

WINTER STORM-RELATED MORTALITY OF PHEASANTS IN ILLINOIS, 1977¹

Richard E. Warner
Section of Wildlife Research
Illinois Natural History Survey
Urbana, Illinois 61801

and

Larry M. David
Illinois Department of Conservation
Gibson City, Illinois 60936

ABSTRACT

A winter storm of exceptional severity occurred throughout most portions of Illinois during January 1977. After the storm, 49 pheasants found frozen in Ford, McLean, and Iroquois counties were autopsied. Forty (82 percent) of the specimens had principally corn and soybeans in their crops; 39 (80 percent) had substantial reserves of visceral fat. Weights of adults and subadults were within normal ranges for overwintering pheasants in Illinois. Counts of pheasants on areas of investigation in the east-central portion of the state indicated that from one-half to two-thirds of the pheasants succumbed.

INTRODUCTION

Winter storms are known to limit populations of pheasants in many Plains and Prairie states (Green, 1938; Miller, 1948; and Kimball et al., 1956). However, mortality of the magnitude recorded in Illinois during 1977 has been rare in this state, even though the east-central counties, where numbers of pheasants are greatest, are farmed intensively for corn and soybeans and winter cover is scarce. Losses of pheasants to blizzards were noted in 1948 (Robertson 1958:21), 1964 (unpublished data), and have no doubt occurred in other years. However, Robertson (1958:21) concluded that due to mild winter weather, "Pheasants in east-central

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Illinois . . . appeared to be far more tolerant of the near absence of heavy winter cover than was the case in other Midwestern areas." Labisky et al. (1964:12) observed: "Losses of pheasants to winter weather in the Lake States, which include Illinois, are usually much less severe than in the Plains and Prairie States because prolonged periods of deep snow and low temperatures are less frequent, and food in the form of waste grains is generally abundant . . ." Anderson (1972:489) stated: "It appears that pheasants wintering in east-central Illinois experience little difficulty in fulfilling their energy requirements."

In January 1977, weather conditions of extreme severity prevailed in most areas of Illinois. Temperatures for December 1976 averaged -21.3°C colder than normal in the east-central portion (U.S. Department of Commerce, 1976:3), and temperatures in January 1977 were -26°C below average (U.S. Department of Commerce, 1977:3). The Illinois Water Survey (1977) described the January weather conditions as follows:

"January 1977 in Champaign-Urbana was extremely below normal in temperature, below normal in precipitation, and extremely above normal in snowfall . . . This was the coldest January on record since 1889. Three record lows were set during the month which included -12 , -17 , and -10 on the 11th, 16th, and 17th, respectively. Thirty-four days, including the last 3 days of December and all days in January, had maximum temperatures below 32 degrees. This is a record period of time in which the temperature never exceeded 32 degrees. The total precipitation for January 1977 was 1.31 inches, 0.84 inch below normal. Snowfall totaled 18.8 inches, 13.7 inches more than normal, which makes this past month the snowiest January since 1903."

Severe storm conditions were recorded for 27-29 January. During the late evening and early morning, 27-28 January, up to 20.3 cm of snow fell in east-central Illinois with an accumulated total of 33.0 cm of snow on the ground (U.S. Department of Commerce, 1977:11). Temperatures plummeted below -26.1°C in early morning of 28 January; and, winds in excess of 69 km per hour caused extreme wind chill factors and blowing snow (U.S. Department of Commerce, 1977:1,7).

FINDINGS

After the severe storm, 49 frozen pheasants were collected in Ford, McLean, and Iroquois counties in east-central Illinois. Ice and snow had accumulated in their throats and around the eyes, nostrils, and beaks. The birds apparently succumbed while roosting in plowed ground, stubble fields, and other areas of little or low herbaceous cover.

A tentative estimation of the magnitude of the storm-related mortality is possible. On a 16-square-mile area on which roadsides are seeded and pheasant abundance is routinely monitored, the Ford County Management Unit (FCMU), a helicopter census conducted 20 January 1977 showed an average of 30 pheasants per square mile. Subsequent to the

storm of 27-29 January, 31 of the 40 miles of roadway on the FCMU were driven in a search for frozen birds. Twenty-seven frozen pheasants were sighted from the roadway. Thus, 5.6 percent of the population counted from the air one week before the freeze was confirmed dead. Because the portion of the total land area in the 16 sections of the FCMU that could be canvassed from the roadway is small, it is logical to assume that more than 5.6 percent of the population may have succumbed.

Statewide, cock call counts were one-third lower in May 1977 than in the previous spring. Cockcall counts during May 1977 on five areas, which included the FCMU, in east-central counties (Champaign, Ford, Iroquois, and McLean) showed a decline from the previous year of 38 to 80 percent. The audio census on the FCMU indicated a decline of 69 percent in the spring population whereas visual counts in May suggested an 81 percent reduction. Poor reproduction by pheasants on the FCMU in 1976 apparently contributed to lower populations observed in May 1977. Nest studies conducted for 1976 indicated 14 percent fewer hatched nests on the FCMU than in 1975. On the assumption that the decline in numbers of broods on the FCMU in 1976 was reflected in the spring census of 1977, the storm-related kill may have accounted for approximately 54 (69 minus 14) to 67 (81 minus 14) percent of the reduction recorded in May 1977, depending on whether the audio or visual method, respectively, is most accurate.

Storm-related mortality was apparently widespread; biologists with the Illinois Department of Conservation observed frozen pheasants in 20 different counties located primarily in the east-central and north-central portions of the state.

Forty (82%) of the 49 frozen pheasants collected had principally corn or soybeans, or both, in their crops; 35 (80%) had substantial reserves of visceral fat. Weights (Table 1) averaged 966 g for 21 adult hens, 947 g for 17 subadult hens, 1,345 g for 4 adult cocks, and 1,264 g for 7 subadult cocks.

Table 1. Weights of pheasants found frozen in Ford, McLean, and Iroquois counties after the storm of 27-29 January 1977.

Sex	Age	Number	Weight in Grams		
			Range	Mean	± Standard Error
Female	Adult	21	800-1,090	966.3	± 84.85
	Subadult	17	763-1,100	946.7	± 103.34
Male	Adult	4	1,248-1,480	1,345.3	± 99.03
	Subadult	7	1,008-1,380	1,263.7	± 130.86

DISCUSSION

Robertson (1958:18-19) concluded that over the period of 1946-51, "Illinois pheasant populations appeared to be entirely free of the threat of winter starvation, which . . . has sometimes taken a heavy toll in the Plains states." In the 30 years since that conclusion was drawn, land-use practices in Illinois have become progressively deleterious to ringneck populations. Increased efficiency of grain harvest, in conjunction with extensive fall plowing, has lessened the availability of waste grains and protective cover for the overwintering pheasant. The Illinois Cooperative Crop Reporting Service (unpublished data) determined that approximately 80 percent of the farmland in the east-central counties was plowed by 1 December 1976. Although intensive row crop farming has expanded, our findings are in agreement with Robertson's (1958) conclusion. The fact that 40 (82 percent) of the 49 frozen specimens collected in 1977 were found to have food (principally corn and soybeans) in their crops suggests that in the prime range of Illinois pheasants find scattered grains even under extreme weather conditions and after fall plowing. The average weights (Table 1) and visceral fat reserves indicated good general physiological condition. Mean weights (both sexes) of the 49 specimens were within normal weight curves for overwintering pheasants in many Midwestern and Plains states (Edwards et al., 1964:273). In fact, the average weights of both sexes in 1977 were greater than the mean weights of 854 g for hens and 1,170 g for cocks noted by Anderson (1972:459, Table 1) for the winter months in east-central Illinois during the late 1960's. Anderson (1972:491) concluded that health and survival of overwintering juvenile hens in Illinois would not be seriously affected unless body weights were reduced below an average of 690 g.

SUMMARY

The scarcity of cover for the pheasant during the winter in Illinois has rarely been a factor that limits the abundance of the ringneck. Winter conditions for ringneck populations in Illinois' prime range leading up to the January 1977 blizzard were characterized by lower-than-normal temperatures, above-average snowfall, and extensive fall plowing. Yet there was no evidence of food shortage or physiological stress in the frozen specimens examined. However, the lack of protective cover was a great detriment to pheasants in late January, when extreme blizzard conditions occurred. With the prevailing snowfall and very low temperatures of 27-29 January, exposure to the severe chilling effects of the high winds ultimately caused a majority of the pheasants in the prime range to succumb.

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