

goose production. No nest destruction on the Snake River could be attributed to flooding in 1962.

Returns from 1381 geese banded while moulting during the period 1955-1960 indicated a mean annual mortality of 8.6 per cent among adult geese. Of 284 returns from geese banded at Turbid Lake and Jackson Lake, 183 (64.4 per cent) were from birds harvested in Wyoming.

Of the climatological data examined, snow cover appeared to have the most effect upon the goose population. Locations of goose concentrations in Jackson Hole are directly related to food availability, and the covering of terrestrial food supplies forces the birds to utilize the aquatic food or to emigrate. The major wintering area for that portion of the flock which does emigrate is Roosevelt Lake, Arizona; 46 per cent of 101 foreign recoveries were from this area. The remainder were scattered along the route of migration.

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The Ecology, Taxonomy, and Bionomics of Insects in the Grand Teton Area
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Project Number 117

Several hundred insect specimens were collected and identified to Order and Family, and most were also keyed to the correct Genus and Species. These specimens will be left at the Research Station to serve as a reference collection to aid in the identification of additional local material in the future. Several interesting specimens were found including tremendous numbers of Mud-loving Beetles (Heterocerus) in certain mud-banks, two common kinds of Crawling Water Beetles (Haliphus) in almost every pond, an unusual caddis-fly larva of Family Hydroptilidae, and many interesting kinds of Coleoptera and Diptera larvae. Part of the study involved a cooperative program with Dr. Clarke involving collection and identification of insects from a series of beaver ponds in the Third Creek area. The identifications included the following:

Coleoptera

- Dytiscidae, 12 genera with several different species identified under many of these genera.
- Cyprinidae, 1 genus.
- Halipilidae, 1 genus, 2 species.
- Heteroceridae, 1 genus.
- Hydraenidae, 1 genus.
- Hydrophilidae, 5 genera.

Diptera

- Chaobridae, 1 genus.
- Chironomidae, 7 genera.
- Culicidae, 3 genera.
- Dixidae, 1 genus.
- Ephydriidae, 1 genus.
- Heleidae, 2 genera.
- Tipulidae, 2 genera.

Ephemeroptera

Baetidae, 2 genera.

Caenidae, 1 genus.

Hemiptera

Corixidae, 2 genera.

Gerridae, 2 genera.

Notonectidae, 1 genus.

Saldidae, 1 genus.

Odonata

Aeschnidae, 3 species of genus Aeschna.

Agrionidae, 5 genera with more than one species under some.

Lestidae, 1 genus, 3 species.

Trichoptera

Hydroptilidae, 1 genus.

Limnephilidae, 1 genus, 2 species.

A few trout stomachs from these ponds were also analyzed, and the entomological contents were identified, but lack of time prevented completion of that aspect of the Third Creek research project.

In addition to the work on aquatic insects, a few field trips were taken into the alpine regions to supplement the work of the previous two summers. High altitude insects were collected above Togwotee Pass (at about 10,500 ft. elevation), and on top of Symmetry Crags (10,650 feet), Static Peak (11,294 feet), South Teton (12,505 feet), and Prospectors' Mtn. (11,231 feet). Generally speaking, the high altitude insects were scarce this summer, probably because of the abundance of cold and rainy weather, but several new records were established and a few interesting additions to our knowledge of alpine ecology resulted.

The maximum-minimum thermometer that had been left overwinter beneath a rock slab on top of Static Peak registered only minus 8° F. compared with minus 54° F. in the valley 5,000 vertical feet below. This once again indicates a relatively great stability of temperature in such microhabitats and helps to explain how insects and spiders are able to survive winter conditions high above timberline in our western mountains.

A trip to Grasshopper Glacier near Cooke City, Montana revealed no complete bodies of grasshoppers in the ice, however, numerous grasshopper parts were still in evidence. This is due no doubt to the rapid melting of the glacier during recent years. The huge ice cliff described as rising abruptly above the melt-pond ten years ago has disappeared.

Brief collecting trips were also made to the Beartooth Plateau (elevation 10,900 feet) and to the Bighorn Mountains, seeking to establish correlations between their insect fauna and that of the Tetons.

Incidental to the insect studies made on the Tetons was an observation of two bands of Mountain Sheep on Prospectors' Mountain. Two different bands, one of 11 ewes and the other of five ewes, but no lambs were observed.

The specimens collected during the summer are now being labeled, and will soon be undergoing generic and specific identification, after which it is presumed that certain new ecological, biological, taxonomic, and zoogeographic findings will be available for the use of other biologists.

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Effect of Visitors on Alpine Ecosystems in the High Tetons
Charles C. Laing
University of Nebraska
Project Number 97

Work was continued on this project started in 1958.

Assisted by Paul Sebesta, University of Iowa.

Study of Spiders of the Family Lycosidae in Jackson Hole
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Project Number 119

An analysis of the family Lycosidae was made to determine the distribution, especially with regard to the ecological habitat, of the 23 species already recorded from this area. This was accomplished with regard to the common species which could be collected frequently enough to determine the general type of habitat for each. However, about ten of the seventeen Pardosas, for example, were insufficiently common to make any certain statements about where they would be found. Likewise, with regard to their tolerances for humidity. Enough data are available for only six species to clearly indicate their humidity preferences. Four species of lycosids not collected previously were found based on over 400 specimens collected at over thirty different localities from the valley floor to over 11,000 feet. It seems that much further work is necessary to get any idea of the ecological habitats of over half of the lycosids of the area. Additional data were collected on all species of the area, but further study is needed.

Exploratory work with the squash technique for preparation of cells for study of chromosomes was carried out and over seventy-five slides of spider eggs prepared for study this winter.

Data on food habits were almost completely unobtainable. Only two specimens were collected in the process of feeding. Laboratory feeding indicated that this was probably due to the fact that prey was fed upon and the dead and mashed body discarded usually within an hour. For future work it would seem practical to try laboratory feeding of various insects to determine which would be accepted; field observations are too few to be of much use.

Assisted by Mrs. Jackie Bonquet.
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