

FRANK LAKE — IT'S MORE THAN DUCKS

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Wetlands are among the most productive ecosystems on the planet, and are the most biologically diverse of the temperate zone ecosystems. Canadian wetlands support over 300 species of birds and 70 species of mammals as well as several species of reptiles. Wetlands are also essential for the survival of all our amphibians and contain a myriad of invertebrates, micro-organisms and native plant life. Because of the importance of wetlands and the myriad of threats facing them, Ducks Unlimited Canada's (DU) projects have focused on wetland development and protection. Many DU projects also incorporate areas of productive upland habitat. In addition to their importance for waterfowl production, both wetland and upland sites are very important for conserving a broader range of biodiversity.

In 1994 DU established a "More Than Ducks" national committee and directed it to incorporate native plant materials into Prairie Care projects and optimize the benefits for a multitude of plants and animals that occur in DU and North American Waterfowl Management Plan wetland and upland developments.

Located near High River in southwestern Alberta, the Frank Lake basin is a provincially significant wetland.⁸ When it has had water, it has been the most important wetland in southwestern Alberta for nesting and staging waterfowl, marsh birds, and shorebirds. The basin and surround-

ing landscape have been extensively modified for decades by human activities. The Frank Lake area is a DU/Alberta Prairie Care project site that has recently been restored and that has been selected for the implementation of several projects under the More Than Ducks program.

History of Frank Lake

Frank Lake has had a history of widely fluctuating water levels that have severely diminished its productivity. In recent decades, the lake has varied in size from over 3,800 acres in the 1950s to being completely dry in the 1930s, mid-1940s, and from 1983 to 1989. DU first looked at the possibility of diverting water to Frank Lake from the Highwood River in 1946 but the scale of such a project was beyond its scope at the time.

In 1952, the Frank Lake basin experienced flooding during a record runoff. The local municipal district and the Alberta Government began a drainage program that would have drained the entire lake. However, DU stepped in and only the south basin was partially drained. Flooding occurred again in 1975 and a sheet steel weir was constructed to stabilize the remaining marsh. A water license was issued to Ducks Unlimited. After 1975, water levels in the remaining lake receded owing to a lack of runoff and, in 1983, Frank Lake went dry.

In 1988, DU took advantage of an



Yellow lavandula (Oenothera flava)

C. Wallis

opportunity to secure a water supply for the lake. Cargill Ltd. proposed to build a large meat packing plant near High River. The firm's plan to construct a pipeline northeast to the Bow River to facilitate disposal of the plant's tertiary treated waste water met with strong opposition. In May of 1988 DU was approached by Alberta Environment to use Frank Lake for the disposal of Cargill's waste water. DU agreed to this provided they could get additional water to restore the marsh and make the Frank Lake complex a viable wetland. Alberta Environment agreed to DU's proposal and additional water supplies for Frank Lake were secured from the Town of High River's tertiary effluent and from natural flows in the Highwood River. Diversion schedules were designed to eliminate conflicts with the Highwood fisheries.

In 1989, a pipeline was constructed to Frank Lake and DU undertook the construction of additional diking as well as water controls to regulate the marsh. Flood-prone lands and adjacent uplands were

purchased. This allows for the back-flooding of portions of the original marsh that had been drained and provides for the restoration of upland areas to native grassland species to produce cover for wildlife. Seven hundred acres of back-flood wetlands have been added to the roughly 2,500 acres of the main Frank Lake basin. Almost 2,000 acres of upland cover are being restored.

In 1994 DU funded a habitat mapping program as well as spring, summer and fall surveys of wildlife including vascular plants, amphibians, reptiles, birds and mammals. A Breeding Bird Survey route and several breeding bird transects were established to provide a basis for future monitoring, particularly in upland habitats. Field studies are continuing in 1995.

Description of the Frank Lake Basin

The major habitat types of the Frank Lake Study Area have been



White-faced Ibis

C. Wallis

broadly classed into four categories: upland native mixed grasslands; meadows and shorelines; wetlands; and human-modified habitats. Grasslands occur only as small remnants on the surrounding uplands. Lower-lying meadows and shorelines occur around temporary wetlands and the permanent water of the larger basins. The wetlands include expanses of open water and extensive bulrush marsh and unvegetated shores. Human-modified habitats include cropland, planted cover and previously cultivated wetlands. To date, 177 vascular plant species (147 of which are native), two amphibian species, 168 bird species, and 13 species of mammals have been recorded in the Frank Lake project area. The most environmentally significant habitats have been identified and mapped. These include: all remnant patches of upland native mixed grassland; a productive shoreline complex on the largest peninsula in the largest lake basin; an extensive bulrush marsh in the largest lake basin; and diverse wetland vegetation, shorelines and

shallow open water in the bays and along the shores of the larger basins.

Associated with these significant habitats are regionally significant concentrations of migrant shorebirds, nesting and migrating waterfowl, and rare or endangered species. The diversity of shorebirds is great. Shorebird species include species that are rare in Alberta such as Sharp-tailed Sandpiper, Western Sandpiper, Red Phalarope and Dunlin. Black-necked Stilts have nested in recent years. Frank Lake provides an important staging area in spring and fall for Trumpeter Swans — as many as 70 have been noted during migration. Up to 20 White-faced Ibis have been observed and the species may nest. Some rare plant species have also been recorded.

The most significant plant and animal species are:

- 9 prairie bird species considered to be of high priority for the North American Waterfowl Management

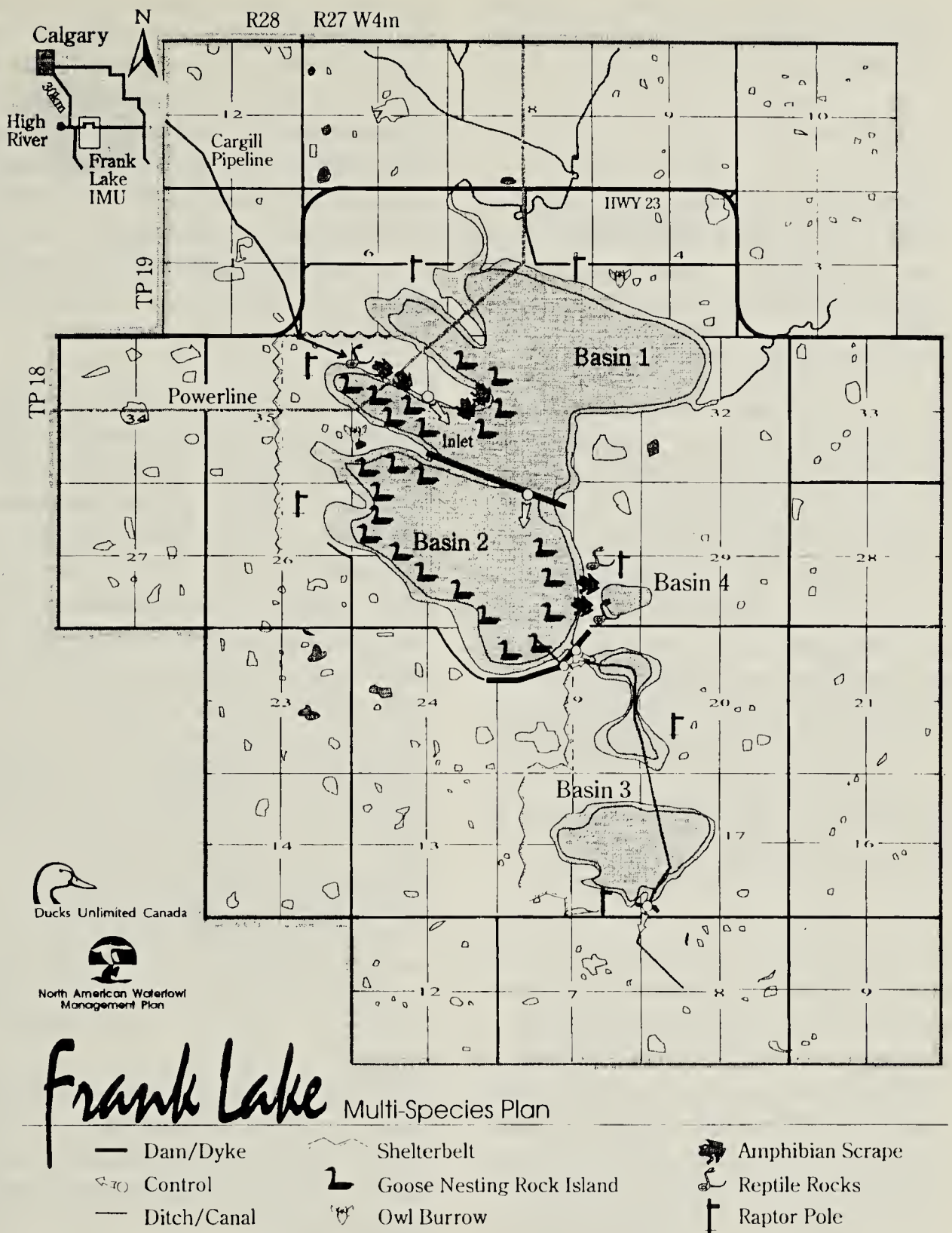


Figure 1. Frank Lake basin, southwestern Alberta.

Plan; 4 vulnerable, 5 threatened and 1 endangered species as defined by COSEWIC; and 8 species (5 Red-listed and 3 Blue-listed) of concern in Alberta (Piping Plover, Baird's Sparrow, Trumpeter Swan, Burrowing Owl, Peregrine Falcon, Upland Sandpiper, Loggerhead Shrike, Ferruginous Hawk, Short-eared Owl, Long-billed Curlew, American White Pelican, Bald Eagle, Prairie Falcon).^{1,2,5} Of

these, Piping Plover, Loggerhead Shrike and Burrowing Owl have not been sighted in recent years.

- 19 regionally or provincially rare bird species.^{6,7}
- 1 provincially and 3 nationally rare plants, including a COSEWIC threatened species (western blue flag (*Iris missouriensis*), yellow lavauxia (*Oenothera flava*), blunt-fruited

yellow cress (*Rorippa truncata*) and slender yellow cress (*Rorippa tenerrima*).^{2,3,4}

Management

Although regional populations of many native plants and animals have been significantly reduced or eliminated, DU's Frank Lake project provides high quality habitat for a variety of native wildlife. It also offers an opportunity to restore several degraded habitats. In the past, many wildlife enhancement projects have focused on one or a few species or species' groups. The challenge at Frank Lake is to institute an ecologically based management plan that will maintain the range of natural habitat variability. Management must not only provide habitat for the target waterfowl species of traditional wetland projects but also for the full range of biodiversity that has historically and recently occurred at the site.

Grazing, fire, and natural water level fluctuations were historical factors in grassland and wetland ecology in the Northern Great Plains including the area at Frank Lake. A variety of techniques, including reclamation of cultivated lands, grazing, burning, and water level management, have been implemented or are being considered for maintaining and restoring productive habitats at Frank Lake. The results of inventory and monitoring programs will be factored into future management and development decisions.

The main intent of the management plan for Frank Lake is to reestablish the marsh on a permanent basis. The maintenance of healthy marsh conditions is essential, not only to waterfowl but for a wide variety of marsh species. This includes a colony of several thousand nesting

Franklin's Gulls that has reestablished itself there. Protection of temporary wetlands and gradual draw-downs of some basins will be used to maintain the full range of marsh vegetation, rare plants and feeding habitats for water birds, marsh birds, and shorebirds. Portions of the wetlands will be shallowly back-flooded to provide habitat for waterfowl and migrant shorebirds.

Grasslands will be managed and restored to provide suitable conditions for native grassland plants, birds and mammals. Waterfowl production will be maximized through maintenance of lush upland nest cover, particularly in important nesting areas adjacent to wetlands. This dense cover will also support species like Baird's Sparrow. Conversely, cover removal through grazing or fire is essential for upland species like the Richardson's Ground Squirrel and Chestnut-collared Longspur. In grassland ecosystems, the Richardson's Ground Squirrel is a keystone species that directly or indirectly is important to the survival of many prairie species.⁸ This includes several predators like American Badger and Ferruginous Hawk that are now rare in the region. Currently, grazing is being used on a limited basis to test its effectiveness in creating habitat diversity in tall dense planted cover.

Late summer and fall burning would most closely mimic the natural fire regime. However, spring burning may have a role to play in controlling some non-native species, for example, Kentucky bluegrass (*Poa pratensis*).⁸ There is no controlled burning being undertaken at the present time.

Artificial structures have been constructed for a limited number of species. Examples include shallow scrapes for breeding amphibians; nest

boxes for Burrowing Owls and Mountain Bluebirds; nest platforms for Canada Geese and hawks; rock piles for garter snakes; and rock islands for nesting waterfowl and shorebirds. Plantings of native shrubs will increase the use of the area by migrant songbirds and may attract nesting Loggerhead Shrikes.

The effects of bird-watchers, hunters, researchers and management activities during critical biological events are being accounted for in development and management plans. Measures that have been taken or are being considered to reduce these impacts include setting up viewing blinds, limiting access and developing the area to redirect visitors away from sensitive areas. One of the simplest management prescriptions is to avoid extensive placement of trails through productive shoreline habitats. The location of trails will be varied so that they are not running the length of productive or rare linear habitat or along an interface between two habitats.

Conclusion

Nowhere in southwestern Alberta is there a better opportunity for the More than Ducks program to add value to wetland and upland conservation programs than at Frank Lake. It is benefiting many wildlife species and habitats and helping to restore some of the biodiversity that has been lost owing to impacts from human activities over the last century. Carefully planned and controlled ac-

cess and viewing sites will provide public enjoyment and education while maintaining the productivity of this important wildlife area.

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