

## SNOW AND GAME IN NORTHERN MICHIGAN

*Snow Conference*  
*12-12-41*

Northern Michigan, like Wisconsin and Minnesota, covers some 300 miles north and south and lies across the transition zone between light snow falls in the south and relatively heavy snowfalls in the north.

Our northern game areas begin at the northern edge of the southern agricultural region and extend north over the north half of the southern peninsula and the entire length and breadth of the upper peninsula. Over this broad region there exists a wide variety of snow conditions which affect game to a marked degree.

Snow depths, sleet, crusts, heavy snow falls, fluffy snow, wet snow, and other snow characteristics all have their effect on game movements, hunting conditions, availability of food and basically, of course, on populations of certain species.

Average snow depths range from a few inches to 6 feet or more during certain winters over the 300 miles of longitude covered by our northern game areas.

For general game management purposes this area can be divided into three regions. That portion of the lower peninsula lying within the northern game area can be called one region, although snows may vary in depth from a few inches in the south and along the great lakes, to two feet in normal winters and even jump to three feet in depth following severe storms on the higher elevations inland. The upper peninsula can be divided roughly into two snow belts separated by a line drawn diagonally from Iron Mountain to Sault Ste. Marie. North of this line snow may become up to 6 feet or even more in depth while south of the line three feet is excessive.

In the vicinity of the Great Lakes in both peninsulas snow depths are much less than farther inland. However, the effect of these large bodies of water seems to extend much farther inland about the borders of the lower peninsula than in the upper peninsula, probably because of differences in elevation.

The effect on game of these differences in snow depths is readily apparent in some instances. However, over much of the area and with most species the effect of snow depth is so inter-related with temperatures, availability of food, cover, population densities, game adaptability, tolerances, and recuperative capacities that the effect of any one factor may be obscured. Conversely, any one factor outstanding to the eye, such as snow depth, may be credited with much more effect on game than it actually deserves.

Cottontail rabbits are found scattered occasionally through the wooded areas, grouped about openings, and common in farming areas throughout the northern portion of the lower peninsula. They have now invaded the upper peninsula where a few years ago they were virtually unknown. True, they stick close to openings and prefer farm land but will they later move into the timbered tracts? Only time will reveal this.

Here is an animal that not so many years ago was considered mainly a farm game animal with the northern limits of his range somewhat coinciding with the southern edge of the deep snow belt. Now he is found on farm lands even in the deep snow belt of the Keweenaw Peninsula where snow often gets 5 feet deep. The question now is whether the lowly cottontail is adapting himself to more severe climate, whether or not the habitat is becoming suitable for him, or perhaps deep snows were not the major retarding factor after all.

The pheasant, a ground feeder, seems to be excluded by deep snow from this northern area but, who knows, perhaps some day one will jump up into a tree and find poplar buds as palatable as the ruffed grouse do - if this ever happens, then he may be destined to follow the cottontail north.

Prairie chicken, or pinnated grouse, for a while seemed to hold their own in deep snow areas. Recently, however, they have seemed to drift farther south decreasing where snows were excessive. It is thought by some observers that these birds, known to bud to a certain extent, are somewhat dependent on weed seeds

or grain. While they may become temporarily established in deep snow areas a series of severe winters may tend to drive them to milder climates.

Sharptail grouse, a bird similar to the prairie chicken, is also present in the upper peninsula, having moved in from the west in recent years. It has been planted in the lower peninsula where increases have been reported. This bird, a winter "budder", seems well adapted to deep snow areas where some considerable openings exist but will live in areas much more wooded than that required by prairie chicken.

The ruffed grouse, of course, is native to this northern game area. It is perfectly at home in this region, though its numbers fluctuate in somewhat cyclic fashion. These fluctuations do not coincide with light, moderate, or severe winters. It, therefore, seems safe to assume that variation in snow depths has little or no effect on this famous game bird.

All three of these members of the grouse family have the habit of diving into deep snow to spend the night. Tales and rumors have been circulated for years that this habit contributes to population cycles among these birds. The theory is that the birds dive into the snow in the evening, and if conditions are just right during the night, a rain or sleet storm forms a heavy crust over them which they are unable to break. Consequently they smother, starve, or freeze to death in their snowy prison. Although this belief is wide spread, no authentic record of such an occurrence can be found. Game men are inclined to be skeptical on this subject and feel that, while such conditions might be possible, it is doubtful if it ever occurs over sufficient areas to materially effect populations.

Sleet covering buds or ice covering ground food often have been thought by some to cause wide spread starvation among the grouse. However, it is doubtful if these conditions exist in a sufficiently complete manner, over large enough territories or continue for long periods to cause the wholesale, widespread, starvation so often attributed to accompany them.

Another story believed by some is that when heavy crusts form during the day grouse attempting to dive into the snow in the evening break their necks. Game men are rather skeptical about this story also, as no substantiating evidence has been reported.

The snowshoe hare, like the ruffed grouse, is a true native of deep snow areas. This animal is peculiarly adapted to the conditions existing in this region. Hare populations are cyclic but these cycles do not coincide with variations in snow depths. Fitted as these animals are with snow shoe-like feet, traveling in all types of snow is made relatively easy. Only when and where food is scarce and deep snow covers more and more of what little is available does snow depth appear to have an appreciable effect on hare populations.

Bear are little effected by snow. From bear kill records it appears that bear may hibernate at about the same time each fall, regardless of snow or other weather conditions. After hibernation, of course, variation in snow conditions and depth probably effects this big game animal very little.

Deer are probably effected more by variations in snow conditions than any of our other northern game animals. They change their range each spring and fall because of changes in snow depth. They cannot travel freely in snow depths greater than two feet. Snow more than three feet deep generally restricts them to very limited areas in heavy cover except where large numbers are present to keep trails broken open to new feeding sites. Most severe conditions occur when heavy falls of light fluffy snow stay in a light, loose condition for long periods. Traveling in this type of snow is very difficult for deer. Instances have been observed where deer leaving the packed runways would sink into the snow until only their head protruded. Under such conditions of restricted travel food supplies available to concentrations of deer are soon exhausted and although the older deer may have sufficient stamina to break trails to new food, fawns just pass out of the picture. Thousands of young deer have starved in the deep snow belt of the upper

peninsula under these conditions.

As this fluffy snow settles and becomes more firm because of warm weather or other factors, traveling becomes less and less difficult for deer. Packed trails begin to appear and soon if other storms do not occur deer are again moving freely about their winter range on a network of runways. When the food that can be reached from these packed runways is consumed it becomes necessary to break trails to new food supplies. If food supplies are available and snow conditions favorable then no trouble ensues. If, however, snow is deep and fluffy or covered with an icy crust not sufficiently strong to support a deer and additional browse is not closely available then starvation results.

Sometimes extremely heavy crusts aid rather than harm the deer. In heavily browsed deep snow areas where food is difficult to reach heavy crusts on which deer can walk often put deer up among the lower unbrowsed branches and thus make a new supply of food available.

Heavy wet snows often break down branches and even trees making available food that would otherwise be out of reach. To obtain ground food deer will sometimes paw down through two feet of snow but ordinarily one foot of snow is enough to stop most pawing.

Ice or sleet may sometimes almost completely coat all browse available to deer. The question has been raised as to whether or not eating a large quantity of ice with the browse may not cause severe digestive upsets. Again here is a possibility with no definite proof.

In the lighter snow depth areas conditions differ somewhat. In general as the average snow depth decreases towards the south, deer populations increase resulting in the same delicate balance or unbalance between snow depths and populations with starvation resulting where conditions become severe.

Another weather condition thought to effect deer is a prolonged period of wet snows and rain in areas where food is scarce, followed by a severe drop in

temperature. This is thought by some observers to cause serious outbreaks of pneumonia among half starved deer. If losses occur from this combination of conditions it is difficult to say whether snow, temperature, lack of food, or lung worm infestation is the major contributing factor.

Michigans deer mortality from deep snow and food shortages during normal and severe winters has been estimated at upwards from 20,000 head.

A phase of this northern or forest game or recreation that receives all too little consideration is hunting fox, bobcat, coyotes, and even timber wolves. This probably cannot be classed under game but certainly would come under recreation.

There probably is no sport that will take a lone hunter back to the enjoyment of primitive hunting methods more than still hunting fox on 6 to 10 inches of fresh light snow. This may be on snowshoes on 3 feet of old snow with the fresh fall on top or just on feet with only the new fallen snow to wade through. This is primitive sport and a hunter glories over the fox that he was quiet enough to surprise in its bed. A good snowshoer is supposed to be able to tire a fox out and run him down in less than a day in the right kind of deep light fluffy snow.

Of course the old sport of hunting fox, bobcat, coyote, or wolves with dogs is considered "tops". In the northern snow areas this sport has many variations, too many to discuss here. However, the various snow conditions and depths effect this sport tremendously. The animals leave little scent in cold snows, deep snow makes many areas inaccessible, crusts and very cold snows cut dogs feet, wet snows make going tough for animal, dog, and man. And so on and on the discussion goes. But that is not "game" in the true interpretation of the word and probably has no place in this part of the program.

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