

obstacles, in a 16 x 8 foot maze set up with about 450 glass vials which were easily knocked down when struck by a running shrew. The data is presently being treated statistically.

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Effect of Visitors on Alpine Ecosystems in the High Tetons
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Project Number 90

In general, the work done during the summer of 1960 was a continuation of that done during 1959. Essentially no new projects were initiated, although some of the earlier work was expanded. General observations were made of visitor usage and of the activity of large mammals. More intensive and detailed studies were made of the vegetation, soil and atmospheric properties of selected "natural" sites and of the properties of trails and campsites under varying degrees of usage, including some enforced "non-usage" by the establishment of exclosures.. Some additional plant collections were made.

Summary of Specific Projects

1. Soil Moisture and Temperature Studies. Biweekly collections were made of the surface four inches of soil in the major study sites. These were weighed at the time of collection and it is intended to determine their oven dry weight and water holding capacity when the samples have been taken to the laboratory. Weekly measurements were taken of the depth of water in lake solitude and in a temporary pond in order to estimate the rate of drop in the general water table. Soil temperatures were recorded on thermographs at five stations.

2. Air Temperature Studies. Seven thermographs and fifteen maximum-minimum thermometers were used to record air temperatures in major micro-habitat types at weekly intervals after the snow had melted.

3. Photographic records of the pattern of snow melt were obtained during June and July.

4. A nesting bird survey was carried out. It involved the location and observation of all located nests during the breeding season.

5. Seven exclosures were located in areas of use and in undisturbed areas. Notes were made on the vegetation and habitats within the sites.

6. Photographs were made of areas of usage; particularly, 1951 study site photographs were examined, the areas were relocated and rephotographed. Photographs were also made of grazing in the area and notes were made of the extent and nature of the grazing.

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7. Although drought and snow have interfered with vegetational sampling, two additional sites were quantitatively sampled and others were studied by estimation methods. All sites were suitably marked so that they can be relocated. It is intended, weather conditions permitting, that this work will be continued through early September.

8. Some additional progress was made toward completion of a generalized vegetation map of the Lake Solitude basin.

9. Additional observations were made on the movement of large mammals in the region.

10. Approximately 100 additional plant specimens have been collected. Some of these were of species already collected in the area and are intended to supplement existing collections. It is probable that a few species not previously known from the Park have been collected; at least, they occur in no published lists.

Assisted by Charles Julianne and Toni Lincks.
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Fungi Living in the Guts of Arthropods
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Project Number 104

The purpose of working at the Station was to look for and study new species of fungi belonging to the Trichomycetes. The Trichomycetes are a group of fungi of unique habitat that live within the guts of living arthropods, where they attach themselves by means of a holdfast to the chitinous lining of the gut. One genus (Amoebidium) is attached to the host externally. Though they are intimately associated with their hosts, they all appear to live as obligate commensals rather than as strict parasites. None of the endocommensals has been cultured successfully outside of its host.

Very little really is known about these organisms, despite the fact that well over 100 species have been described and named. Nor are the relationships of these organisms with other fungi well established, except that they have characteristics that relate them to the Phycomycetes. Some French workers look upon the Trichomycetes as a separate class of fungi.

It was with very great satisfaction that I was able to find in the Jackson Hole area arthropods infected with some of the orders of fungi heretofore unreported from the Western Hemisphere. I worked primarily with aquatic insect larvae of Diptera, and infections were