

The Gros Ventre pond, one of a chain of ponds on the plain along the Gros Ventre River, probably receives water by seepage. It is no more than four feet deep. The water is saline and has a pH of 7.8. On the salt encrusted flats surrounding it, a sparse growth of salt tolerant plants occurs.

A high population of Lymnaea palustris, as well as one of the tiger salamander, Amblystoma tigris, was present in the pond. The Lymnaea crawling along the water's edge were so numerous that the opening of the pneumostomes was audible as a steady clicking. Five individuals of Aplexa hypnorum were seen. This pond was not revisited. A flight over it the last week of August showed the pond still containing water, and it is doubtful that it would dry because of its proximity to the river.

In response to the drought that existed, land snails in the Jackson Hole area began aestivation the last week in June. Eggs deposited in the upper leaf layers became desiccated. On August 14 rain began and continued intermittently for three days. The ground was still dry on the morning of the 15th under the top layer of leaves in the aspen grove at the junction, but snails were active. Four specimens of Vittrina alaskana and Succinea avara had climbed up tree trunks as high as eight inches. The ground in the spruce forest on the north side of Signal Mountain was still dry on the morning of the 16th. Below the first inch of needle debris, the rain had not yet penetrated. Snails were concentrated under old logs. The leaf debris under the willow along the Snake River was fairly moist on August 18. Both immature and adult snails were noticed in the litter. Newly laid eggs were numerous. The aspen grove at the junction was reexamined on the 19th. By now the forest floor was wet. Approximately equal numbers of adults and juveniles were present. Newly deposited eggs were numerous.

Effects of Sewage Effluent on the Ecology of Swan Lake,
Grand Teton National Park, Wyoming
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Project Number 75

The study on this project during the past summer was continued on a somewhat restricted basis. During 1960 the following studies were made.

1. A general reconnaissance of the lake was taken by boat to determine changes in the submergent and emergent types from the preceding summer. The major differences noted were that pond lilies had continued to decrease in the lake adjacent to the sewage inlet. The cattails showed a definite increase in abundance. Duckweed and many of the submergent types of vegetation were more abundant than in previous years. Associated with a decrease in water lilies was a continued high infestation by leaf miners and target spot fungus. This damage was much more pronounced in the area adjacent to the sewage inlet. The increase in submergents and emergents could well be associated with a marked increase in the organic matter supplied with the effluent.

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2. A chemical analysis was made on June 14, July 12 and August 18. Oxygen, pH, and carbon dioxide showed little change in comparison with corresponding times during the preceding summer.

3. Plankton samples were collected on these same dates both for qualitative and quantitative examination. Examination of these samples has not been completed yet, however, gross observation revealed little change from the previous summer.

4. Bottom fauna samples were also taken on these dates and showed approximately the same relative numbers as last year but were much higher than in previous summers. This gave fairly clearcut evidence of the effect of sewage on bottom fauna. As in previous summers the predominant types consisted of Chaoborus and Tendipeds.

5. Turbidity, temperature and physical characteristics were taken. These were not significantly different from the previous summer, however, the Secchi disk studies revealed that in the last two summers, the lake has become much more turbid than in previous years.

The sewage treatment plant worked efficiently throughout the summer, and on no occasion did unfiltered sewage enter the lake as far as could be determined. The lake is serving effectively as a lagoon type treating system at least as far as effective utilization of effluent organic compounds are concerned.

Assisted by Hugh Bradford House.

Ecology of Third Creek and Associated Beaver Dams
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During the summer of 1960 a comparative aquatic ecological study was carried out on Third Creek which was to be correlated with an age-growth study of brook trout in progress for the past three years on the same creek. The ecological study was done on both forks (west and east) of Upper Third Creek. All samples were collected from a total of five stations on both forks. The study included mapping, temperature determinations, chemical analyses, benthos, plankton, shore invertebrates, botanical observation and fish studies.

Third Creek is located in the North District of Grand Teton National Park. Five stations were set up for the study. The temperature fluctuated as much as four degrees Fahrenheit. Bottom temperatures for the five stations were Station I, 49°F; II, 54°F; III, 54°F; IV, 59°F; V, 66°F.