

# Ducks Unlimited in Alaska

First Joint Project Assists Waterfowl

by Dan Rosenberg

Over 20,000 motorists pass through the Palmer Hay Flats State Game Refuge daily as they drive the Glenn Highway between Anchorage and the Matanuska Valley. These commuters may have recently noticed a new look to the landscape just north of the Matanuska River at a point about 35 miles north of Anchorage. There, what was once an unbroken sweep of shrubs, grasses, and sedges has been transformed into a series of 13 new ponds connected by nearly four miles of meandering channels. To motorists, however, the most prominent features on both sides of the road appear to be large dirt mounds.

These large dirt mounds will soon be nesting islands for waterfowl. Constructed last March and April, this cooperative project between ADF&G and Ducks Unlimited, Inc. (DU) was designed to enhance waterfowl production on the Refuge. DU contributed approximately \$90,000 to test the feasibility of increasing nesting habitat for mallards and pintails in Alaska. DU, a private non-profit corporation dedicated to wetland and waterfowl conservation, has funded many similar projects in Canada and the lower 48 states. This is the first project of its type to be constructed in Alaska.

Why do we need to spend money to create more duck habitat, especially in Alaska?

Annually since 1955, biologists from the U.S. Fish and Wildlife Service and Canadian Wildlife Service have conducted surveys, counting breeding pairs of waterfowl, to get an index to breeding populations. Each spring, biologists fly 38,000 miles at low altitudes in small aircraft over a large portion of the major waterfowl nesting areas. The index they compile is used to make yearly comparisons of waterfowl populations and determine population trends. In 1985, breeding population estimates for mallards and pintails were the lowest recorded in 30 years of surveys for North America.

While slightly improved in 1986, mallard populations are still 24 percent below the average from 1955-1986 and pintail populations are 44 percent below their 31-year average. Duck production in Alaska, which produces 20 percent of Pacific Flyway waterfowl, was also well below normal. Reduced continental breeding populations and poor nesting-season weather contributed to this decline. While we cannot do much about the weather, there are several things both governmental agencies and concerned citizens can do about preventing or reversing the loss of wetland habitat which has contributed to the decline in breeding populations. One method is to improve or "enhance" existing habitat. This, of course, is very expensive, and that is where organizations such as DU enter the picture, with nationwide fund-raising campaigns.

With over 4,000 fund-raising dinners throughout the country, DU generates millions of dollars annually. This money is used to reverse North America's wetland losses. In the U.S.

alone, nearly a half-million acres of wetlands are lost annually. Most of these wetlands are drained and filled for agricultural development or urban expansion. In the lower 48 states, less than half the wetland acreage at the time of settlement remains today. In the U.S., DU is spending money to improve or create new breeding habitat in the five greatest duck-producing states: North Dakota, South Dakota, Minnesota, Montana, and Alaska.

Not just any wetland is suitable for a waterfowl enhancement project. There are many biological as well as political decisions that must be made in choosing an appropriate site. Most importantly, there needs to be ample surface and subsurface water to fill ponds; soils need to provide nutrients for plant growth; ponded water must not percolate through the substrate, draining ponds; and there must be a source of waterfowl available to colonize the newly created sites. The Palmer Hay Flats State Game Refuge was selected because it provided the necessary biological criteria; because of its close proximity and accessibility to over half the state's residents; and because it is state-owned land under the management of ADF&G and the Alaska Department of Natural Resources.

The Palmer Hay Flats State Game Refuge was established by the legislature in 1975 to protect game populations and their habitats. The 45-square-mile Refuge provides important staging and resting areas for ducks, geese, swans, and shorebirds during spring and fall migration. Mallards, pintails, wigeon, green-winged teal, and shovelers all nest on the Refuge, but because much of the Refuge's wetlands remain unsuitable for nesting, populations are low. Most of the Refuge's wetlands consist of tidal flats, wet meadows, and shrub-bogs that do not provide the necessary mix of ponds and islands needed by breeding ducks. Because more nesting means more ducks to enjoy for those who like to bird watch and hunt, ADF&G and DU joined forces to create the missing ingredients.

To nest and rear their broods successfully, ducks need the right combination of food, cover, open water, and secure nest sites. This requires a combination of open water, aquatic vegetation, and islands. Aquatic vegetation, when interspersed with areas of open water in ponds, provides cover for broods, provides food in the form of seeds as well as other plant parts such as rhizomes (underground stems), and provides an important substrate for invertebrates. Invertebrates, such as insect larvae, are an important food source for newly hatched ducks which, because of their rapid growth, need a high protein diet. Islands provide secure, dry nesting sites, offering protection from terrestrial predators and fluctuating water levels.

Wildlife habitats are always changing. Fires and earthquakes cause the land to uplift or subside; trees slowly replace shrubs and turn a meadow into a forest in the natural process known to ecologists as succession. Those species best able to survive

and reproduce in the new habitat are the most successful. In this case, knowing the habitat requirements of ducks, biologists from the two organizations and DU engineers used heavy construction equipment rather than relying on the forces of nature to alter the habitat to fit the needs of nesting ducks.

Since this project required excavation in a wetland, ADF&G (as would any private citizen or commercial enterprise intending to place dredge or fill material in a wetland) needed to obtain a wetland permit from the U.S. Army Corps of Engineers. This is a requirement under section 404 of the Federal Water Pollution Control Act. Because the project was in a state game refuge, it needed an ADF&G Special Areas permit as well. Also, because this project site was located in a coastal area, the state needed to certify that the project is in the public interest and would not adversely affect wetland values such as water quality, fish and wildlife habitat, floodwater storage, and ground-water recharge. A 30-day public comment period was an integral part of this process.

During the permit review process, fisheries biologists discovered that juvenile coho salmon were rearing in a portion of the proposed project site. While it was determined that the project would not interfere with the biological requirements of these fish, ADF&G decided to enhance the habitat also for coho salmon. By digging one pond to a depth of 10 feet, deep enough to provide sufficient dissolved oxygen for fish beneath the ice, project directors were able to increase overwintering habitat.

On a cold, clear March 17, construction began. Construction occurred in winter, when the heavy equipment needed to excavate the ponds and make the islands would do the least damage to the vegetation of the surrounding wetland. With the ground frozen to depths of five feet, and vibrations from the ice wreaking havoc on the heavy equipment, work proceeded slowly. The crew worked seven days a week from sunrise to sunset, in a race to beat the spring thaw. Ponds and islands began forming. As the frozen surface began softening with longer spring days, construction quickened. By April 18—as ducks and geese returned to the Matanuska Valley—13 ponds, 24 large islands, and the nearly four miles of meandering channels, also called level-ditches, were completed. While construction was underway, ducks landed in the project—the only open water for miles around.

Six ponds were constructed on the east side of the Glenn Highway, between the highway and the Alaska Railroad, and seven ponds were constructed on the west side of the highway. Each pond measures about 300 feet across, covering about two acres, and averages two feet deep. This depth is considered ideal for surface-feeding ducks (also called dabblers) such as mallards and pintails, which often feed by “tipping-up” at the surface and stretching their heads and necks to forage for food on pond bottoms. Each large island is about one-tenth to one-quarter acre, providing enough space for several pairs of birds to nest on each island.

Upon completion, some islands were 12 feet above the water surface. Prominent from the highway, they elicited many comments. Because islands were constructed from frozen soils con-

taining about 50 percent water content, they needed to be oversized to allow for shrinkage as they thaw and water drains or evaporates. Additionally, the material excavated from ponds and used to make islands was placed on top of adjacent frozen ground. Several summers may pass before both the ground and islands thaw and settle to their final height, sloping gradually to about 4 to 8 feet above the water surface.

The meandering channels bend every 75 feet and are 20 feet wide and two feet deep. By bending every 75 feet, restricting the visibility of ducks at water level, more pairs will likely establish neighboring nesting territories within the project. Along these ditches are smaller islands which were formed by side-casting spoils during the excavation of the level-ditches. These smaller islands, which will also thaw and settle, are intended to be used as resting sites and provide additional nesting locations.

In mid-April, when the heavy equipment finished its job, and birds returned to the Matanuska Valley, there was still much work to be done, especially with revegetation in and around the ponds and on the islands. Ducks require vegetation for nesting, broodcover, and food. Additionally, vegetation on the islands prevents erosion. Eventually, natural vegetation would grow, but project managers wanted to expedite the process to encourage nesting in the next few years and prevent erosion. In June, a crew composed of ADF&G employees, volunteers from the Palmer DU chapter, and revegetation experts from the State Plant Materials Center in Palmer, spread and raked in 8,000 lbs. of fertilizer and 400 lbs. of native perennial grass seed. In August, over 400 willow seedlings were planted on the islands.

An ongoing part of the project is to monitor both the value of the project to nesting waterfowl and other birds, determine the effects of the project on the juvenile coho salmon using the area, and measure the success of revegetation efforts. This information will help biologists evaluate ways to improve the project and determine whether it should be expanded. Already, in 1986, ADF&G biologists have located two mallard, two pintail, two shoveler, one wigeon, and two Canada goose nests in the project. The results of the revegetation effort will also be applicable to many development projects in southcentral Alaska, helping private developers find efficient and cost-effective methods for use in revegetating disturbed sites.

This project was designed to test the feasibility of further waterfowl habitat enhancement projects in Alaska. Waterfowl habitat manipulation is still in the experimental stage in Alaska, but ADF&G and DU are optimistic that this site has excellent potential to increase local duck production and simultaneously improve habitat for fish and other wildlife. The project also has the opportunity to provide educational, scientific, and recreational opportunities for many Alaskans. Careful monitoring of the project over the next few years will provide answers to many questions.

*Dan Rosenberg, a Waterfowl Biologist with the Division of Game, ADF&G, Anchorage, has been working on waterfowl and wetlands enhancement projects for the past several years.*



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