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large expanses of mud flats which were used by geese for feeding, loafing and roosting.

Noticeable changes in the social structure of the population occurred. During late July, family groups predominated, and juvenile geese could usually be distinguished from older individuals. As the season progressed, family groups merged into larger units and juveniles could not be identified.

A pre-hunting season census was taken October 19-20; 532 geese were observed. The more widely dispersed population encountered increased the difficulty of obtaining a complete count. Small numbers of geese were in areas open to public hunting; the observed harvest totaled five geese for the first two days of the goose season.

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The Alpine Insects of the Teton Range  
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Project Number 105

As a result of my activities on this research in 1960 I became familiar with many routes affording access to the trailless valleys, high passes, and major summits in Teton National Park, Wyoming. During that summer I also discovered that some of these alpine areas support a much richer insect fauna than do others at comparable elevations. These extremely favorable localities were kept in mind for more detailed taxonomic, biological and ecological studies in the future, if possible. This summer, therefore, many nights were spent in "high camps" in the highly favorable localities, including the head of Stewart Draw, Timberline Lake, Alaska Basin, below Schoolroom Glacier, and high in Garnet Canyon. Evenings in camp were usually devoted to observations of insects on and near the snowfields and glaciers or on the barren slopes above tree-line in these great mountains.

In late July a "black-light" was carried up and used at night in an effort to attract alpine insects in large numbers. It was believed that if certain insects were really attracted toward the mountain-tops in response to the greater concentration of ultra-violet light there (as has been suggested) then they might be strongly attracted to the black-light at night. Unfortunately, this did not prove to be the case in the field tests above tree-line in the Tetons this summer. The light was operated one night at the head of Stewart Draw (10,000 feet), one night on the summit of Static Peak (11,294 feet), and a third night at Sunset Lake in Alaska Basin (9,700 feet). A few moths were attracted each night, but they were only the common kinds that abound at dusk above tree-line. These three attempts to lure alpine insects to "black light" seem to indicate that the method is not worthwhile, although further attempts under favorable conditions should be made before completely rejecting it. It is a safe conclusion, however, that ultra-



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violet light is NOT the primary reason for congregations of certain insects at the summits of western mountains.

During the days spent above tree-line, insects were collected during every available moment, and nearly 600 more alpine specimens were thereby obtained. Flies were the most prominent type of insects on the very summits of the mountains, with families Tachinidae and Syrphidae predominating. In the clear stream (not the milky one) just below Teton Glacier there were tremendous numbers of net-winged midge larvae (Diptera: Blepharoceridae) clinging to rocks in very swift water.

Beetles were a little less abundant on the peaks, but members of families Carabidae, Elateridae, Cantharidae, Coccinellidae, and Dasytidae were nearly always collected on trips above 10,000 feet. Carabus taedatus (Carabidae) were collected on a cold, windy, moonlit night within 50 feet of the summit of Static Peak, and also occurred on the grassy hillside above Sunset Lake (in Alaska Basin) and above Snowdrift Lake in Avalanche Canyon. A single specimen of Amphizoa (Amphizoidae) was on floating driftwood at the foot of Delta Lake (9,000 feet elevation in glacier water). This is the second record known from the Tetons. Beneath a rock near Timberline Lake (10,000 feet) was a click beetle (Elateridae) with several dozen red mites clinging to it. Surrounding the infested elater were more than a dozen very tiny click-beetles of another genus that seemed to be feeding upon the predaceous mites and yet were themselves entirely free of mites. Tiny carabids, mostly genus Bembidion, were found beneath gravel and rocks in damp areas above 11,000 feet on Buck Mountain and above 12,000 feet on The Grand.

This summer there were amazing numbers of black assassin bugs (Reduviidae) under loose rocks on soil, above 10,000 feet, preying upon larvae and soft-bodied insects. Many were still short-winged nymphs, indicating that they are true alpine residents, yet none were seen during the summer of 1960 in the same habitat.

Hymenoptera were frequently observed on the high passes and peaks. Bumblebees abound on blooming flowers in the alpine meadows, and smaller bees and sphecoid wasps are also common there. Plastered beneath a rock at 10,100 feet were mud cells containing larvae and pupae of sphecoid wasps, and in one of these cells were the dried remains of several metallic green chalcid parasites. Leaf-cutting bees (Megachilidae) formed nests of leaves beneath loose slabs of rock, in soil, above 10,000 feet on peaks above Togwotee Pass.

Noteworthy butterfly records included a single velvety-black Erebia magdalena Strecker atop a 10,700-foot ridge west of Dartmouth Basin and a unicolorous dark brown Oeneis melissa Fabricius at the Eye of the Needle, above the Lower Saddle of the Grand (12,000 feet). Also, great numbers of Erebia callias Edwards were collected on a peak north of Togwotee Pass, about 20 miles east of the Tetons, yet this species was never seen at all in the Tetons.



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This summer Dr. Elliott Maynard was also engaged in research work at the Jackson Hole Biological Research Station, studying Collembola (springtails). This afforded an excellent opportunity to investigate the alpine springtails of the Tetons, for he agreed to process samples of moss and dirt in his Berlese Funnels and identify the springtails extracted. From the samples collected above 10,500 feet he found at least seventeen kinds of Collembola, including seven species believed to be previously undescribed. Moss collected just below the summit of The Grand (at 13,700 feet) was devoid of springtails, but just four days later I returned during a violent rainstorm, collected wet moss from that same crack in the rock, and Dr. Maynard obtained more than 100 Collembola from this second sample. Apparently these tiny insects retreat deep into the cracks during dry periods but quickly move into the moss as soon as it gets wet.

Further details concerning these and many other alpine observations are now being prepared for future publication, but will gladly be made available to interested persons, upon request.

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Population Estimate of Brook Trout in the Third Creek Area  
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Project Number 114

This project was undertaken during July and August, 1961, to provide supplementary data to previous studies of the Third Creek fishery and to provide additional data to that already collected for various brook trout populations in the Rocky Mountains. From July 28 to August 28 the following data were collected.

I. Population Estimate; Mark and Recapture Method

Brook trout were electro-fished at Glade Creek, Teton County, marked by fin clipping and introduced into the largest beaver pond (Station III) on Third Creek. Additional fish were caught, marked, and introduced into the pond from lower Third Creek. A total of 103 fish were introduced.

Subsequently, the pond was fished by means of gill nets over a period of seven days. Gill nets used were: 1) 200 ft. graduated mesh (3/4 in. to 2 in.), 2) 100 ft. small mesh. The 200 foot net was set a total of five times, while the 100 foot small mesh net was used once. Gill netting was terminated when the catch became small; the last set took only eight trout. Total take of fish was 55 (20 marked, 35 unmarked). Initial calculations estimate the original population at 180+ fish. In addition, over 100 Utah suckers were gill netted and removed.

One 200 foot graduated gill net was placed in a pond (Station II) above the former in an effort to ascertain the nature of its fish population. Five brook trout between 13 and 17 inches were taken, indicating