

United States
Environmental
Protection Agency

Office of
Research and
Development

Office of
Water

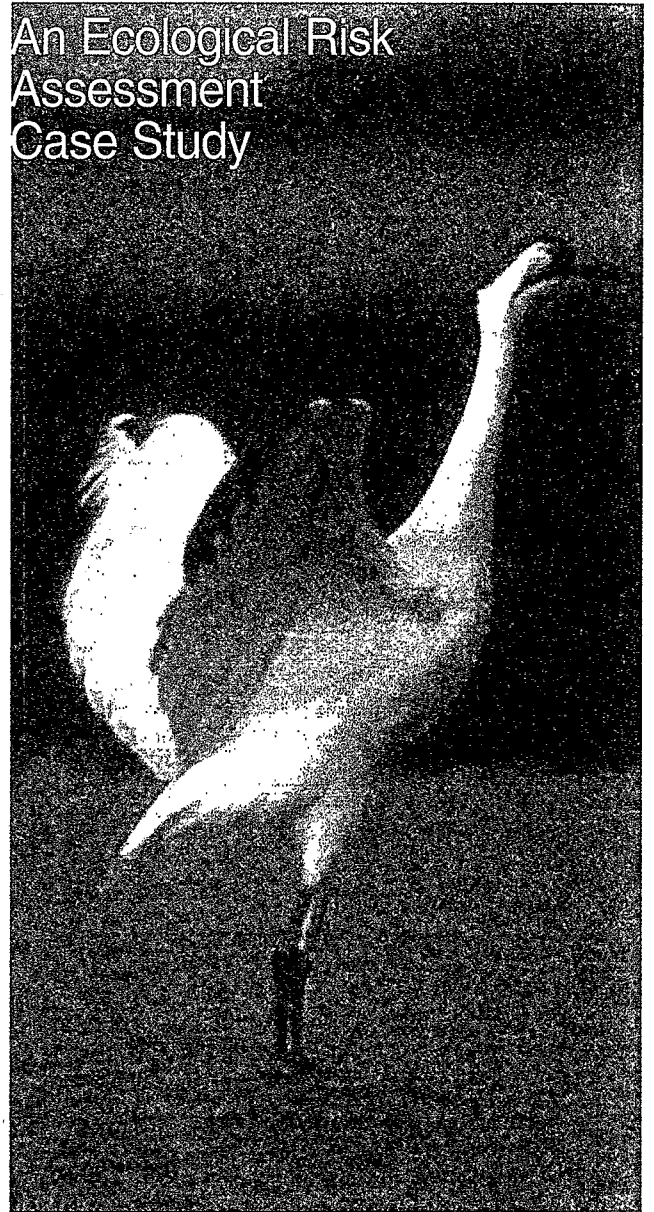
EPA/822/F-97/003

April 1997



Middle Platte River Watershed

An Ecological Risk
Assessment
Case Study





NEB Game & Parks Commission

Backwater area. Side channels and backwaters provide breeding habitat and refuge for fish and amphibians and contribute to the biodiversity of the floodplain. These important ecosystems are formed as the river migrates across the floodplain during high flow periods. Lower flows caused by diversions primarily to support agricultural production facilitate conversion of these areas to woodlands and often to cropland.



What is an ecological risk assessment

An ecological risk assessment evaluates the potential adverse effects of human activities on the plants and animals that make up ecosystems. The risk assessment process provides a way to develop, organize and present scientific information so that it is relevant to environmental decisions. When conducted for a particular place such as a watershed, the ecological risk assessment process can be used to identify vulnerable and valued resources, prioritize data collection activities, and link human activities with their potential effects. Risk assessments provide a focal point for cooperation among local communities and state and federal government agencies, and a basis for comparing different management options.

COVER PHOTO: Nebraska Game & Parks Commission

COVER: The middle Platte River valley has hemispherical significance as a staging area for migratory water birds. The region is best known for the nearly one-half million sandhill cranes (cover photo) and several million ducks and geese that migrate annually through the region. Approximately 50 species of mammals and 300 species of migratory birds use the woodlands, grasslands and wet meadows in the Platte River valley.

Why is the middle Platte River special?

The Platte River flows eastward across Nebraska providing water for irrigation, electric power, recreation, fish, wildlife, and community and industrial water supplies. The middle segment of this river has national and international environmental importance. It is the major staging (resting) area for one-half million sandhill cranes and several million ducks and geese that migrate annually through the



The middle segment of the Platte River flows approximately 266 km (165 miles) from the confluence of the North and South Platte Rivers, in western Nebraska, to its confluence with the Loup River.

area. Many other species of mammals, birds and fish including six endangered or threatened fish and bird species (such as the whooping crane) use the water, woodlands, remaining native grasslands and wet meadows in the middle Platte River valley. Surface and groundwater flows from this segment of the

Platte River system are also important to the economic stability of central Nebraska by irrigating about two million acres of land, mostly for corn production.



NEB Game & Parks Commission

Many resident and migratory birds require open sandbars and shallow water for nesting and roosting. Reduced river flows have changed the characteristics of the river, allowing shrubs and trees to colonize sandbars (as depicted in the photograph), forming islands surrounded by deep water, thus decreasing critical habitat for these birds.

The volume and variability of water flows to the middle segment of the Platte River have been reduced by dams in Colorado, Wyoming and Nebraska along with irrigation and other water withdrawals. Cultivated agriculture has replaced most of the native prairie and river-dependent vegetation that once occupied the middle Platte River watershed. Reductions in quality and quantity of water and habitat have prompted concern for the welfare of the sandhill crane, other migratory bird populations, and threatened and endangered fish and bird species. American Rivers, a national river conservation organization, has designated the Platte River as one of the ten most endangered rivers in America.

Key stressors being evaluated in the ecological risk assessment are:

changes in the magnitude, timing and frequency of middle Platte River flows

loss or disturbance of critical wildlife habitat

changes in stream channel characteristics

degraded water quality due to agriculture-related activities

How can this valuable resource be protected?

Interested organizations collectively developed a management goal and a scientific study approach to evaluate the environment of the middle Platte River. An ecological risk assessment will analyze the stressors and resulting ecological effects in the middle Platte River watershed. The assessment will promote community awareness of ecological problems in the watershed and will provide information to resource managers, including government officials, organizations and the public. These activities promote environmentally beneficial results.

How is the ecological risk assessment being done?

The landscape in the middle Platte River watershed is a mosaic of interdependent habitats that support biological communities. The ecological

risk assessment brought together numerous organizations to analyze the impact of stressors on these habitats and the wildlife populations in the watershed. A report describing the management goals for the Middle Platte River watershed and the analysis plan for the assessment will be available upon completion of the analysis described above.

How will the results be used?

The middle Platte River Ecological Risk Assessment will help resource managers predict how potential changes in land use and river flow could affect the biological communities in the watershed. This will enable resource managers to make decisions based on more information. This project is co-sponsored by the USEPA's Office of Water and Office of Research and Development as an effort to bring the science of risk assessment into the local community decision-making process.

The U. S. Environmental Protection Agency thanks the following for their participation in this assessment effort:

Central Nebraska Public Power and Irrigation District
Nebraska Public Power District
Nebraska Department of Environmental Quality
Nebraska Natural Resources Commission
Central Platte Natural Resources District
Nebraska Game and Parks Commission
Tri-Basin Natural Resources District
Nebraska Department of Agriculture
The Nature Conservancy
Prairie Plains Resources Institute
Platte River Whooping Crane Maintenance Trust
University of Nebraska — Lincoln and Kearney
US Fish and Wildlife Service
US Geological Survey
US Department of Agriculture

For more information, contact
Robert Fenemore (WWPD)
US EPA Region VII
726 Minnesota Avenue
Kansas City, KS 66101
(913) 551-7745
