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Lake Ilo

National Wildlife Refuge

Uncovering a Buried Past



At first glance, the placid waters of Lake Ilo National Wildlife Refuge, its cattail marshes, and the nearby low hills offer few clues about the prehistoric hunters and gatherers of the Plains. This situation changed drastically in 1989 when U.S. Fish and Wildlife Service personnel, and later archeologists, were given a rare opportunity to view an ancient landscape swept clean of vegetation and topsoil.

Large scatters of ancient stone tools, waste flakes, hearth stones, pottery shards, and a stone circle or tipi ring, lay on the old lake bed's surface. Some of these artifacts represent campsites that have not been disturbed for over 10,000 years. These remarkable discoveries marked the beginning of a 7 year project to learn more about the last 11,000 years of Plains Indian life in western North Dakota.

Welcome to Lake Ilo National Wildlife Refuge



This goose, designed by J.N. "Ding" Darling, has become the symbol of the National Wildlife Refuge System.



University of Nebraska

Lake Ilo National Wildlife Refuge: A Buried Past

Excavation of a tipi ring, which is re-created near the entrance to Lake Ilo Park (above).

Lake Ilo National Wildlife Refuge (NWR) is managed by the U.S. Fish and Wildlife Service. The Refuge is one of over 540 refuges in the National Wildlife Refuge System – a network of lands set aside to conserve wildlife and habitat for people today and for generations to come.

Lake Ilo is located 1 mile west of Dunn Center, North Dakota. The Refuge is open to visitors from sunrise to sunset daily.

During the late 1980s, an inspection found the Lake Ilo Dam on Lake Ilo National Wildlife Refuge (NWR) to be unsafe. The lake level had to be lowered immediately, so a notch was cut into the dam's spillway lowering the water level 7 feet. U.S. Fish and Wildlife Service personnel notified archeologists at the North Dakota State Historic Preservation Office when they discovered a tipi ring in the newly exposed lake bed. An archeological survey team from the University of North Dakota later recorded 13 prehistoric sites.

Piecing Together the Puzzle

Federal and State law requires that archeological sites be studied, protected, and preserved. These resources contribute to our knowledge and understanding of prehistoric people, their everyday activities, and their solutions to environmental and social problems of the region.

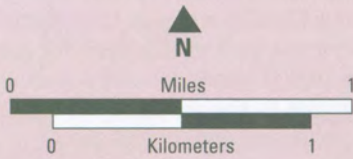
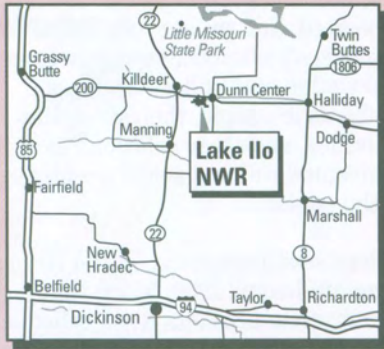
Thirty-seven locations on the Refuge were studied in 1990. More than 58,000 stone artifacts were collected. The variety of spear, dart, and arrow points found along Murphy and Spring Creeks suggest that Native Americans visited this area for more than 10,000 years. Glaciers were only 500 miles to the northwest when the first humans visited this area.

Large scale excavations in 1992 and 1993 revealed sites from some of the earliest prehistoric visitors (Folsom period Paleo-Indians ca. 10,500 years ago). These sites are rare; only 48 Folsom points have been found in 12 sites in North Dakota. Only two such sites have been excavated in Montana and four in Wyoming.

Paleo-Indians

Paleo-Indians were the earliest humans to enter the Americas sometime between 13,000 and 25,000 years ago. They came to North America when Siberia and Alaska were connected by a "land bridge." This bridge was actually the continental shelf – exposed by low sea levels.

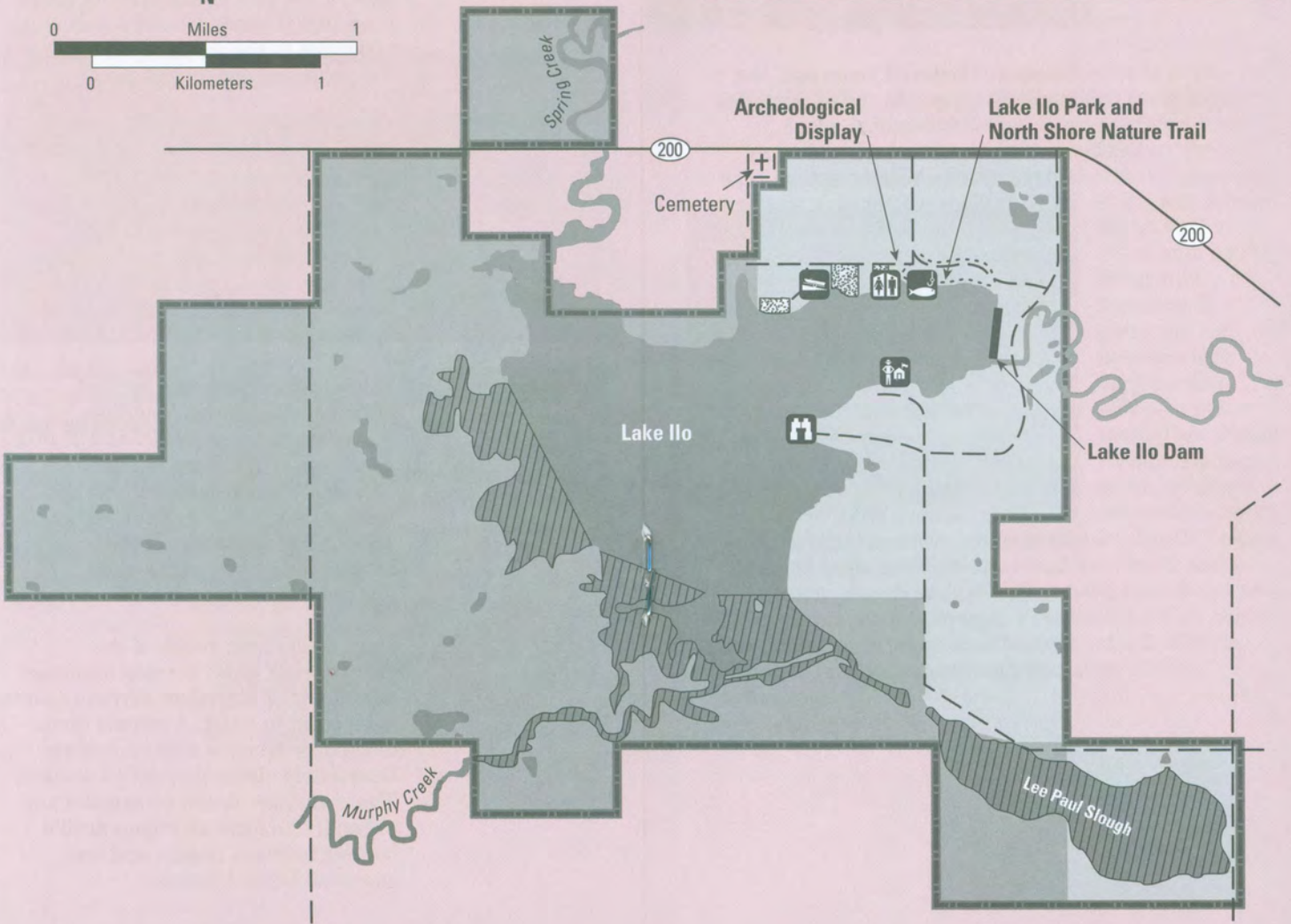
During this time, much of the earth's fresh water formed immense mountains of glacial ice across Canada from coast to coast. A central dome of ice over Hudson Bay rose more than a mile above the earth's surface. These vast ice sheets contracted and expanded to form an impenetrable barrier between Alaska and the southern United States.



Lake Ilo

National Wildlife Refuge

| | |
|--|----------------------------|
| Refuge Boundary | Refuge Headquarters |
| State Highway | Rest Room |
| Gravel Road | Boat Ramp |
| North Shore Nature Trail | Fishing Pier |
| Closed to Boats, Fishing, and Public Use | Wildlife Observation Point |
| Closed to Public Use | |
| Open to Public Use | |
| Private Land Inside Refuge Boundary | |





Fourteen thousand years ago, the ice sheets began to shrink, climates became more seasonal, plant communities changed, and many animal species became extinct. The Paleo-Indians who lived in western North Dakota at this time had to adapt to these abrupt changes in the landscape, climate, and plant and animal life.

The plants and animals of North America look very different today compared to those of the Ice Age. Many Ice Age animals, like mammoth, mastodon, musk oxen, bison, and ground sloths, were larger than their modern relatives. Beaver, for example, were as large as today's black bear. Medium-sized animals included horses, camels, elk, and deer. Large predators, such as saber-toothed cats, lions, dire wolves, and short-faced bears, were also present.

During the Folsom period (10,800 – 10,200 years ago), small, multi-family groups hunted throughout the huge expanses of grassland. These groups probably moved camps 12 to 36 times a year. In order to survive, these groups also had to plan frequent visits to flint, chert, and obsidian deposits to acquire tool stone. Archeologists working at Lake Ilo NWR discovered discarded stone tools made from nearby Knife River flint, petrified wood from Rainy Buttes (80 miles southwest), porcellanite from the Little Missouri Badlands, moss agate from the Yellowstone River, and obsidian from Idaho.

Most of the stone artifacts from surface collections and excavations on the Refuge were produced from locally available Knife River flint.

This dark, caramel-colored, glass-like stone was formed 50–60 million years ago. Knife River flint fractures like glass and can be made into very durable, sharp-edged tools. This critical resource is found in 60-100 dense concentrations in



*An assortment
of notched points*

a small area of western North Dakota. Prehistoric stone tools made from Knife River flint have been found as far away as western New York State, western Montana, central Alberta, and northeastern New Mexico.



University of Nebraska

What is Being Learned?

Archeologists excavate a portion of Lake Ilo's shoreline (above).

Archeologists worked on the Lake Ilo NWR project and studied past climate and environments, hunting technology, “overwintering” behavior, and the economic role of Knife River flint in this region. Much attention focused on Paleo-Indian technology – specifically hunting weapon design, tool-making methods, and Knife River flint exchange and trade. Hunting weapons needed to be very portable and durable. Stone flakes and tools found at sites along Spring Creek exemplify the various stages of tool manufacture, repair, and recycling.

Archeological deposits have been dated using a variety of methods including projectile point type, geological context, ultraviolet fluorescence of stone tools, and radiocarbon dating. Archeological remains reflect the continuous use of the area for 11,000 years. It’s amazing to have an unbroken record of occupation in a single location like this. The time, depth, and complexity of the archeological resources at Lake Ilo NWR provide an opportunity to study long-term changes in food gathering, technology, land use patterns, social and economic exchange, and changes in the size and distribution of human populations.

This study was conducted by an interdisciplinary team of researchers and students from the U.S. Fish and Wildlife Service, University of North Dakota, Washington State University, and Northern Arizona University. Thanks to their efforts, the archeological record at Lake Ilo NWR greatly expanded our understanding of prehistoric Plains Indian life. The results of this program contribute to the rich cultural heritage of the people of North Dakota.

Accessibility Information

Equal opportunity to participate in and benefit from programs and activities of the U.S. Fish and Wildlife Service is available to all individuals regardless of physical or mental ability. Dial 7-1-1 for a free connection to the State transfer relay service for TTY and voice calls to and from the speech and hearing impaired. For more information or to address accessibility needs, please contact the Refuge staff at 701 / 548 8110, or the U.S. Department of the Interior, Office of Equal Opportunity, 1849 C Street, NW, Washington, D.C. 20240.