

White Sands National Monument Studies:
PRELIMINARY REPORT ON THE FAUNA OF GARTON POND
AND THE ADJACENT ARTESIAN WELL
1977

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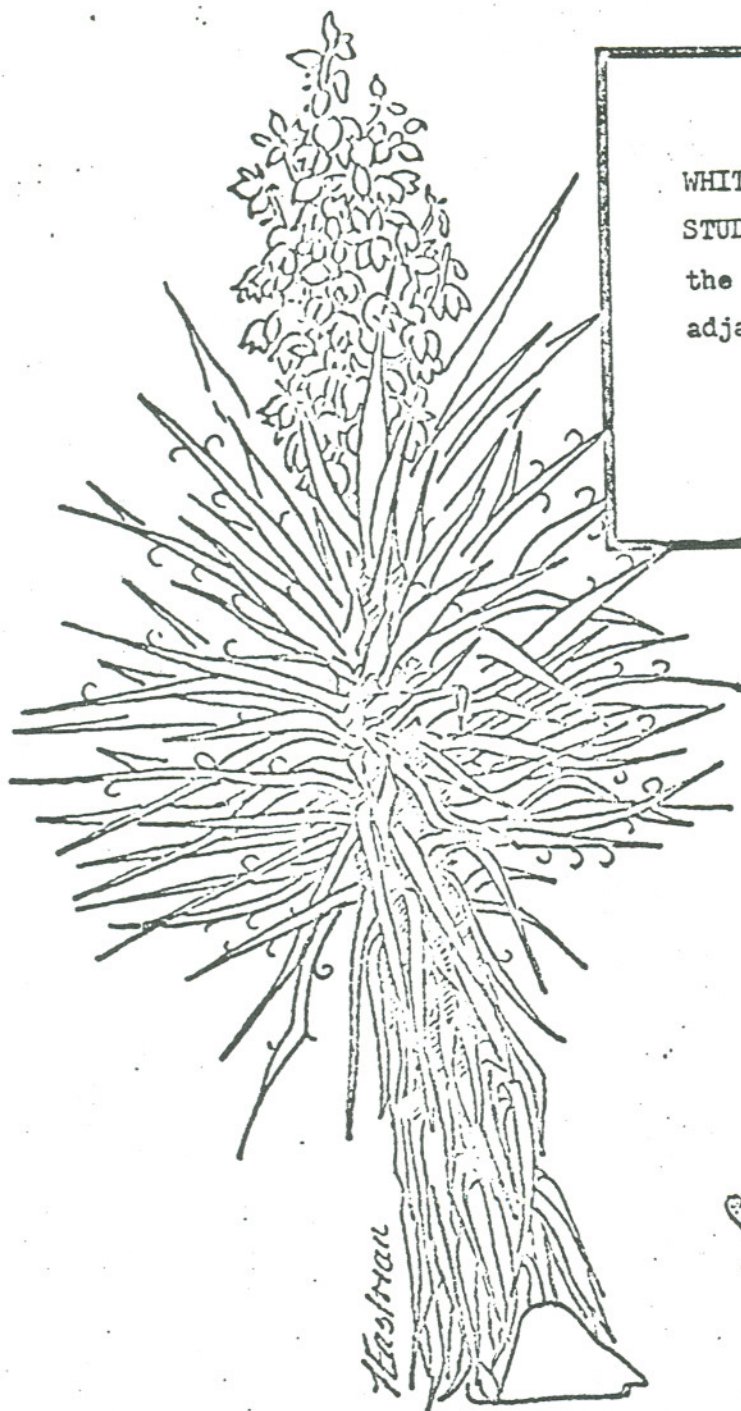
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WHITE SANDS NATIONAL MONUMENT
STUDIES: Preliminary report on
the fauna of Garton Pond and the
adjacent artesian well.

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PRELIMINARY REPORT ON FAUNA OF GARTON POND AND THE ADJACENT ARTESIAN WELL.

PURPOSE:

Garton Pond and its adjacent artesian well represent one of the permanent standing bodies of water within White Sands National Monument. While the water attracts a number of mammals and birds, it is also an important habitat for a number of aquatic animals which may only be found in the Garton Pond locality of the monument.

The purposes of this report are (1) to provide information on new animals found within the limits of Garton Pond or the thermal artesian well and its seepage, (2) to relate additional information about other fauna and flora of the pond and (3) to discuss some of the environmental conditions of the aquatic community.

DESCRIPTION:

Garton Pond and the artesian well lie within the Monument in the one square kilometer quadrat, shown on figure 1. The two bodies of water differ a great deal in depth. Garton Pond varies from 10-15 cm at the shoreline to 1 meter in the middle. The artesian well, having a thermal underground source is reportedly 42.5 meters deep.

The vegetation of the Garton Pond system is dominated by thick stands of Salt Cedar (Tamarix gallica L.) on the north, west, and east sides and sparse stands on the south side. Surrounding the edge of both the pond and the artesian well is Bulrush (Scirpus paludosus Nels.) Interspersed between the Salt Cedar and Bulrush are areas of Saltgrass (Distichlis spicata (L.) Greene). The saltgrass is very thick in some areas, due to rhizome action, which form mats of many twisting individual plants. These mats seem to form natural runways underneath for rodents to use.

DISCUSSION:

An aquatic snail species (Physa virgata) was discovered living in the seepage around the thermal artesian well and on the submerged stems of bulrushes on the edge of the well. This snail may represent the only aquatic mollusk living in the Monument. The live specimens found were feeding on algae, bulrush stems or organic debris in shallow water (1-10 cm). Physa are known to be scavengers, consuming algae, dead plant material and animal material (Pennak, 1953). Physa are preyed upon by aquatic beetles, dragonfly and damselfly larvae, fishes and ducks. Pennak (1953) states that Physa are generally abundant where there is a moderate amount of aquatic vegetation and organic debris, and it is rare among dense mats of vegetation. Since Garton Pond has dense mats of algae growing throughout it, this may be why no specimens were found in the pond.

The introduction of aquatic snail into the Garton Pond system is believed to have occurred by individuals brought in by ducks or other semi-aquatic birds. Pennak (1953) and Solem (1975) both state that airborne dispersal while attached to a bird's feathers or legs is possible.

DISCUSSION (cont.)

Another interesting aquatic invertebrate found in the seepage of the artesian well and Garton Pond was the Water Mite (Sperchon sp.). This tiny, red mite is one of the few arachnids that are aquatic.

Water mites are usually parasitic on other aquatic invertebrates and become predaceous as adults. (Borror, DeLong, Triplehorn, 1976). They may also utilize some vegetation in their diet. The water mites in the Garton Pond community were found to be most abundant in the seepage of the artesian well where the water was shallow, and algae and bulrushes were growing. Borror, DeLong, and Triplehorn (1976) state that a few species occur in hot springs. The nearly constant temperature of 32° C recorded in the thermal artesian well (Figure 3) may be a factor in the abundance of Sperchon in the seepage area.

Because the larvae of some water mites do parasitize aquatic nymphs of dragonflies and damselflies (Pennak, 1953, Borror et al., 1976), this provides a method of airborne dispersal. If the water mites break out of the host's body over water, it may survive in a new aquatic environment, such as Garton Pond or the well.

Table I shows the presence of other aquatic or semi-aquatic insects that are important to the Garton Pond system. The dragonflies (Family Aeschnidae) and the narrow-winged damselflies (Family Coenagrionidae) play a role in the aquatic community of the pond and well. Not only are the larvae predaceous while in the water, but the adults are predaceous on many flying insects. Garton Pond may be responsible for the presence of these two groups, since dragonflies and damselflies have been observed to fly well into the sand dunes and interdune areas of the Monument. The pond and well are one of the few sites of permanent water in the area in which larvae can survive.

Another predator insect shown in Table I is the Tiger Beetle (Family Cicindellidae). Tiger beetles are active, brightly colored insects, usually found in association with sandy beaches of freshwater or saltwater. It preys on other insects near the water's edge. The specimen found at Garton Pond was active on the surface of algae fronting the shoreline of the pond. This beetle has also been found wandering in the gypsum dunes in search of prey.

The Water Scavenger Beetles (Hydrochava sp., Family Hydrophilidae) listed in Table I were found swimming in the artesian well. While the adult beetles are scavengers, feeding on both plant and animal materials, the larvae are voracious feeders on all sorts of aquatic animals (Borror et al., 1976). These aquatic beetles are known to fly from one body of water to another in dispersing themselves.

The only aquatic vertebrates found living in or near the water, other than waterfowl, were the Tiger Salamander (Ambystoma tigrinum) and the Dollar Sunfish (Lepomis marginatus (Holbrook)). The single Tiger Salamander found, was walking near Garton Pond during a rainy evening. This may suggest that Ambystoma occasionally invertebrates according to Conant (1958) and Cochran and Goin (1970).

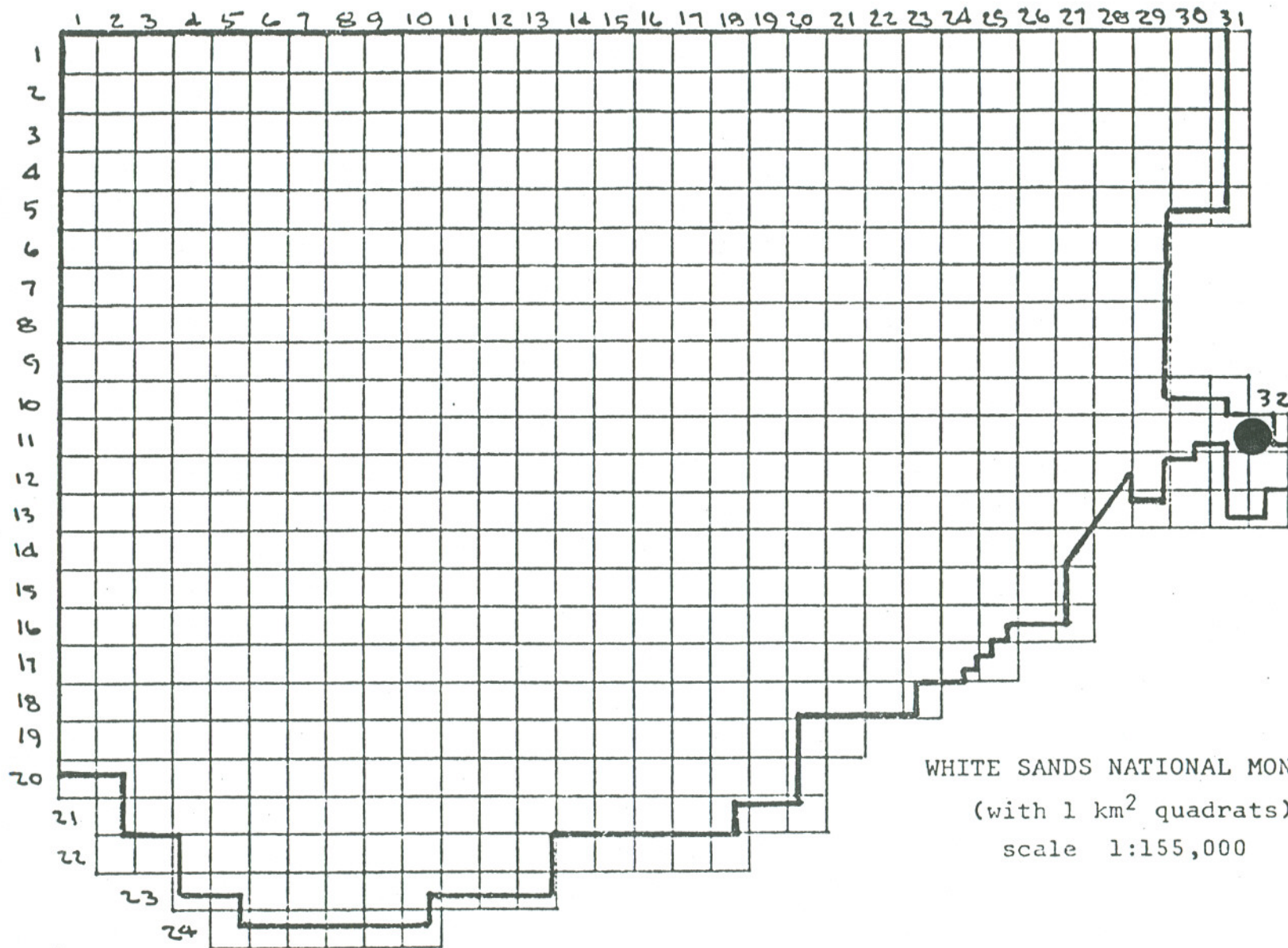
The Dollar Sunfish (Lepomis marginatus (Holbrook)), was found only in Garton Pond. Individuals were collected by seining for identification and then released. The Dollar Sunfish is one of the smaller leporis, usually reaching 6-7 inches (Eddy, 1969). It feeds on aquatic invertebrates and smaller fish. It was noted to be the only species of fish in Garton Pond. At this time, however, it is not known whether the Dollar Sunfish was introduced by man or not.

DISCUSSION: (cont.)

In addition to sampling the organisms present, the temperature, salinity, and oxygen content of Garton Pond and the adjacent artesian well were measured three times during a 24 hour period (September 27-28, 1977). Figures 2 and 3 show the results of those measurements. While Garton Pond fluctuates in temperature, salinity, and oxygen content, the artesian well represents a very stable environment, fluctuating very little in all three measurements. This could in part explain the presence or absence of organisms in one or the other body of water.

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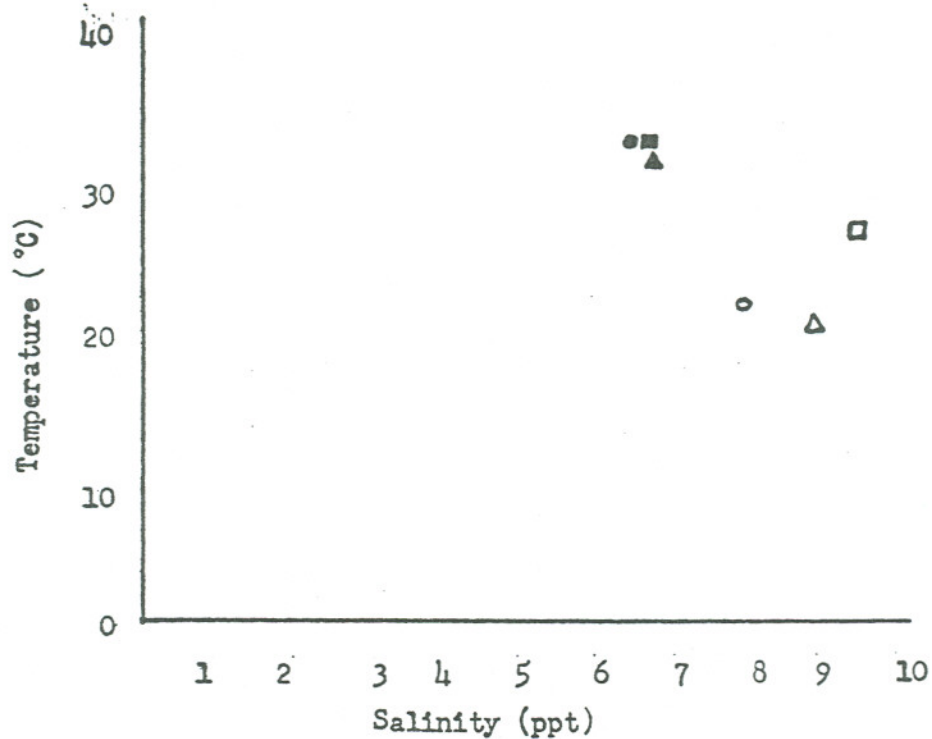
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WHITE SANDS NATIONAL MONUMENT
(with 1 km² quadrats)
scale 1:155,000

Figure 1. Location of Garton Pond and Artesian Well

Figure 2.
Temperature and Salinity Variation in
Garton Pond and the Artesian Well



<u>Garton Pond</u>	<u>Artesian Well</u>	
○	●	11:00 a.m.
□	■	5:00 p.m.
△	▲	6:00 a.m.

TABLE I

Additions to the fauna list for
Garton Pond and the adjacent artesian well

Phylum Mollusca

Class Gastropoda

Order Pulmonata

Family Physidae

Physa virgata (aquatic snail)

Phylum Arthropoda

Class Arachnida

Order Acari

Suborder Prostignata

Family Sperchonidae

Sperchon sp. (water mite)

Class Insecta

Order Coleoptera

Family Hydrophilidae

Hydrochara sp. (water scavenger beetle)

Family Cicindelidae

(tiger beetle)

Order Odonata

Family Aeschinidae

(dragonflies)

Family Coenagrionidae

(narrow-winged damselflies)

Phylum Chordata

Subphylum Vertebrata

Class Osteichthyes

Family Centrarchidae

Lepomis marginatus (Holbrook) (Dollar Sunfish)

Class Amphibia

Family Ambystomatidae

Ambystoma tigrinum (tiger salamander)