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Elizabeth Baldwin  
*Student Conservation Program*

Patsy Franta  
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Grand Teton National Park  

Elizabeth Baldwin and Patsy Franta

Kelly Warmspring is the last uncommercialized warmsprings in Jackson Hole. Since one of the primary purposes of the park is to protect and preserve the natural environment, it was of interest to the National Park Service to have the area investigated so that management recommendations might be made. As members of the Student Conservation Program the authors of this paper investigated the area, studying physical and chemical properties of the water, the flora and fauna, both terrestrial and aquatic species, and human activities. The study was conducted July 2 - August 28, 1968.

Kelly Warmspring is located twenty yards south of the Gros Ventre Road, one half mile from its junction with the Kelly Road. The springs themselves appear to the passer-by as inconspicuous ponds, but upon investigation they are found to be two distinct crystal-clear warm-water pools.

The approach to this study was mainly one of collecting samples of both aquatic and terrestrial life and identifying them. Visits to the springs were made at least twice weekly for the first five weeks, at which time plankton samples and bottom samples were regularly collected. For the plankton samples, twenty liter samples of water were passed through a plankton net; the specimens were then washed from the net and preserved. Bottom samples were taken by use of an Ekman bottom sampler; these specimens were also preserved. A dip net was used for amphibians, aquatic insects, and some of the smaller fish. Live traps and seines were used for the larger fish, and at one point a hook and line were also employed. All specimens were preserved. Live trapping of the mammals was not used; instead, a general observation list was maintained. The same was done for the bird species in the area.

Water Properties

A chemical analysis of the water of Kelly Warmspring was made and is included in the complete report made to the Park Service.

A hydrogen sulfide odor was detected, but water analysis proved that hydrogen sulfide was not dissolved in the water. This odor was most probably due to the decaying plant life in the ponds. The composition of the escaping gas is not known, but it is speculated that the gas is methane.

The daytime temperature of the spring water ranged from 76-80° F. A drop to 50° F was detected during one cold night when air temperature was down to 35° F; generally the nighttime temperature averaged 60° F.
Biological Inventory

Mammals found in the area were of three species: *Citellus* sp. (ground squirrels), *Peromyscus* sp. (mice), and *Thomomys* sp. (pocket gophers).

The following birds were observed: violet-green swallow, red-winged blackbird, red-tailed hawk, Swainson's hawk, spotted sandpiper, great blue heron, belted kingfisher, goldfinch.

The only snake present was the western black-necked garter snake (*Thamnophis cyrtopsis cyrtopsis*) ranging in length from 10-24 inches. The only toad seen was *Bufo boreas*. The fish found in Kelly Warm Springs were: Utah sucker (*Catostomus adens*), Utah chub (*Gila atraria*), longnose dace (*Rhinichthys cataractae*), redside shiner (*Richardsonius balteata*), and guppy (*Lebistes reticulatus*). It seems probable that someone released the guppies from their aquarium into Kelly Warm Springs, where they successfully reproduced and flourished. There are no game species of fish in Kelly Warm Springs.

Insects found in Kelly Warm Springs were: predacious diving beetle, midges, biting midges, crane flies, mayfly, water strider, damselfly, dragonfly, caddis flies, and nerve-wing insects.

Crustacea found were: sideswimmers, water fleas, Copepods, and water mites. Thirty-four genera of phytoplankton were found. Numerous zooplankters including Rotifers were found, but not identified to genus. The snails present were found to be of two families: Physidae and Planorbidae.

The major algae and aquatic plants found in Kelly Warm Springs were: *Ceratophyllum demersum*, *Chara* sp., *Cladophora* sp., *Juncus pelocarpus*, *Nitella* sp., *Spirogyra* sp., and *Zygnema* sp. The grasses and other plants surrounding the ponds were identified.

Management Recommendations

The writers of this paper, like the National Park Service, feel strongly in the preservation of natural environments in certain areas. The park is one of the few remaining places where such preservation can be practiced. However, changes in the natural beauty of Kelly Warm Springs, indicating abuse and overuse, have been witnessed through the summer with the increase in usage of the area as a swimming pool, bathtub, and pasture. The grass surrounding the pond has been trampled, litter scars the landscape, and at times there is a film on the surface from the soaps and shampoos introduced to the water. In addition, the bathers and swimmers frequently give an untidy, if not trashy, appearance to the area. At the beginning of September, nearly all of the vegetation surrounding the ponds was cropped to 3-4 inches by the horses pastured there. The water was muddy and the banks worn, not to mention the pollution present.

Obviously, Kelly Warm Springs is not being kept in a natural state, nor do the unsightly activities of the bathers contribute to the beauty of the park. If the natural condition of the ponds is to be restored, and if the last uncommercialized warm springs in the valley is to be preserved, use of them as a swimming pool and use of the area as a livestock pasture must be discontinued.

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