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MICHIGAN DEPARTMENT OF CONSERVATION
Game Division

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Lead Shot Survey in the Swan Creek Marsh
by Charles E. Friley, Jr.

Canada geese died in the spring of 1961 from ingested lead shot on West Gilkey and Indian Lakes in Barry County and on the Grand Haven Marshes in Ottawa County. The Swan Creek Marsh in Allegan County, one of the goose concentration areas of the lower Kalamazoo River in both spring and fall, is at the base of the Highbanks Goose Shooting Area on the Swan Creek Wildlife Experiment Station. From 1953 through 1961, between 8,500 and 14,000 daily permits were issued annually to Highbanks hunters who fired between 58,000 and 118,000 shells annually at Canada geese leaving the Swan Creek Marsh. We have never found geese dead from ingested shot in the Marsh.

With such a potential for building up a lead shot situation in the bottom land below the Highbanks, it was suggested that a check be made to determine the actual incidence of lead shot in the marsh. Accordingly, we requested the statistical section of the Game Division to provide us with a design for sampling in the marsh so as to cover the area out to 400 yards from the Highbanks shooting line. "One hundred and fifty sampling points were established, but it was found that only 21 of the sampling points were located in the marsh type of vegetation. The remaining 129 points were located in upland hardwoods or thick lowland brush. These latter points are not located in areas frequented by geese, so this system was not used.

"I collected bottom samples with an Ekman dredge in the areas which were within range of the hunter's guns and which were accessible to geese. Samples were collected in the bayous from south to north at a uniform interval (Fig. 3). Two dredge loads were examined at each point. The contents of the dredge were emptied into a sieve made of house screening reinforced with $\frac{1}{4}$ inch hardware cloth and washed with water. The bottom soil consisted of soft mud and decayed vegetable material. No difficulty was encountered in separating the lead shot from the soil." (Kurtz, John E. 1962. An analysis of gizzard contents from migrant geese in southwestern Michigan. Master's thesis. Univ. of Mich., 52 p.).

Kurtz (op.cit.) found "an average 7.46 shot per square foot in the soil of the refuge in the area which is less than 400 yards from the shooting line". He sampled 18 points in the Marsh and found shot in 10 of the first 11 plots and no shot in the 7 remaining plots. His Fig. 7 shows the location and results of the sampling.

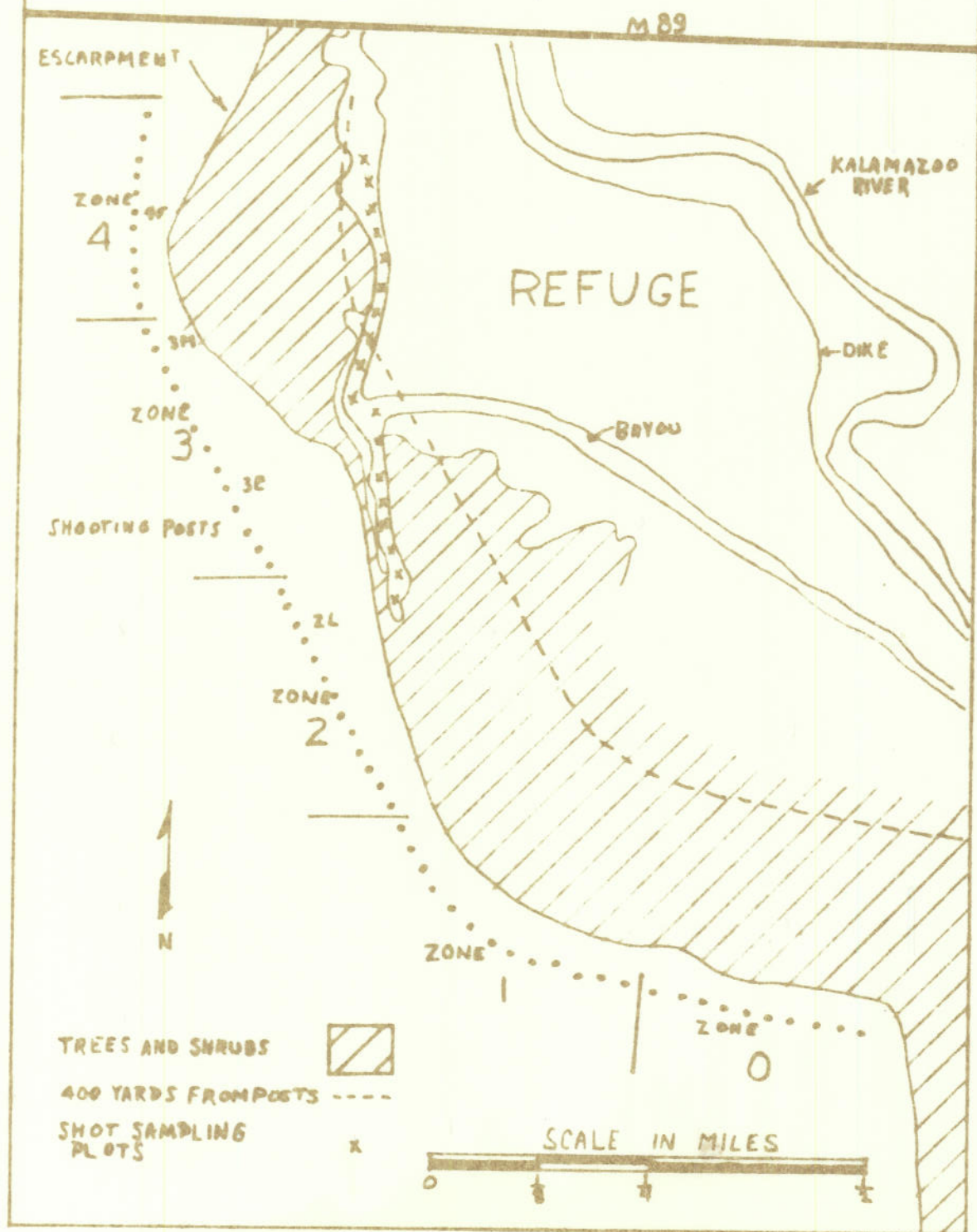
The concentration of lead shot within 400 yards of the Highbanks is heavy but there is a relatively small portion of the marsh accessible to geese within this 400 yard zone. Much of the accessible area is covered with water to such a depth as to require the geese to become completely submerged to reach the bottom. This they seldom do. Finally, Kurtz (op. cit.) concluded from gizzard analysis that geese do not feed in the marsh at night or in the morning before they fly to the feeding area. The gizzards used in his study were taken in the fall. My own observations confirm his findings. Since many more opportunities

for feeding in grain fields and in winter wheat and rye pastures are available in the spring than in the fall, I believe there is no reason to believe that geese feed in the marsh more in the spring than they do in the fall.

CHF:dja
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LEAD SHOT SAMPLE AREA
IN
SWAN CREEK MARSH

(FIG 3)



FROM KURTZ 1962