AND CROCKETT CLUB
CONTAINING TABULATIONS OF OUTSTANDING NORTH AMERICAN BIG GAME TROPHIES,
COMPILED FROM DATA IN THE CLUB'S BIG GAME RECORDS ARCHIVES.

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Walking With Deer

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This story really began 24 years ago under a big oak tree that overlooks a well-worn deer trail near my home in southwestern Michigan. I had settled against the tree in the first light of a chilly November morning, checked the safety of my 16 gauge Browning, and waited with eyes and ears at full alert. It was opening day of my second deer season.

Each stirring of leaves brought a new surge of anticipation. Deer sign had been abundant when I checked the area two weeks earlier. However, midday arrived with nothing spotted larger than a fox squirrel. Had the deer changed their travel patterns in the past two weeks? What new foods were they seeking, and what kind of cover were they using on this calm, chilly day? I realized there was a lot I wanted to know about deer.

In early afternoon a doe appeared off to the side, about 30 yards away. She was angling slowly upwind, feeding on ground plants that I couldn't quite see through the leafless brush. She passed 20 yards in front of me, not seeming to notice me until I moved slightly to see what she was eating. She bounded into denser cover, looked back, then browsed slowly off. I wished I could watch her long enough and closely enough to get answers to some of my questions.

Some 20 years later, I got the chance to do exactly that with some other deer. In 1976, I was hired as a deer biologist by the USDA Forest Service's North Central Forest Experiment Station. I was assigned to determine how foresters might better manage forests for deer in northeastern Minnesota. My job involved research funded jointly by the USDA Forest Service, the National Rifle Association, the Boone and Crockett Club, and the Minnesota State Archery Association.

Although much was already known about the winter diet of deer in northern forests, little was known of their diet during the snowfree months. Knowledge of food preferences during this period could prove important in deer habitat management because it is during those months that deer raise their fawns and store fat for winter. In northern forests, this stored fat can be critically important for survival.

I felt that an accurate picture of the year-round food and habitat choices of deer in

LYNN ROGERS

northeastern Minnesota could only be obtained by observing their eating habits firsthand. My coworkers and I spent 125 hours a month for the next 4 years doing just that, using 8 females that were bottle-fed from birth. When they were old enough to fend for themselves, we fitted them with radiotrigger collars and released them. The collars would enable us to find them at any time, while the hand-rearing would ensure that we could closely approach them for observations.

I hoped to find out if the fawns could make a full-time living on their own after they were released if they would retain their wild instincts for escaping predators, raising young, and establishing home ranges, and if they would remain friendly to people after they matured. Yardsticks of success of this method would be how well the tame deer fared compared with wild deer and how well the tame deer would adapt to people observing them. The pleasant surprise was that everything went much better than anticipated. The bottleraised deer set up home ranges of about a square mile, the same size that wild does use in northeastern Minnesota. They eluded wolves and bears as successfully as wild deer. They grew as rapidly as wild deer. They joined wild deer in winter deeryards, and they mated with wild deer, successfully raising young. As far as I could tell, they retained all of their natural instincts for survival. Yet, they never forgot their human friends. They seemed to view my coworkers and me as friendly, noncompetitive members of their group. They showed neither fear nor excessive attraction to us.

Our main method of gathering data from the deer was to remain with an individual for 28 consecutive hours. When traveling with the deer, we described each habitat the deer entered, estimated the abundance of each plant species in each habitat, and counted the number of bites the deer took of each species. We also kept a minute-by-minute record of the deer's activities—how much time was spent chewing its cud, grooming, intently alert, sleeping, etc. The data we collected revealed food and habitat preferences, amounts eaten, and how all these things varied with season.

Of all the deer, my favorite was the one we named Browser. Being with her and seeing her respond to the slightest distant rustlings while ignoring my own sounds seemed like the rarest of privileges. It was this deer that first revealed to me many of the basic patterns of deer behavior—patterns we saw repeated by all the deer we studied. Detailed analyses of the data are not completed, but I can share some of the more obvious findings.

In all aspects of their lives, the deer behaved as though the major consideration was to avoid predation. They avoided cover from which flight would be difficult. In summer they circumvented areas of very dense sapling growth or excessively rough terrain. In winter, they avoided areas where deep snow hindered movement. Like all ruminants, deer rapidly fill their stomach with a minimum of chewing, then finding a good vantage point to bed down, regurgitate the food, and chew it more thoroughly. This manner of feeding minimized time spent rustling about, possibly attracting the attention of predators. In addition, most chewing which seems to reduce their ability to hear approaching predators, is done while bedded in a good vantage point. Upon bedding, the deer usually did not immediately begin chewing their cuds. They first spent a period of full alertness with eyes wide open, ears pivoting, and

Walking with Deer

nose sniffing the air. Eventually they relaxed, began chewing their cuds, and often let their eyes half close. Still, they stopped chewing, opened their eyes fully, and listened intently at any strange sound.

After chewing their cuds for a few minutes to a few hours (depending upon season and diet), the bedded deer curled up and slept for a few minutes. The Rapid Eye Movement stage of this sleep, from which arousal in most species is difficult, usually lasted only a half minute or so. This period usually lasts longer in people and large predators. Overall, the deer slept lightly, raising their heads and opening their eyes at unfamiliar sounds.

The cycle of feeding, lying alert, cud-chewing, and sleeping was repeated through the day as well as the night. This was a surprise to me. Before this study, I had seen deer mainly at dawn, dusk, and at night, so I thought they were not active during the day. However, the tame deer, and the wild deer we encountered while with the tame deer, showed us that feeding continues under forest cover through the day. One day I accompanied a deer we called Rosie into a clear-cut area with many birch and willow sprouts. She entered the clearing hesitantly. Instead of feeding efficiently, she spent more than half her time with head up and ears pivoting. She soon moved back into the forest where she fed more calmly and continuously. But, that night she moved into the clearing with seeming confidence and fed calmly and efficiently on the sprouts. Browser showed similar behavior as she fed through the day in the forest and in small forest openings. At one point she came to a highway and bounded across it to continue feeding in the forest on the other side. Then, at dusk, she returned to the same point on the highway and spent the night eating roadside vegetation. She left the roadside only to chew her cud and sleep, or to retreat briefly from passing vehicles. Shortly after dawn she switched to feeding on forest vegetation again.

In November and December, deer in northern Minnesota move from their summer ranges and gather into "deeryards". For some deer, winter and summer ranges are more than 20 miles apart. As snow depth increases through winter, the deer congregate more closely into yards that may be as large as several square miles. One of these yards was within the area explored by the tame deer during the snowfree seasons, and it was in this yard that they concentrated their activities in winter. Browser became the leader of two wild deer that moved into this yard. Browser and her group ran the gauntlet of timber wolves in the area without a loss, although several other deer in the yard were killed.

With Browser as the leader, the wild deer became somewhat accustomed to human observers. By midwinter, the wild deer routinely fed and bedded 50-60 feet away from us, and we learned that their food choices were similar to Browser's.

All the deer we watched in winter ate large amounts of old man's beard, an arboreal lichen. They visited and revisited fallen fir trees to obtain them. These trees had become covered with lichens 10-20 years earlier following a spruce budworm epidemic that had weakened or killed them. The deer also ate dead aster flower stalks that protruded above the snow, digging through snow up to a foot deep for dead aster leaves. As the snow deepened, nonwoody plants became less available and the deer turned to twigs of woody shrubs. The digestibility of these twigs is low, and deer lose weight when feeding on them, even if they

LYNN ROGERS



Photograph by Donna Rogers

Lynn Rogers with his favorite deer of the study, Browser, during late 1980.

Walking with Deer

are available in unlimited supply. However, in northeastern Minnesota and other regions of deep snow, this is the only food abundant enough for deer to fill up on in winter.

When patches of bare ground appeared in April, the deer ate small plants whose leaves had remained green overwinter. Commonly eaten plants were strawberry, twinflower, bunchberry, violet, and shinleaves. These were largely forsaken, as soon as the new green leaves poked through the forest floor in May. Major foods then were new aster leaves, false lily-of-the-valley, and Clinton's lily. Later in May, the expanding leaves of shrubs also became principal food. Shrub leaves & small green plants remained the main foods through the summer. Mushrooms, including some poisonous species, were major foods in September.

In fall, food supplies were reduced through leaf fall and the annual deterioration of many species of small plants. The deer then turned to the persistently green species of plants that they had fed on in early spring but had rejected during the summer. At the same time, they began feeding on old man's beard. As deepening snow covered ground vegetation, the deer turned increasingly to woody browse again, and the annual cycle of feeding had come full circle. Although cedar is a major deer food in parts of northern Minnesota, it was scarce in the study area.

When the snow melted in spring, the deer left the winter deeryard and returned to their summer ranges. There we saw a number of aggressive interactions among mature tame and wild deer. In one case I was with Browser when she discovered two wild does encroaching on an area that was usually exclusively hers. We were moving along the shore of a lake, when Browser suddenly became stiff and alert. Following her gaze through the brush, I saw two does about 40 yards away, feeding at the edge of an opening. They seemed unaware of us. Browser stood sniffing, listening, and looking in their direction for about two minutes. Then she bounded through the brush, burst into the opening, chasing and kicking the startled deer. The wild deer tried to avoid the angered Browser, without striking back. After a few seconds of zig-zagging and running in circles, the wild deer left and Browser resumed feeding. She showed similar aggressiveness toward two tame yearling does that she found in the same area in early June, a week before she gave birth to her fawn. The two yearlings were radiocollared, which allowed us to follow their movements following this incident. After being chased, the does didn't return to that part of Browser's range for more than a month.

Browser gave birth to a single male fawn on June 3rd, in the same area where she had chased away the yearlings. Researcher Laura Mason was witness to the birth. Laura watched Browser lick her fawn clean and then pull the allantoic membranes out of her birth canal and eat them. Browser also ate or licked any plants or other objects that were touched by these membranes. This undoubtedly minimized odors that might attract predators. Browser remained in a reclining position to give her fawn his first meal. Throughout the occasion, she directed a frequent soft mewling grunt toward the fawn. She raised this fawn successfully, showing that she retained the natural instincts for motherhood even though she had been raised by people.

The major drawback of the study was that the deer, trained from birth to trust people, sometimes went up to hunters to be petted. As a result, 7 of the 8 does, including Browser,

LYNN ROGERS

were killed by hunters. The eighth was killed by wolves. The last three study animals were killed (illegally, in a bucks only area) on November 22, 1980, ending the observations. Nevertheless, the four years of observations up to that point provided a wealth of new information about white-tailed deer in the northern portions of their range. When final analyses of the data are completed, they should help point the way to better management programs.

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He has published several papers resulting from his studies of black bears and whitetail deer. In 1974 he received the Anna N. Jackson Award from the American Society of Mammalogists for a paper on the social systems of black bears.

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