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Biological Science

THE HAWK PASS AT DULUTH

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ABSTRACT

It was not until 1946 that birders realized that a hawk flight of considerable size passed over the city of Duluth. The mass slaughter which characterizes good hawk flights first brought attention to the migration, and for several years the prevention of this killing was the first goal of Duluth ornithologists. It was not until 1951 that any effort was made to study the flight. Then, at the request of the United States Fish and Wildlife Service, a census was made of the migrating hawks on the second and third weekends of September; 8977 hawks of 14 different species were counted. In 1952 and 1953, counts were again held on the second and third weekends of September, with respective totals of 13,123 and 7220 hawks. Over the three years we have identified 18 different kinds of hawks using the flyway.

Our study, by necessity, has been limited largely to what we could determine on the census days, and so an understanding of this flight also has been quite limited. Several questions, however, have arisen, and these indicate great future research possibilities:

- 1. What is the source of our flight?
- 2. Where does the flight begin its convergence on Duluth?
- 3. Why does this flight converge on Duluth?
- 4. What happens to the flight after it leaves Duluth?
- 5. How consistent is the flight?
- 6. What is the period of hawk migration, and when does it reach its peak?
- 7. What effect does the wind have on the flight?
- 8. At what heights do the hawks fly when migrating?
- 9. Is there any segregation into age groups, sexes, and species?
- 10. Is there any relationship between the hawk flights and those of other migratory birds?
- 11. Just what plumage changes do occur in those hawks whose plumages puzzle us?
- 12. Will there be any value beyond academic knowledge to a study of the flyway?

To these questions we have ideas and partial answers, but the surface has only been scratched. This paper has been given with two purposes in mind: (1). to bring before the Academy the fact that such a hawk flight exists, and (2). to use it as one means of pointing out that the research possibilities in Minnesota natural history are exceedingly great, and that it should be the aim of the Academy to promote and stimulate such research.

TREE PLANTING IN LOWER MICHIGAN SANDBLOWS

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A distressing feature of the landscape in northwestern Lower Michigan is the ever-present sandblow ranging from a few square feet to hundreds of acres in size. These sandblows are not the moving dunes of the Lake Michigan shore, but lie inland, and are the result chiefly of destructive agricultural practices.

One such sandblow covering some 600 acres is on the Manistee National Forest in Big Prairie Township, Newaygo County, Michigan. Unless controlled, this sandblow would continue to encroach further and further on productive land. Because this was the largest and most spectacular of the many sandblows in this locality, and because it was largely in Forest Service ownership, the Lake States Forest Experiment Station in cooperation with the Manistee National Forest, began studies in the spring of 1938 to determine the best means of controlling it.

THE BACKGROUND

When the first settlers came to Michigan, they found several natural prairies ranging from about 80 acres to nearly 25 square miles in size in the southwestern part of the State. These prairies occurred on glacial outwash and coarse valley fillings deposited during the Wisconsin stage of the Pleistocene Age. The fact that these natural prairies had developed relatively thick deposits of organic matter through the decomposition of countless generations of grasses and other herbaceous vegetation, and that they did not need to be cleared for agriculture, made them highly prized for such use.

History of Big Prairie. Big Prairie, which is the most northerly of the natural Michigan prairies, was the first area to be put into cultivation in Newaygo County. At first good crops were produced, but before many years the action of the wind had begun to cause shifting of the exposed sandy soil. In those early days, farmers did not know how to control wind erosion by cultural practices, so gradually they abandoned their fields and went elsewhere.

One farmer apparently realized the value of windbreaks, but too

¹ Maintained at St. Paul 1, Minn. by the U. S. Department of Agriculture, Forest Service, in cooperation with the University of Minnesota.