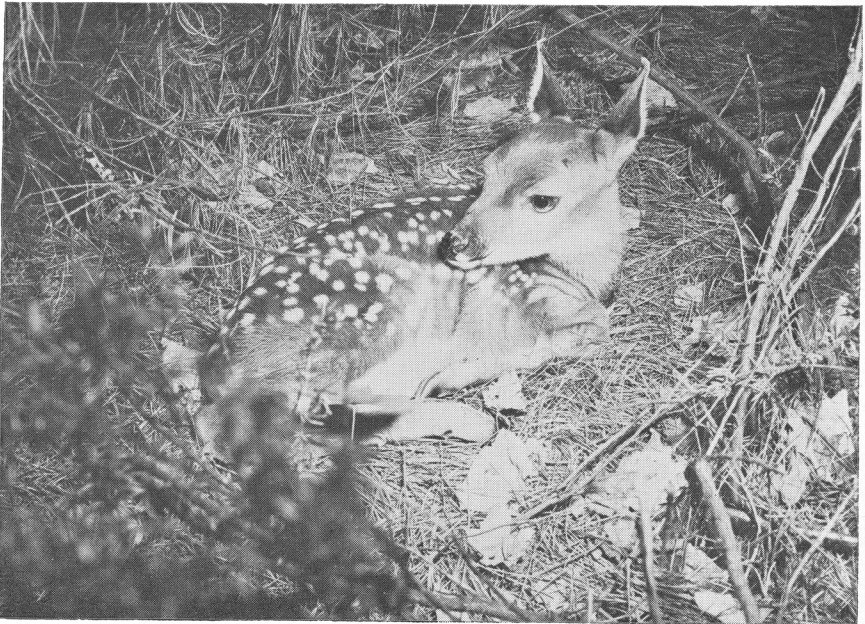




The whitetail deer is the most important game species in New Hampshire.



The fawns spend most of their time hidden in the weeds and brush until they are old enough to follow their mothers

Chapter VIII

BIG GAME

Whitetail Deer

The whitetail deer, *Odocoileus virginianus borealis*, is the most important game species in New Hampshire. Dressed weights of New Hampshire deer average between 65 and 180 pounds for bucks, and 60 and 120 pounds for does, although larger specimens are taken every year. The largest buck weighed in at an official checking station tipped the scales at 294 pounds, dressed the largest doe, 166. A weight loss of roughly 25 percent is allowable for dressing. As a measure of condition, weights, unless the age is also known, are without much meaning. At time of writing, data on weights by age class are being compiled for inclusion in the forthcoming publication on New Hampshire deer.

Throughout the state, some does reproduce as yearlings, but the percent of successful breeding is much lower in this age class than among older does. The average reproductive rate of 1.31 fawns per herd doe may vary with the sample from year to year, but any significant departure would be interpreted as reflecting a trend in the condition of the herd (see Chapt. VII).

By reason of this high reproductive rate, the age class composition, and other data gathered at checking stations during the hunting seasons, New Hampshire deer are adjudged to be in good condition. This is probably attributable in a large measure to the fact that taking of both sexes has always been permitted.

Concerning New Hampshire's method of harvest, Allen (1954) writes. "Standing somewhat apart, amid the pulling and hauling over the buck law, a scattering of states, such as Massachusetts, Maine, New Hampshire, Minnesota and Idaho, never protected does. They harvested deer irrespective of sex, confident in the quality of female venison and aloof to the morality of murdering mothers.

"To the unprejudiced, such states furnished ample evidence that under an any deer system of shooting, both hunters and deer would hold up.

"Quietly and without fanfare (New Hampshire) has been demonstrating for many years how deer should be cropped and handled. *

Dates of seasons in the various parts of the state depend on their position relative to a line dividing the state from east to west. All the territory north of the "deer line" is open during the month of November

*Quoted by permission of the author

DEER SEASONS, ALL COUNTIES EXCEPT COOS

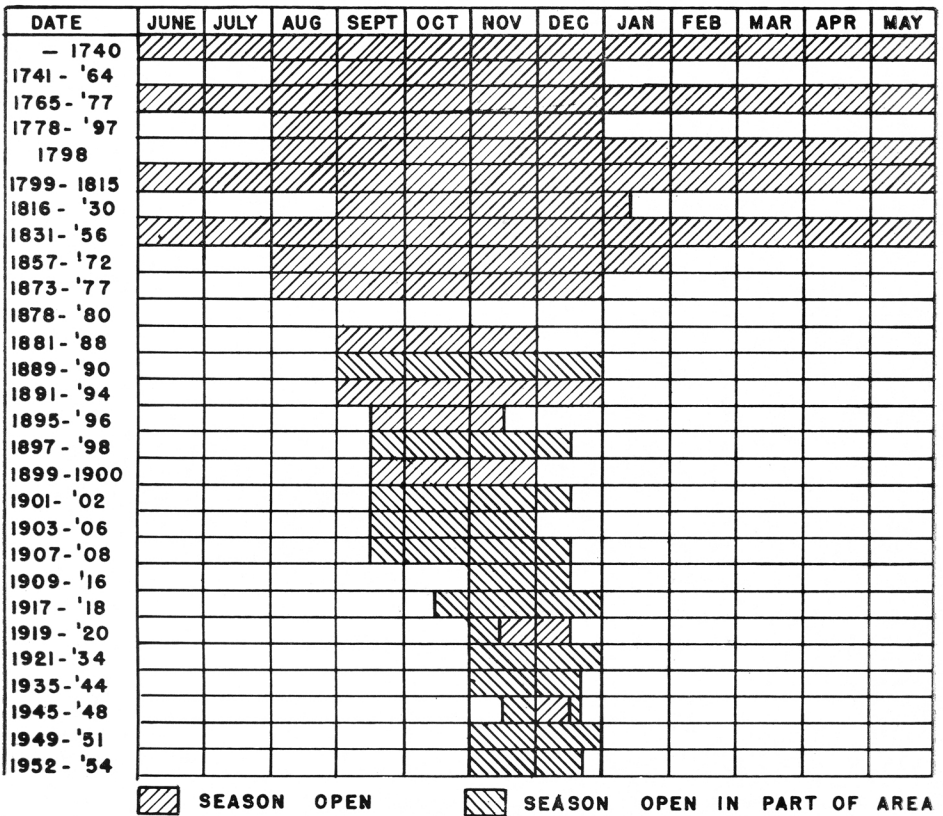


Fig. XV

Currently this includes the three counties of Coos, Carroll and Grafton. South of the line, the season is open during the first three weeks of December. Figs. XV and XVI show length and dates of all open seasons from 1740 through 1954.

Deer are now common to abundant in all parts of the state, with the exception of limited areas in the mountainous sections above the altitude of 2,000 feet. On a statewide basis they are more numerous than at any time since early Colonial days, although at present of more widespread and even distribution.

Southern Herds Up to 1830, by which time the state had been completely settled, the history of deer in the northern and in the southern portions is in almost direct opposition — chiefly because of the

difference in original forest types of the two regions, and the more severe winters of the north.

Differences in the history of northern and southern deer are graphically illustrated in Fig. XVII. Lack of numerical records prevents indicating abundance more specifically than by such terms as "absent," "scarce," "common," or "plentiful." Nevertheless, such graphic presentation shows more clearly than words the factors which caused variations in the history of deer in the two sections.

Before New Hampshire existed as a separate entity, both Morton (1637) and Wood (1634) wrote of the unbelievable multitudes of deer in central and southern New England. Morton speaks of over a hundred to a mile. It is not to be supposed that he meant the average population density was that great, but within a yard in winter such a sight might have been entirely possible. He says. " the does bring three fawnes at a time. "

Wood wrote that deer were kept in check only by the wolves, and also mentions that they generally had three fawns. (Today triplets are about as common as singletons.) Hunting in deep snow with dogs was recommended by both these early explorers, and "some by this means have gotten twenty Bucks and Does in a winter "

In southern New Hampshire deer were plentiful up to about 1700. Earlier than this date the effect of settlement was negligible. Although the first New Hampshire settlements were planted between 1623 and 1638, there were only four of them — Dover, Rye, Portsmouth and the Hamptons — and they were confined to a very small area close to the coast (See Fig. IV). No further settling took place until 1700, when a single additional township was established. From this date on, the graph indicates a slight decrease in deer up to 1740, by which time the south central part of the state had become more or less occupied.

Scarcely a Town or County history but is filled with references to the many deer found around the time of settlement, and their value to the pioneers as food and hides. At New Boston, Bedford, Barnstead, Boscawen, Webster, Swanzey, Pembroke, Walpole, Hollis, Goffstown, Windham, Haverhill, Bristol, Raymond, Peterboro, Plymouth, Sullivan, Dublin, Dover, Newport, Concord, Weare, and dozens of other communities, deer fed and clothed the settlers in great part. Saunderson (1876) says they were the most useful of all animals. The towns of Hancock and Littleton, alone, record them as present in limited numbers (Hoover unpub.).

In the neighboring state of Maine comparable abundance prevailed. "From data available on the history of these animals in Maine all records agree that their present numbers are considerably smaller than they were during pioneer days" (Aldous & Mendall 1941).

DEER SEASONS — COOS COUNTY

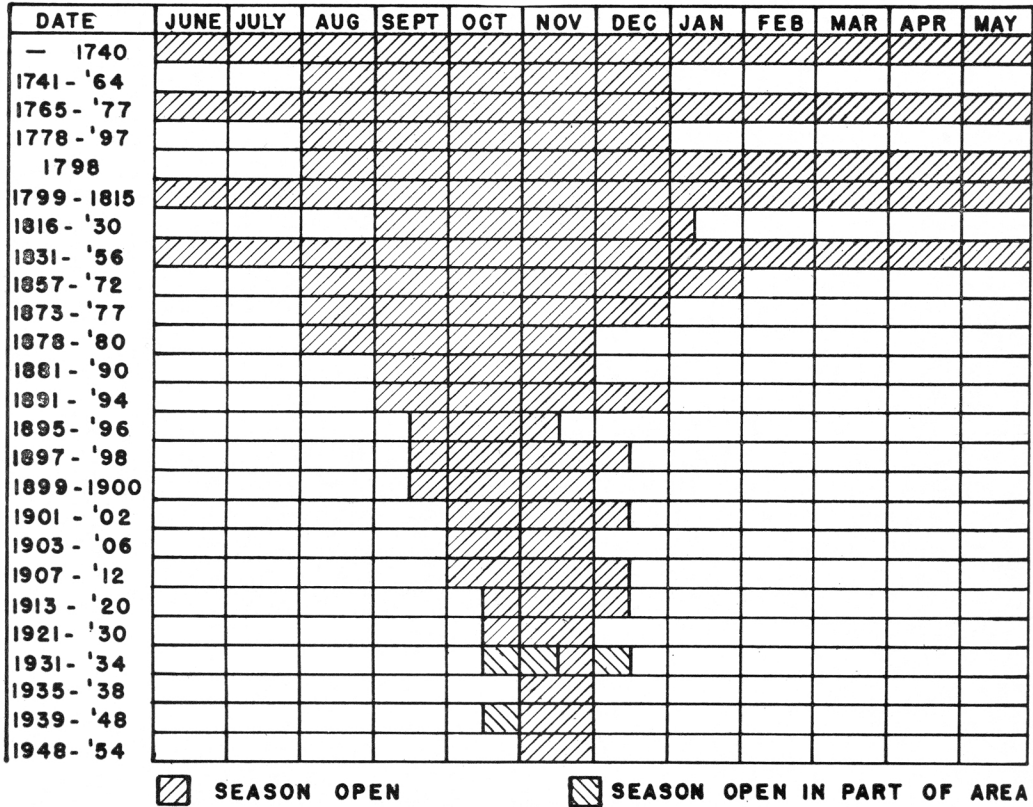


Fig. XVI

The innumerable records of their abundance, and the many uses to which they were put, leads the present writer to the conclusion that they must have been — except in the mature pine forests — even more plentiful in the southern New Hampshire counties than they are now. The history of colonization seems to support the theory that habitat was more favorable than generally supposed, and was capable of supporting deer in large numbers. Richards (1949) writes that deer abounded in the climax forests of central New England, and Hosley (1937) states. "It is interesting to note that in a study of the winter habits of the white-tailed deer in Massachusetts, it was found that of the eleven most-used species of food plants, nine were found in the older natural pine stands. In variety of these foods, the pine type was surpassed only

by old fields which had not yet reached the forest stage, and was equalled by the young hardwood and pine-hemlock types."

This would infer the possibility that deer inhabited to some extent even the mature pine stands which have generally been conceded as incapable of supporting them.

The early improvement of habitat resulting from the clearing of land was more than off-set by reduction of the herds to supply food for the rapidly growing colonial population. The consensus of local history is that deer, in appreciable numbers, lasted but a brief time after the coming of the whites. Following the occupation of the interior of New Hampshire, the decline of deer accelerated, and continued unabated up to 1878, when a completely closed season was imposed in the nine southern counties for a period of three years. Over the one-and-three-quarters centuries, while deer were decreasing almost to the vanishing point, the human population increased from 6,000 to 346,000.

Massachusetts placed a closed season on deer in 1698 (Shaw & McLaughlin 1951), but New Hampshire had been removed from the jurisdiction of the Massachusetts Bay Colony nearly two decades earlier, so that this regulation did not protect the deer of New Hampshire as it did those of Maine, which was still a part of Massachusetts. It was not until 1740 that a law was passed forbidding the taking of deer between December 31 and August 1. There were three periods thereafter (1765-1778, 1799-1816, and 1831-1857) when all protection was removed, and the state was wide open to deer hunting.

Neither the early restrictions nor their repeal can have had much influence on deer. When restrictive legislation was in force — insufficiently financed, and in the hands of local authorities — it was wholly inadequate, and, for all the evidence of history, completely ignored. In the hundreds of histories and records reviewed preparatory to writing this report, no single instance of prosecution for taking deer out of season has been found until after the establishment of the Fish and Game Department.

Closed seasons, in Colonial days, were as little observed as was, later, the no-Sunday-hunting regulation — a prohibition which remained in strictest form a part of the New Hampshire law from 1877 to 1942, when it became a matter of local option.

For lack of evidence of any interruption in the decline of deer from earliest times until they were given a chance to recover when the season was closed, we must assume that over-hunting was the prime cause of their near extermination. Nowhere over these years is there any record of a temporary improvement in the condition of the southern herds, which might have arisen from improvements in habitat. The

HISTORY OF THE NEW HAMPSHIRE DEER HERD — CONTRIBUTING FACTORS

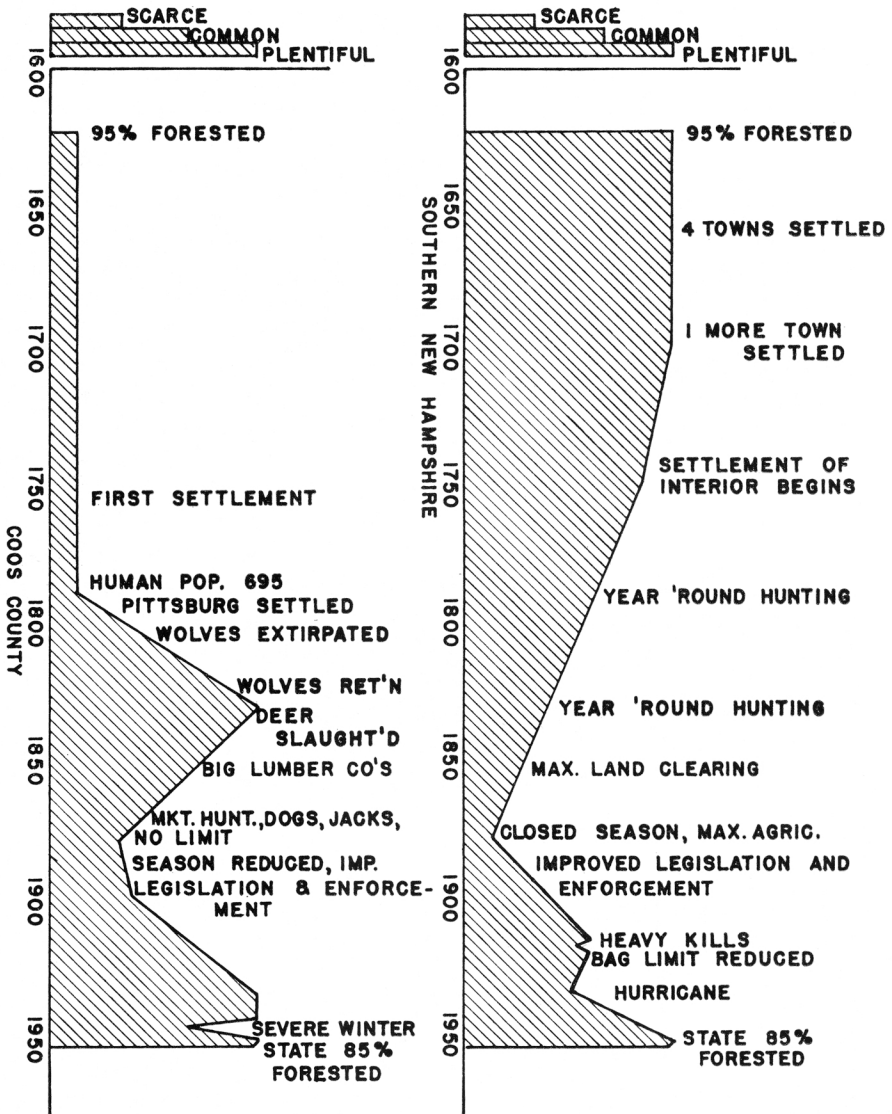


Fig XVII

additional feed provided by the small openings of the settlers was a drug on the market to an adequately nourished, but declining, population.

A slight, but definite, improvement is evident in the two decades following the closed seasons of 1878-1881. This period was also that of the most rapid farm abandonment, when old fields grew up to bushes and pine, and habitat kept pace with the expanding needs of the multiplying herds. The last years of the century saw many changes, all favoring an increase in deer — organization of the Fish and Game Department, employment of state wardens, the closing of Cheshire County in 1889, setting of bag limits, and gradual decreases, or partial closure of seasons. The seven most southerly counties were almost entirely closed from 1901 to 1907, and the opening of the season in the latter year failed to halt the impetus of the build-up which had commenced a generation earlier.

If we can rely on reports of damage which had been increasing for a number of years, culminating in the damage law of 1915, a minor peak was reached about this time. Heavy kills, however, produced a temporary set-back, from which the deer had recovered by 1919. Several old records indicate that the kill for that season was comparatively high, but tag returns were not required, so that these records are less reliable than those available after 1922.

It is unlikely that the peak of 1915 was comparable to either the present high or that of Colonial days. Although starvation had been mentioned among southern deer as early as 1900, the report should be received with some skepticism (Preble 1942). The winter of 1898-99 was severe and may have resulted in some mortality, since a certain amount of winter-kill is to be expected even in optimum habitat if the weather is sufficiently severe.

The losses of this winter were probably inconsequential to the over-all picture, and confined mostly to yards in the northern part of the area, in the counties of Grafton and Carroll — now classified as “north ern.” With a relatively low population, and habitat at least the equal of today’s, significant losses from starvation could only have occurred under the most unusual circumstances.

At the start of official record-keeping in 1922, the nine southern counties produced 63 per cent of the total harvest. Eight counties had a one-month season, but six weeks of hunting were permitted in Grafton. Except in Carroll County, the limit was one. Grafton, with two extra weeks of hunting, was producing less than four per cent of the state kill. Carroll, where two deer per hunter were allowed, was contributing about eight per cent. Reduction of the bag limit in Carroll County in

1925, had no appreciable effect on the continuous increase which had been evident under the previously more liberal regulation.

Rockingham and Cheshire started as the two highest producers, but in both counties reported kill was dropping with each successive season. In 1927, the season in Cheshire was cut to two weeks, but the drop continued.

Merrimack and Hillsboro Counties, comparatively low producers at the start, had been coming up, even as Rockingham and Cheshire fell, and the general trend of southern kills was upward until 1931

At this point something appears to have happened to the deer in the seven most southerly counties. Producing, only a year before, 54 percent of the entire kill for the state, in 1931 these counties contributed but 20 percent. The harvest of 1930 had not appeared excessive, and significant winter mortality is not only rare in this part of the state, but its probability is ruled out by the fact that Carroll, Grafton — and even Coos — Counties, where the weather is much more severe, turned in high kills.

License sales, which had slacked off with the Depression of 1929, were recovering. The season in Cheshire had just been reset at one month, which should have increased the take for at least this season, but Cheshire fell along with the rest.

That the sudden drop was due to something more than poor hunting conditions seems likely: reported kills tended to remain low for four or five years in most of these counties, even as the trend on a state-wide basis was rising. Cheshire, where the season had recently been lengthened, was an exception — in 1932 it nearly tripled its kill of the year before.

It has been suggested that during the Depression years, when there was little money for such luxuries as hunting licenses, a great need for food, and a good deal of leisure, an excessive number of deer — particularly in the more densely populated counties — may have been taken without ever appearing in the kill returns. One hunter, however, who remembers these days insists that very few hunters were encountered in the woods. Perhaps they had reason to avoid encounter. The writer remembers seeing eight illegal deer, shot in Merrimack County on Thanksgiving Day of this year by a single hunter, stored in the barn of a close relative.

In an effort to stem the tide, the season in the seven southern counties was reduced to two weeks in 1935 while in Grafton, which had shown a marked increase, it remained at one month. For some inexplicable reason (which must have been political, since Carroll was then the second highest producing county in the state) Carroll was included with

the seven low producers, and given a two-week season, which was again set at one month in 1939

The rapid rise in total kill returns for the state, apparent from about 1936, resulted at first chiefly from the contributions of Coos, Grafton and Carroll Counties, although signs of a general increase were present.

The most severe hurricane in the recorded history of New England, in 1938, devastated woodlands throughout New Hampshire. The blow-downs furnished unlimited food in all sections and brought some restrictions of hunting due to the fire hazard created. By 1940, effects of this disaster began to be very noticeably reflected in the legal kills, which for recent years have been approximately double those of the early '40's.

The influence of the hurricane seems to have been more strongly felt in the southern part of the state, and the high kills of the nine southern counties have been responsible for the tremendous recent increases in total kills.

Carroll and Grafton Counties, which bear greater similarity to Coos as regards topography and climate, were contributing heavily to the increase prior to the hurricane. The rise in these counties has continued, but at a less rapid rate than in the more southerly counties.

In 1945, the season in the seven southern counties was increased to three weeks, and four years later extended to a full month.

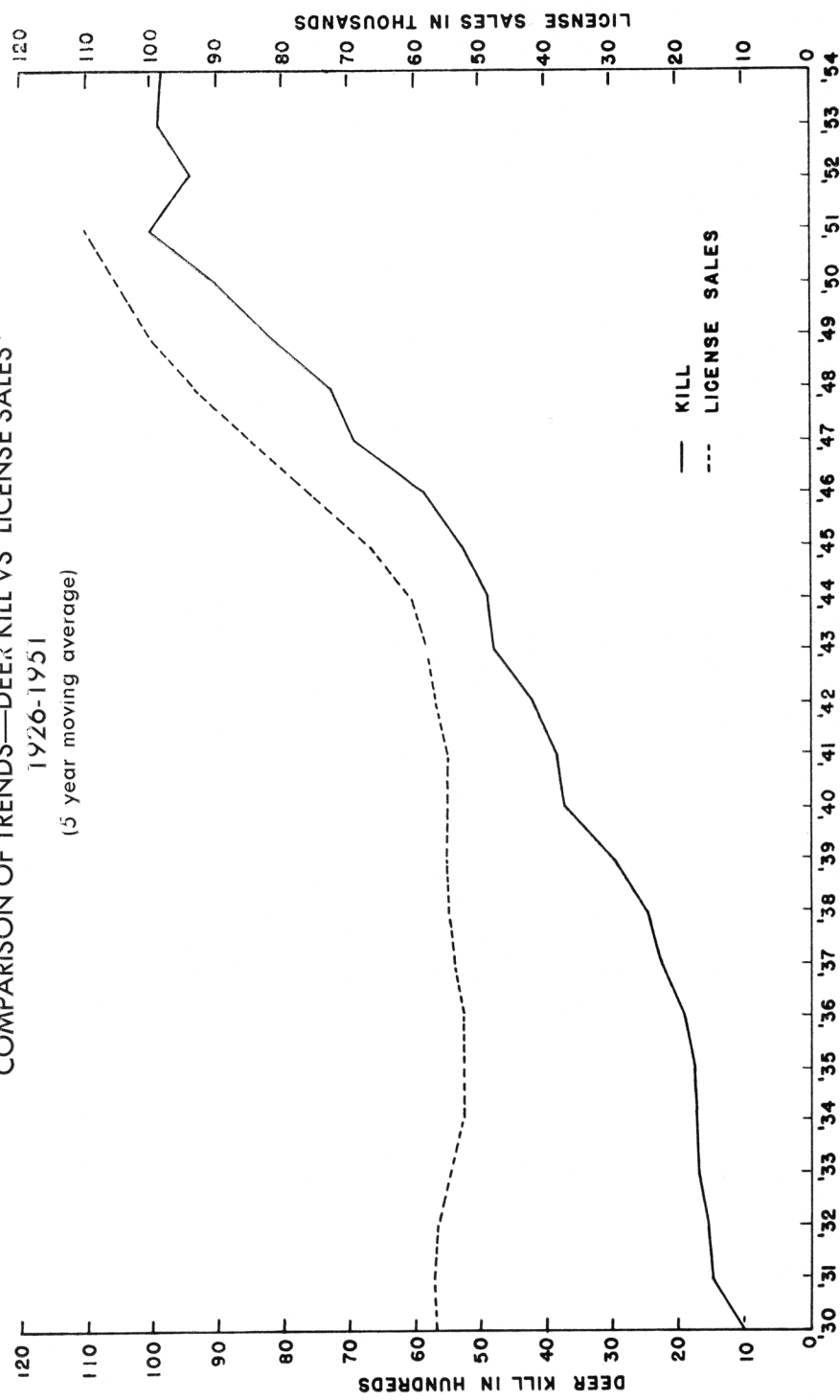
Peak production was reached between 1947 and 1955. In 1951 an all-time record of nearly 12,000 legal deer was reported. This was largely due to a combination of favorable hunting conditions, and there is no reason to believe that deer populations were necessarily higher than at other times during the peak period.

Recent returns show some indication that populations are leveling off, but this is not too clearly defined, and may be more apparent than real. Fig. XVIII, a comparison of five year moving averages of kills and license sales, shows that, from the first year of record, state-wide kills climbed steadily — at first, faster than did license sales. After World War II, license sales picked up rapidly, and kills kept pace there is a close parallel relationship between kill and hunting pressure until 1952.

In that year, for the first time, the trend of kill was down. In part this may have been due to rather poor hunting conditions, plus the shortening of the December season by one week, although similar changes and variations in the past have not been able to reverse the trend.

Another probable influence, tending to reduce the 1952 harvest, was the loss of some 3,000 non-resident hunters, presumably because of a \$5.00 rise in the price of non-resident licenses. Comparison of resident

COMPARISON OF TRENDS—DEER KILL VS LICENSE SALES*
 1926-1951
 (5 year moving average)



*Due to change in type of license in 1952, later figures for license sales are not comparable

Fig XVIII

hunting pressure, with previous years, is difficult due to the issuing of separate resident hunting and fishing licenses for the first time that year.

In the seasons which have followed, legal kills have approached that of the peak season, and in 1956,* the second highest kill of record was reported (See Table IX for reported kills from 1922 to date of writing).

The contrast between the kills of recent years and those of the '20's is impressive. In Merrimack and Hillsboro Counties the 1955 harvest represented increases of roughly 800 and 1,000 percent, respectively.

Despite the spectacular increase in deer, habitat is probably adequate in most areas for a much larger population than it would be advisable to maintain in the interests of agriculture.

The typical lumber operation of the lower half of the state is clear-cutting of small, widely-separated tracts, and is, on the whole, beneficial to deer. A higher percentage of total land area is now given over to forest growth than since earliest colonial times. While the quality of the forests, from the viewpoint of timber operators, is much reduced, they are now better suited to production of deer than the original forests.

Shooting of both sexes and long seasons have kept populations well within the carrying capacity of the range, except in a very few instances — notably at Bear Brook and Rattlesnake Island, where prohibition of hunting over a span of years has resulted in some overpopulation.

Northern Herds (Coos County) The history of the whitetail in Coos County presents a completely different picture up to the time a sizeable deer population build-up occurred following settlement. After this, trends similar to those of the southern areas are evident, although varying somewhat as to time and degree.

The relative scarcity of deer in Coos during Colonial days is the most outstanding example of critical factors, other than predation of man, in the annals of New Hampshire game. Here the decrease of wolves, plus the characteristic land use patterns, resulted in a large increase of deer.

Deer were reported by early trappers and explorers, but mostly from the Cohas Meadows in the southerly part of the county along the Connecticut River. Hurd (1885) speaks of the good deer hunting found by Wannolancet and his Penacooks in northern New Hampshire about 1675. Davis (no date) says that before settlement the country around Berlin was full of game including deer.

Both Kent (1888) and Dudley (1888) state that the Lower Cohas was plentifully supplied with them. An exploring party from Canada in

*Figures received too late for inclusion.

1787, and one from New Hampshire in 1789, reported Pittsburg (which occupies the entire northern tip of the state) to be a game paradise beyond anything existing in the lower parts — with broad meadows bordering its streams, huge pines growing along its principal waterways, and deer in plenty (Blanchard 1888). Blanchard also refers to the abundance of deer in the St. Francis Valley, only twenty miles north of the New Hampshire boundary, where they were hunted by the Indians of that tribe.

It appears that deer were not, at all times, the rarity they are generally assumed to have been. Without any doubt they had their ups and downs, dependent on the severity of the winters and the incursions of the wolves. Populations must have been subject to extreme fluctuations, and distribution spotty

After the Revolution, when civilization began to penetrate the northern regions, they were certainly rare, for, wherever deer are mentioned in local histories, their scarcity at this period is emphasized.

The spruce-fir forests provided somewhat less food than the pine-hardwoods of the south and central sections, although Richards (1949) points out that habitat in these northern climax forests was not too unfavorable. Referring to the increase in deer following settlement, he says "The theory that clearing of the forests was the principal reason for the northward movement does not appear to have a very sound basis. In the first place deer abounded in virgin forests in central New England that were probably no more favorable to them than the forests of the North Country. In the second place deer now thrive in many wild parts of the Adirondaks that approximate virgin conditions, with the same, usually climax, plant species present."

Both Richards and Siegler (1950-1) point out deep snows and wolves as two of the most important factors in limiting the deer in northern New Hampshire. The snows prevented the deer escaping the wolves, and had much the same effect as they do today when dogs kill deer in the yards.

The presence of deer in Coos has popularly been accredited to an invasion from the south. At the time they became common, populations in the lower part of the state were at a very low ebb, and habitat was more than adequate. It appears to this writer that an emigration to the north would have been contrary to the nature of the species, and, under the circumstances, completely unnecessary. They did not arrive by a slow spreading of their range, and such a spreading would not be the natural consequence of a reduction in numbers such as was taking place in the south.

Reports of deer in Coos prior to settlement, and the conviction that severity of winters and wolves were the limiting factors, leads to the

conclusion that the appearance of deer in the wake of settlement resulted from the natural increase of an indigenous population — never large, but at a particularly low level during the years when the settlers were arriving.

In Coos the early activities of the whites favored the increase of deer. Perhaps the greatest influence in this direction was destruction of the wolves which the settlers prosecuted with great diligence. By 1810 they were temporarily eliminated as a controlling factor (Siegler 1950-1, Weeks 1888), and clearing for farms and incident to lumbering, especially along the streams, produced plenty of feed for an increasing number of deer.

By this time deer had been rare in the southern regions for so many years that people had almost forgotten about hunting them. Many New Hampshire people moving north into Coos regarded deer as a curiosity, and little deer hunting occurred during the early years of occupation. Even after it became generally popular, many favored the deer and were opposed to unnecessary slaughter.

This seems to have been rather a reversal of the attitude of settlers in other parts, which may have come about from the fact that there apparently were no deer at first, and by the time they became common the dire need of the first few years in an unbroken land had passed.

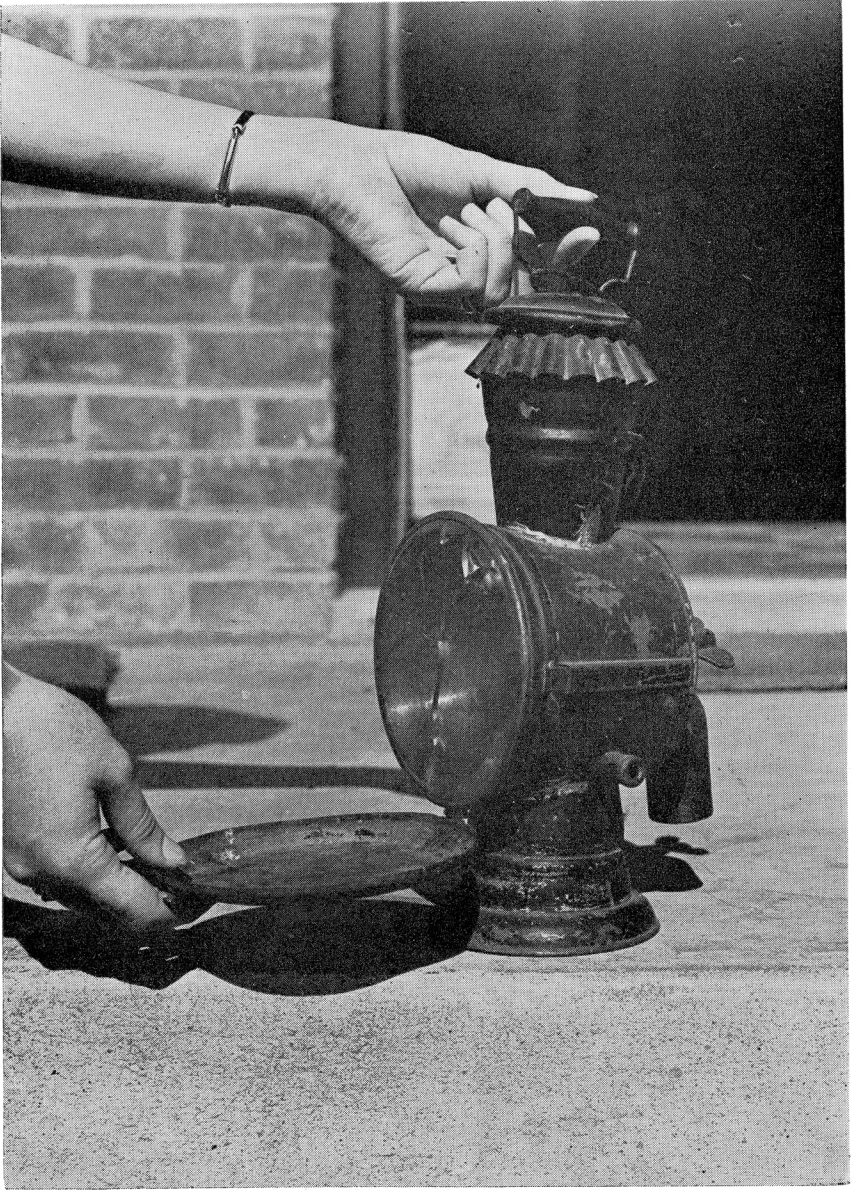
The first peak deer population in Coos County was reached about 1830, and at this time wolves returned, decimating the deer and causing great damage to domestic stock. Farmers, realizing that the deer attracted the wolves, made a concerted effort to exterminate both species (Weeks 1888).

The sharp drop in numbers which followed is indicated in Fig. XVII. Many persons killed 20 or more in the spring, and Allen Thompson, who came to Bethlehem to hunt, was known to have killed 100 deer in the course of a single year. Samuel Barker of Dalton killed 40 for market in one fall. A party of Massachusetts hunters took 13 in Dalton with the aid of dogs.

Ethan Allen Crawford hunted with dogs at all seasons of the year. In summer he attracted deer with salt, and in winter guided parties who cut the throats of deer in the yards, or allowed their dogs to kill them. Often the meat was left in the woods.

James Weeks killed 15 without difficulty within a mile of his home one winter. One method of hunting was to drive the deer into water with dogs, and pursue them in canoes (Hoover unpub.)

Jacking, a fairly recent innovation in the southern counties, was practiced from the earliest days of deer hunting in Coos, and was not outlawed until 1879. Around Lake Umbagog it was common to hear the



The Ferguson Jack,' manufactured for the sole purpose of jacking deer

sound of guns over the water all through the night, and to see at day-break a line of canoes returning loaded with deer

These practices continued until near the end of the 19th century. Before the invention of flashlights, torches were used for jacklights, later candles, protected from the wind by a box with a hole cut in it to emit light, became popular; and towards the end of this jacker's heyday, candles were superceded by bullseye lanterns.

A fellow who really prided himself in having the best could equip himself with an "Excelsior Lamp," or "Ferguson Jack." This lamp (see illustration) was manufactured for the sole purpose of deer jacking. It had a cover over the lens and a socket for a pole, so that it could be set in the front of a boat or canoe. It was particularly favored by jackers around the 2nd Connecticut Lake, who legally used it for taking deer when they came down to the shore to feed and drink.

Once the decline in deer had started it progressed without interruption. Lumbering was in its infancy at the time of the slaughter of 1830. Agriculture, in Coos, had at no time reached proportions detrimental to wildlife. The peak of agriculture (in 1890), when 13 percent of the county was under improvement, was far in the future. Improvement of habitat, which must have been in progress all through the period of decline, never succeeded in accomplishing an improvement in the status of deer.

All restrictions on deer hunting were removed in 1831, and the state was wide open until 1857, after which date an open season of five months was in force up to 1873. Between the latter date and 1878, the season ran for four months, and was then reduced in Coos to three, but this was not enough.

Northern New Hampshire had become a favored territory for market hunters and sportsmen, reached with comparative ease, thanks to the railroads. There was no limit to the number of deer a hunter might legally kill, and lumber camps, which had been springing up faster and faster since the middle of the century, were fed largely on venison. There was virtually no enforcement of the meager regulations that did exist.

As in the lower part of the state, over-hunting was unquestionably the cause for the decrease in deer populations during the middle years of the last century. Nor did the history of New Hampshire deer differ from that of the species in other parts.

Foote (1945) and Shaw and McLaughlin (1951) place hunting pressure in top position on the list of causes for near extinction of deer in Vermont and Massachusetts. Gordon (1941) says "Forty years ago Pennsylvania was a 'shot out' state, especially for deer—a deer was a curiosity. One of the first steps in Pennsylvania's wildlife restoration pro-

grams was to stop all market hunting. Next came the rigid enforcement of laws to stop poaching and prohibit the use of dogs in hunting deer ”

From one end of the country to the other, the story was the same as soon as any but the most sporadic settlements appeared. Of California, Longhurst (1953) writes. "The miners shot deer year-round for meat and hides and they altered the deer range by logging, burning, grazing and clearing. Some of these changes ultimately benefited the deer but the immediate effect of settlement was a marked decrease in deer numbers. Thirty-five thousand hides were shipped by a single firm in 1880. One hunter killed over 300 in a single year and a second marketed 120; a third killed 93 at a time when deer were already scarce. They were marketed by the wagon load."

It was not until the evils of jacking and snaring, hunting with dogs, and sale of venison were remedied, and bag limits established — all within the last decade of the 19th century — that any marked improvement in the condition of the Coos deer was experienced. Employment of state wardens, within the same period, to enforce the more stringent laws, was not the least of the benefits achieved.

For all the lack of control over hunting, the inaccessibility and sparse human population of the region had slowed down the rate of reduction in the north, and once the turning point was reached, recovery was faster because deer had never come so close to extirpation as they had in the southern counties. The present-century peak population seems to have been reached over a decade earlier in Coos County than for the state as a whole.

At the opening of the century the season was reduced to 6 weeks, and for the next 20 years the course of history seems to have run parallel to that of the south, with a slow general increase recorded in the Biennial Reports of the Fish and Game Department. If the peaks of timber production and pulpwood cutting in 1898 and 1907, respectively, adversely affected the winter range of Coos deer there is no evidence of it. There were vast forested areas untouched, or regrown from earlier cuttings, to furnish shelter and food for the still-comparatively-low populations.

When tag returns became compulsory in the early 1920's. Coos (still with a 6 week season, and a limit of 2) was furnishing about 37 percent of the state's legal kill, and for the next 3 years, until production began to climb in the south, its proportional contribution was even greater. Reduction of the bag limit to one, in 1925, had no effect on the harvest, reported kills continued to hold fairly steady for over a decade.

In 1935, the season was reduced from six to four weeks, and the next year the kill practically doubled. This was the beginning of the

modern peak for Coos, and it is interesting to note that it ante-dated the hurricane which appears to have given such a spurt to deer production in the rest of the state.

This sudden increase in kill may, or may not, be truly indicative of peak populations, however. License sales increased only moderately coincident with the jump, but the effect on hunting pressure of the road building programs of the WPA and CCC, which were active about this date, cannot be ruled out as an influence favoring a heavier harvest.

Reduction of the season only one year earlier can hardly have resulted in doubling of the deer population in one year. But that the reported kill, in some degree, represented the true status of the population, seems evident from the fact that Coos was able to maintain similar high harvests through 1943.

The slightly lowered returns for 1942 and '43, at a time when total state kills were definitely up, can probably be attributed to two causes (1) southern populations, which were reaping the benefits of the hurricane, kept state totals high, and (2) wartime restrictions on travel would naturally tend to reduce pressure in the more distant northern townships. Coos kills for neither year were so out of line as to cause suspicion that something was amiss.

The winter of 1943-44 was unusually severe, and many deer are known to have died in the northern yards. One conservation officer recalls that the next spring the odor of decomposing deer could be detected all up and down the Diamond Valley. Foresters in the White Mountain National Forest have confirmed this exceptional loss, which seems to have been sufficiently severe and widespread to cause a real drop in production.

Kill in Coos the following season was down about one-third. This is the first time that range destruction, which had been going on for some time in certain parts of the country, and which really began in earnest during World War II, can be demonstrated through harvest figures.

In many sections of Coos County where timber lands are owned by individuals, the characteristic lumber operations are similar to those of the south — presenting a patchwork of small areas of recent cuttings and reproduction in all stages of growth. As in the south, these operations are beneficial to deer.

There are, however, lumber companies in northern Coos which control huge holdings — sometimes comprising whole townships. The lands are mountainous and rocky, and construction and maintenance of roads is one of the heaviest operational expenses. Thus it is more profitable to clear-cut as large an area as possible, removing everything that can be marketed for any purpose, and then to abandon the roads until such time as regrowth again becomes merchantable.



Deer trail in a northern yard' Dark line is made by droppings



Overbrowse at Dummer Pond, one of New Hampshire's few problem areas. Note deer line.

This practice has resulted in overcutting, and has encouraged reproduction of hardwoods at the expense of the softwoods, particularly necessary in the north for winter cover. Large tracts of land, which provide an abundance of summer food, afford no winter shelter adjacent to food supplies.

Forests are cut faster than they can recover, and the large-scale reduction of softwoods forces the deer to concentrate during the winter in ever smaller areas. The higher the population in relation to the size of the available yarding area, the less food there is for any given individual. The effects of reduction of yarding areas are particularly noticeable in unusually severe winters, when the deer are confined to the yards for longer periods.

Following the hard winter of 1943-44, the kill in Coos County remained low for three consecutive years. By 1947 the herd had apparently recovered its previous level, although the next year the kill was down again. The 1948 low, however, coincided with a low kill for the entire state, which was only partially resultant on the severity of the previous winter.

Weather data show that the winter of 1947 '48 was disproportionately severe in the south, where winter mortality is rare, and it may be possible that there were fewer deer available to hunters in all parts of the state the following season. The principal cause for the low harvest of 1948, however, seems to have been lack of snow throughout both northern and southern hunting seasons, and the fact that opening days fell in the middle of the week.

There was a recovery in Coos by 1949, and through 1951 kills remained high. In the latter year, along with most of the other counties, Coos reported the highest kill on record. As stated earlier, this kill was as much the result of a combination of extraordinarily favorable hunting conditions as of a high population of deer. For both 1951 and '52, Coos resumed its former position as the highest producing county in the state, although because of recent tremendous increases in the other counties, Coos, for these years, contributed but 14 and 19 percent, respectively, of the total kill. For 1953, '54, and '55, Coos' proportional share of the total kill was high, and numerical values compared favorably with peak years.

Informative though they are, neither the proportional contribution to total kill, nor the numerical value of its kill, can alone be accepted as a reliable measure of the status of deer in any given county. Nor is the kill per square mile (often used as an index of production) much better.

A drop in the percentage of state kill contributed by any county may be caused either by a decrease within that county, or an increase in

the other counties. If it arises from the latter cause, it obviously does not mean that the status of deer in the county under consideration has deteriorated.

Many influences beyond the number of deer present affect the harvest for a given year. Opening of roads, economic changes, moving of the "deer line," length of seasons, bag limits, license sales, hunting conditions, and the day of the week on which seasons open are among the most important of these.

Kill per square mile depends not only on the amount of habitat, but its accessibility. The low kill per square mile in Coos County, for example, does not necessarily indicate low productivity for the deer habitat present, but only that much of the county is unsuited to either deer or hunting.

Only comparison, over a period of years, of figures for the county itself, will show significant changes or trends. Under such a comparison, Coos County harvests are seen to have held up well. That of 1955 was approximately 150 percent higher than the harvest of 1922. This is, of course, a far less spectacular gain than has been made in some of the other counties, but we must not lose sight of the fact that the first year of record found Coos much nearer to its peak production.

Weights of Coos deer at hunting time compare very favorably with those from other counties, and no significant difference in leg length, or antler beam length or diameter, has been demonstrated at time of writing. Considering the county as a whole, the status of Coos deer appears on a par with the rest of the state. How greatly this may be affected by the relatively small problem areas of the far north, or how soon, will depend on the rate at which the northern forests are cut.

The period of maximum benefit from lumbering in these particular areas is definitely past. Large additional cuttings are in prospect for the immediate future, and if softwood cover is removed to an extent where it can no longer support the number of deer present, a reduction of population and poorer hunting is inevitable.

As described in Chapt. VII, the Management and Research Division of the Fish and Game Department, in cooperation with lumber operators, is preserving as many as possible of the yards. Strips of softwood left standing along streams and in strategic areas will help retain a certain number of deer. The strips are necessarily small compared to the cuttings, and can not hope to support all the overflow from the cutover lands which the deer formerly occupied, but they should serve to maintain a breeding population which can expand as carrying capacity increases with regrowth of the forests.

TABLE IX
Reported Deer Kill, 1922-1955*

COUNTY	1922	Percent	1923	Percent	1924	Percent	1925	Percent	1926	Percent
Belknap	61	3.22	47	3.36	35	2.28	34	2.28	46	2.77
Carroll	189	9.97	161	11.49	170	11.06	180	12.05	195	11.71
Cheshire	251	13.24	193	13.76	200	13.01	145	9.72	198	11.89
Coots	696	36.71	467	33.31	677	44.06	588	39.38	496	29.79
Grafton	68	3.58	75	5.36	64	4.16	123	8.24	167	10.03
Hillsboro	109	5.75	96	6.86	60	3.90	96	6.43	125	7.51
Merrimack	171	9.02	141	10.02	129	8.39	126	8.44	169	10.15
Rockingham	234	12.34	145	10.35	115	7.48	119	7.97	145	8.71
Strafford	35	1.85	17	1.21	26	1.69	25	1.67	51	3.06
Sullivan	82	4.32	60	4.28	61	3.97	57	3.82	73	4.38
Unclassified**										
State	1,896	100.00	1,402	100.00	1,537	100.00	1,493	100.00	1,665	100.00

COUNTY	1927	Percent	1928	Percent	1929	Percent	1930	Percent	1931	Percent
Belknap	47	3.19	33	2.24	49	3.07	64	3.68	32	2.13
Carroll	235	15.86	239	16.21	221	13.83	202	11.64	277	18.45
Cheshire	148	9.98	122	8.28	170	10.63	162	9.34	92	6.14
Coots	392	26.47	505	34.27	462	28.91	576	33.20	693	46.17
Grafton	151	10.20	186	12.62	171	10.70	236	13.60	207	13.79
Hillsboro	135	9.12	87	5.90	156	9.76	144	8.30	28	1.87
Merrimack	165	11.14	114	7.73	115	7.20	151	8.70	48	3.20
Rockingham	108	7.28	78	5.29	73	4.58	39	2.25	14	.93
Strafford	32	2.16	32	2.17	46	2.88	55	3.17	29	1.94
Sullivan	68	4.60	63	4.27	76	4.76	106	6.12	45	2.98
Unclassified**			15	1.02	59	3.68			36	2.40
State	1,481	100.00	1,474	100.00	1,598	100.00	1,735	100.00	1,501	100.00

COUNTY	1932	Percent	1933	Percent	1934	Percent	1935	Percent	1936	Percent
Belknap	46	2.76	49	2.37	43	2.82	50	2.55	60	2.18
Carroll	182	10.91	360	17.44	235	15.40	418	22.70	440	15.99
Cheshire	233	13.97	194	9.40	135	8.85	192	10.41	328	11.92
Coos	466	27.94	721	34.93	577	37.81	678	36.81	1,246	45.29
Grafton	180	10.79	302	14.63	175	11.48	255	13.85	250	9.09
Hillsboro	115	6.89	113	5.47	78	5.11	49	2.67	91	3.32
Merrimack	162	9.71	123	5.96	94	6.16	63	3.43	142	5.16
Rockingham	53	3.18	53	2.59	39	2.56	34	1.86	35	1.27
Strafford	49	2.94	49	2.37	56	3.66	36	1.90	48	1.74
Sullivan	103	6.17	100	4.84	70	4.58	51	2.78	106	3.86
Unclassified**	99	5.94			24	1.57	19	1.04	5	.18
State	1,688	100.00	2,064	100.00	1,526	100.00	1,845	100.00	2,751	100.00

COUNTY	1937	Percent	1938	Percent	1939	Percent	1940	Percent	1941	Percent
Belknap	88	2.73	87	2.59	133	3.48	175	3.05	117	2.84
Carroll	537	16.69	595	17.69	546	14.29	784	13.66	600	14.55
Cheshire	364	11.31	382	11.36	469	12.28	793	13.82	399	9.68
Coos	1,206	37.48	1,016	30.21	1,257	32.91	1,460	25.43	1,427	34.57
Grafton	439	13.64	404	12.02	325	8.51	648	11.29	525	12.74
Hillsboro	116	3.61	192	5.71	230	6.02	442	7.70	158	3.83
Merrimack	132	4.10	225	6.69	277	7.25	485	8.45	285	6.91
Rockingham	78	2.42	175	5.20	204	5.34	419	7.30	131	3.18
Strafford	118	3.67	160	4.76	201	5.26	260	4.53	135	3.26
Sullivan	140	4.35	119	3.54	143	3.74	233	4.06	117	2.84
Unclassified**			8	.23	35	.92	41	.71	231	5.60
State	3,218	100.00	3,363	100.00	3,820	100.00	5,740	100.00	4,125	100.00

COUNTY	1942	Percent	1943	Percent	1944	Percent	1945	Percent	1946	Percent
Belknap	199	3.93	231	4.38	252	4.68	281	4.19	306	4.60
Carroll	716	14.17	729	13.82	638	11.87	847	12.63	943	14.18
Cheshire	480	9.50	481	9.12	653	12.15	821	12.26	861	12.95
Coos	1,361	26.94	1,289	24.44	816	15.18	917	13.68	816	12.27
Grafton	692	13.70	828	15.70	607	11.29	824	12.29	731	10.99
Hillsboro	335	6.63	269	5.10	455	8.46	575	8.58	545	8.20
Merrimack	425	8.41	439	8.32	630	11.72	765	11.41	857	12.89
Rockingham	222	4.40	227	4.30	420	7.81	688	10.26	657	9.88
Strafford	208	4.18	249	4.72	279	5.20	404	6.03	265	3.99
Sullivan	206	4.07	287	5.44	349	6.50	327	4.88	375	5.64
Unclassified**	206	4.07	246	4.66	276	5.14	254	3.79	293	4.41
State	5,050	100.00	5,275	100.00	5,375	100.00	6,703	100.00	6,649	100.00

COUNTY	1947	Percent	1948	Percent	1949	Percent	1950	Percent	1951	Percent
Belknap	525	4.96	405	5.72	601	5.86	577	5.45	563	4.75
Carroll	1,482	13.99	973	13.74	887	8.66	954	9.02	1,175	9.91
Cheshire	1,172	11.06	738	10.43	1,105	10.78	1,150	10.88	1,224	10.33
Coos	1,238	11.68	946	13.36	1,136	11.09	1,160	10.97	1,670	14.09
Grafton	1,350	12.74	808	11.41	1,220	11.91	1,256	11.88	1,450	12.23
Hillsboro	1,058	9.99	625	8.83	1,189	11.61	1,342	12.68	1,390	11.73
Merrimack	1,323	12.49	969	13.68	1,558	15.21	1,671	15.80	1,690	14.26
Rockingham	969	9.15	531	7.51	931	9.08	847	8.01	1,002	8.45
Strafford	548	5.17	430	6.07	619	6.04	517	4.91	615	5.19
Sullivan	507	4.78	340	4.80	606	5.92	577	5.45	683	5.76
Unclassified**	523	3.99	315	4.45	393	3.84	523	4.95	391	3.30
State	10,595	100.00	7,080	100.00	10,245	100.00	10,574	100.00	11,853	100.00

COUNTY	1952	Percent	1953	Percent	1954	Percent	1955	Percent
Belknap	232	3.18	498	5.21	402	4.30	476	4.62
Carroll	825	11.30	1,149	12.03	1,141	12.19	1,315	12.77
Cheshire	620	8.49	874	9.15	866	9.47	829	8.05
Coos	1,397	19.13	1,230	12.88	1,265	13.52	1,488	14.46
Grafton	1,067	14.62	1,821	19.08	1,724	18.42	1,708	16.59
Hillsboro	825	11.30	1,170	12.25	1,115	11.92	1,114	10.82
Merrimack	1,018	13.94	1,389	14.55	1,269	13.57	1,524	14.80
Rockingham	314	4.30	389	4.07	481	5.14	618	6.00
Strafford	217	2.97	357	3.74	311	3.32	490	4.77
Sullivan	417	5.71	640	6.70	734	7.84	713	6.93
Unclassified**	369	5.06	32	.34	29	.31	20	.19
State	7,301	100.00	9,549	100.00	9,357	100.00	10,295	100.00

*Figures listed under each year designate total harvest by counties and percent of state-wide kill.

**For some years "Unclassified" includes accidental and illegal kills.