

CEDAR CREEK NATURAL HISTORY AREA

UNIVERSITY OF MINNESOTA

WHAT IS CEDAR CREEK? The Cedar Creek Natural History Area is a 5,460 acre research facility operated by the University in cooperation with the Minnesota Academy of Science. It is located in Anoka and Isanti Counties about 30 miles north of Minneapolis on US Highway 65. The area contains a unique blend of forests, prairies, marshes, lakes, ponds and agricultural fields of various ages since abandonment.

HISTORY. Cedar Creek, established in 1940, was designated a National Natural Landmark by the National Park Service in 1975. In 1977 it was included as an Experimental Ecological Reserve in a proposed national network, and in 1982 it was one of 11 sites in the United States selected by the National Science Foundation for funding of Long-Term Ecological Research.

The first 500 acres were acquired by the Minnesota Academy of Science through a purchase and gift in the early 1940s. Lands were transferred to the University with the understanding that they would be kept in their natural condition and used for scientific and educational purposes. Funds for acquisition of additional land, development of permanent buildings and preparation of accurate maps became available from a variety of sources including personal contributions, the National Science Foundation, the Max Fleischmann Foundation, the Minnesota Natural Resources Commission and the US Land and Water Conservation Program.

RESEARCH AND MANAGEMENT. Many research projects are carried out at Cedar Creek and hundreds of scientific manuscripts have been published. Use of radio telemetry for studying movements and activity of wild animals is of special significance. Currently underground movements of 18 pocket gophers with radio transmitters implanted in their bodies are being monitored by an automatic tracking system controlled by microprocessors and a microcomputer. The system is producing unique data which are being used to study spacing, reproductive behavior and effects of digging and feeding on native and introduced plants.

Techniques and equipment developed at Cedar Creek are now in world-wide use for research on seals in Antarctica, tigers in Nepal, lions in Africa, sea otters in Alaska, wild horses in Nevada and, of course, many species such as deer, fox, raccoon, ruffed grouse, horned owls and gray squirrels at Cedar Creek. Pioneering studies by Cedar Creek scientists on polar bears demonstrated the feasibility of tracking animals by satellite. Other important research in progress concerns social behavior in ducks, insect colonization on native plants and effects of fertilizer on succession and productivity of old-field ecosystems.

Land management includes a program of controlled burning to restore the prairie and oak savanna that prevailed for centuries in the natural landscape. Some areas that have been burned annually since 1964 now exhibit characteristics not seen in this region since settlement in the 1800s. In addition, a small tract of agricultural land is abandoned each year so that a series of different-aged sites is available for time-related ecological studies. Data are being used to study invasion, growth and decline of agricultural weeds and establishment of native prairie species.

APPLICATIONS. Results of Cedar Creek research are being utilized by many organizations, including the Minnesota Department of Natural Resources, Nature Conservancy, US Fish and Wildlife Service, and US Marine Mammal Commission. The following examples illustrate current applications. 1. Burning experiments on oak savanna at Cedar Creek aided the Nature Conservancy and the Department of Natural Resources in developing land management plans using controlled burning. 2. Data revealing that cattail marshes were the most productive ecosystems in Minnesota, even more productive than fertilized corn fields or aspen forests, provided the stimulus for current research on utilization of cattails for energy. 3. Radio-tracking data on movements of red foxes enabled biologists to model the spread of rabies in fox populations and design methods to control the disease.

SCOPE. Cedar Creek serves Minnesota broadly by providing research and teaching facilities for six colleges from the University, Biological Sciences, Agriculture, Forestry, Liberal Arts, Institute of Technology and Veterinary Medicine. It also serves other colleges and universities, both within and outside Minnesota, and has sponsored visiting scientists from abroad. A nature trail is maintained for public use, and classes from nearby high schools frequently visit on field trips.

SIGNIFICANCE. In this time of increasing concern for man's environment, it is important to recognize the value of past and future contributions of research facilities such as the Cedar Creek Natural History Area. Applications of research findings from Cedar Creek play an important role in sound management of our forests, farmlands, prairies, lakes, marshes and all natural resources.

J.R. Tester
Director

