

Endangered Species UPDATE

*Including a Reprint of the latest USFWS
Endangered Species Technical Bulletin*

July / August 1987 Vol. 4 No. 9 & 10

THE UNIVERSITY OF MICHIGAN

School of Natural Resources



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Endangered Species UPDATE

*A forum for information exchange on
endangered species issues*

July/August 1987
Vol. 4 No. 9 & 10

Staff:

Kathryn Kohm..... Editor
Tatiana Bernard..... Executive Editor
Scott Boven..... Layout & Design

Instructions for Authors:

The Endangered Species UPDATE welcomes articles related to species protection in a wide range of areas including but not limited to: research and management activities for endangered species, theoretical approaches to species conservation, and habitat protection and preserve design. Book reviews, editorial comments, and announcements of current events and publications are also welcome.

Readers include a broad range of professionals in both scientific and policy fields. Articles should be written in an easily understandable style for a knowledgeable audience. Manuscripts should be 7-10 double spaced typed pages. For further information please contact Kathryn Kohm at the number listed below.

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Cover:

Aleutian Geese; one of the rare and endangered species reared at Patuxent Wildlife Research Center in Laurel, Maryland. Goslings originally taken from Buldir Island in the Aleutians.

Photo by: Luther C. Goldman

Letter From the Editor

Subscribers,

Since the Reprint Program was initiated in 1983 by the School of Natural Resources, it has weathered university budget cuts and often limited and uncertain resources. Yet the graduate students who have edited the bulletin over the past four years have managed to steadily develop its strength as a unique source of information exchange on the federal endangered species program and other species conservation issues.

This month's issue represents my own effort as the new editor to further distinguish the Reprint, improve its quality as an information source, and ultimately to increase subscriptions toward financial self-sufficiency.

In addition to the new cover and new name, the UPDATE will include a book review, a bulletin board listing of current news and announcements, and a technical notes section. This last section is particularly exciting. It will be produced by the Center for Conservation Biology at Stanford University and will serve to keep you up-to-date on current and ongoing research activities in the field of species conservation. Upcoming topics for feature articles include a 15-year retrospective on the Endangered Species Act, climate change and habitat effects, and private land trusts and endangered species conservation.

Contributions to each and all of these sections are needed to maintain the UPDATE as a true forum for information exchange. If you are interested in contributing material or have suggestions for articles and/or book reviews, please let me know.

And finally, it is important to reiterate the fact that species are not the only thing which we are working to save. The need to increase subscriptions looms large in plans for the coming year. Presently, the UPDATE does not support itself financially and is in danger of extinction. To keep the UPDATE alive, we need to increase subscriptions to the point at which we are viable...that is, financially self-sufficient. The easiest way to double subscriptions is, of course, for each current reader to introduce the UPDATE to one new subscriber. It's so simple that it might work. In short, your help in advertising the UPDATE and renewing your own subscription is vitally important. Every \$15 is essential to keep this unique source of information available.

I hope you like the new format. I look forward to comments and suggestions for future issues.



Kathryn Kohm
UPDATE Editor

Saving Wetlands Worldwide

by Kathleen Rude

Rubbing up against the Arctic Circle, Iceland stands as a monument to the immense volcanic powers exorcised deep within the earth's core. A little larger than the state of Wisconsin, the land is dominated by the active cones that are completely covered by 3,240 square miles of glacier.

Within this landscape is one of the most important wetland breeding areas for ducks (including scaup, eiders, gadwall and pochard) in northern Europe. Fourteen square miles and nowhere over nine feet deep, Lake Mývatn serves as a nesting ground for thousands of birds that migrate to the British Isles and along the coast of Europe to spend the winter.

Lake Mývatn is but one of the wetlands of international importance found throughout Europe, Asia, Africa, and the Americas. While not all are as dramatic, these wetlands cover a lot of ground. In the Old World, they range from the northern Russian tundra to the African Sahel, and from the Atlantic coast of Iceland to the Pacific coast of Japan. The New World, too, boasts extensive wetlands, from the northern marshes in Alaska to the tropical floodplains in Brazil. Unfortunately, these areas are also losing a lot of ground to human development, making wetlands and the wildlife they harbor a threatened resource worldwide.

Flyways

Even though wetlands around the globe vary in shape and size, they are banded together by the waterfowl and wading birds they share in common. Ducks, geese and other birds rely on a series of wetlands along specific flyways for yearly migration. Four major flyways stretch across the New World. All of them originate in Canada, where approximately 70 percent of all North American waterfowl breed. Another 28 percent raise young in an area encompassing five U.S. states. In fall,

these birds migrate to the Southern U.S., Mexico, and Central America. A few even venture as far south as Peru.

With twice the land mass of the New World, the Old World also has twice the flyways. Eight in all stream down the bulk of the Old World; seven originate in breeding grounds of northern Scandinavia and the Soviet Union and one begins in Greenland, Iceland and northeast Canada. The corresponding wintering grounds are found throughout Europe, northern and central Africa, the Middle East, India and Southeast Asia. The most easterly of these flyways also connects the Old World to the New, as some birds nesting in the Soviet Union migrate over to the California coast. A few birds fly even farther east. In 1977, a 14-year-old snow goose was banded in the USSR and shot in Texas.

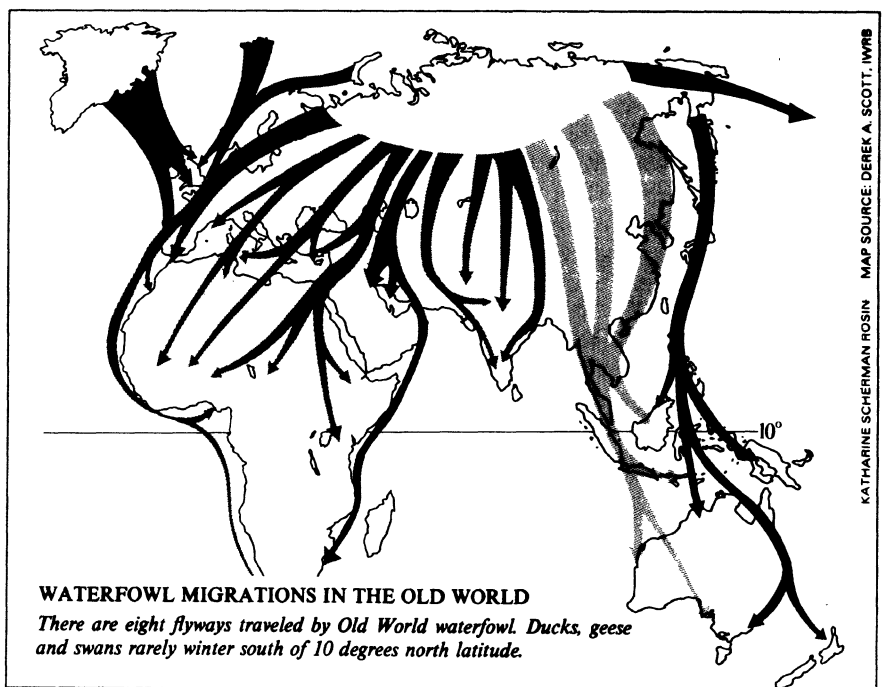
Producing the highest concentrations of waterfowl for most of these flyways is the Old World equivalent to Canada—the Soviet Union. With wetlands in arctic tundra, taiga, deciduous forest, steppe, and desert, the USSR harbors more waterfowl than all other European countries combined and as

many ducks and geese as can be found in the rest of Asia. From Russia, Old World flyways extend into more than 50 countries north of the equator.

Endangered Species

Wetlands along these twelve flyways are critical to the survival of ducks, geese and other birds. They also harbor a variety of endangered plant and animal species. William Niering, from Connecticut College's Department of Biology, recently compiled a list of plants and animals that either are already listed under the Endangered Species Act or continue to be in need of protection. He found that approximately 50 percent of the listed animals and 28 percent of the listed plants are wetland dependent or related. Of the 25,000 plants still in need of protection, according to Niering, an estimated 700 may be wetland related. These species include: red wolf, Florida panther, key deer, Aleutian Canada goose, whooping crane, Everglades snail kite, Eskimo curlew, Plymouth red-bellied turtle, black toad, and the Houston toad.

Such a compendium of endangered



and threatened wetland species has not been completed for the rest of the world. However, in his book, *Waterlogged Wealth*, Edward Maltby identifies some endangered wetland wildlife found outside of North America. For example, he reports that seven species of crocodile are endangered worldwide, and an additional three species are listed as vulnerable in the *Red Data Book*. One of the most severely threatened is the Orinoco crocodile in Colombia and Venezuela. The number of marsh deer in the southwest Mato Grosso in the Pantanal of Brazil is diminishing due to poaching, diseases transmitted by domestic livestock, and habitat loss caused by increased ranching and agriculture. Maltby also states that tropical wetlands host a variety of threatened monkey species: the leaf monkey in Thailand, the proboscis in Borneo, and the Tana River red colobus, the Vervet monkey, the Tana River mangabey, the baboon, the Lesser Galago and Zanzibar bushbabies in the lower Tana delta of Kenya.

Different Countries, Common Threats

All wetlands of the world have at least one thing in common—they are in trouble. The impacts of drainage, drought, pollution and population pressures are felt around the globe in developed and developing nations alike. Following are several examples of common threats imposed on wetlands throughout different countries of the world.

Netherlands/West Germany/Denmark

The Waddensea supports vast numbers of waterfowl that breed, moult, migrate through and winter there. The rich soil makes this 2.5 million-acre wetland one of the most important in Europe. For the Brent goose, which flies 3,000 miles from northern Siberia, the Waddensea is a necessary resting stop before continuing further south. The Waddensea's shallow and relatively warm waters provide excellent breeding habitat for many species of fish and crustacea.

Unfortunately, people continue to

use the area in ways that threatened its existence. The building of dikes to reclaim land from the sea, which began a thousand years ago, continues to diminish wetlands in the wilds. Organic pollution, heavy metals and PCBs are killing waterfowl and causing severe declines in the reproductive success of a small seal population living there. The Dutch military even operates several training grounds in the wetland, and industrial and port developments are being planned for the area.

Soviet Union

The Caspian Sea and the Aral Sea are both located in the desert regions of the southwest. The wetlands on their shores and river tributaries provide resting places for millions of migrating waterfowl making the long flight across the desert sands. Water withdrawal for irrigation is causing the water levels to drop dramatically in the lakes, threatening both the wetlands and the major fisheries in the area. The Aral Sea has dropped more than 30 feet since 1960, causing the regional fisheries to virtually disappear. The Caspian Sea had dropped almost 10 feet by 1977, and has since regained half of that because of wet weather. Additional diversions for irrigation are planned, which could endanger Caspian Sea fisheries as well, including 90 percent of the world's catch of sturgeon. The impact on waterfowl is still unknown.

Spain

The marshlands of Marismas del Guadalquivar, perhaps the last large, intact wetland ecosystem remaining in southwestern Europe, stretch from Seville down to the Atlantic coast. Some 87,500 of its 625,000 acres are protected by the Coto de Doñana National Park, which includes a wide tongue of land separating the marsh from the sea. Human activities on the marshlands outside the park endanger the entire complex. Runoff from surrounding cultivated lands contaminates the marshes with pesticides, and irrigation and drinking water withdrawals may seriously lower the groundwater table.

Tunisia

Lake Ichkeul in northern Tunisia is one of the main Mediterranean wintering grounds for some 200,000 waterfowl. The lake is fed by six wadis (gullies) that dry up in summer, causing the water level to temporarily fall while salt water from the Mediterranean Sea flows in. Dams being built on three of these wadis for irrigation purposes will drastically reduce the flow of freshwater into the lake. The resulting increase in salinity must be eliminated before it permanently damages the entire ecosystem. Dams, however, are being planned for the remaining three wadis, as well. Eutrophication is also a problem created by fertilizer runoffs from neighboring farms.

The Sahel

The entire Sahel region of Africa continues to be plagued by cyclic periods of drought. The wetlands on which many Sahelian people depend have suffered serious damage, not only from drought but also from attempts to divert and retain water, resulting in altered patterns of river flow. For example, Lake Chad, one of Africa's largest shallow freshwater lakes, covered 10,000 square miles in 1964. By March 1985 the lake had virtually dried out, a victim of drought and several dams built on its tributaries. Further west, the future of the Inner Delta of the Niger River in Mali is threatened by plans to build dams further upstream in Guinea.

The countries, cultures and environments may be different, but the threats to wetlands remain the same. All nations must find ways to combat these problems in order to manage and preserve the wetlands within their own countries. And because waterfowl depend on a continuous network of wetlands throughout these nations, international cooperation is imperative to preserve the various migrating water birds of the world.

In North America, the U.S. Fish & Wildlife Service estimates that by the mid-1970's, the U.S. had lost 54 percent

(Continued on UPDATE page 3)



NIGER Niger is one of the hottest countries of the Sahel (the semidesert fringe of the Sahara). With the entire region plagued by drought, both people and waterfowl alike rely on the remaining wetlands for both food and water. Millions of migratory birds winter in Sahelian wetlands every year.

of its original wetland acres. Some 99 million acres remain, but North America continues to lose approximately 458,000 acres a year. In the face of this threat, the United States, Canada and Mexico have begun to work together to conserve and manage wetlands in their four flyways. However, international cooperation takes on a new meaning when one must deal with well over 50 countries, cultures and languages and just as many political and legal systems. Yet, nations in the Old World and the New World are beginning to pool their resources, experiences and common goals under the auspices of an international treaty to protect our collective wetlands.

The Ramsar Convention

Despite its vast semiarid and arid areas, Iran is one of the most important wintering areas for waterfowl breeding in western Siberia. In the 1970's, Iran was well in the forefront of waterfowl conservation in the whole of Asia with its banding programs and inventories of national wetlands. As a result, in 1971, Ramsar became the site of adoption for the Convention Wetlands on International Importance Especially as Waterfowl Habitat—otherwise known as the Ramsar Convention. The International Waterfowl and Wetlands Research Bureau (IWRB) in England serves as the convention's scientific and technical branch and the International Union for

Conservation of Nature and Natural Resources (IUCN) in Switzerland handles the administrative, legal and diplomatic services.

The Ramsar Convention, now ratified by 40 contracting parties, is designed to stem the loss and to ensure the conservation of wetlands. Each member country is required to nominate at least one wetland for the List of Wetlands of International Importance. While there are no stipulations for preventing a country from removing

an area from the list, the power of the Convention comes from moral suasion. Presently, some 300 sites covering nearly 49 million acres have been designated for the list, and no sites have been removed from it so far. However, Belgium recently announced plans to delist a 67-acre saltwater site to allow for the construction of a container terminal. It proposes to list 4900 acres of fresh water marshes as compensation. Not only does the Convention bring international attention to the importance of wetlands and the urgent need for their protection, it also provides guidelines for setting up national policies on wetland protection and wetland management practices. Countries also claim that Ramsar has helped to prevent detrimental changes to listed sites.

While the amount of listed acres under the Convention appears impressive, delegates at the May 1987 conference of the Ramsar Convention expressed concern over several developing trends. Along with Belgium, several other countries were sharply criticized for allowing sites to be damaged and even destroyed, and delegates called for "swift and effective action" to overcome "serious deficiencies" in the care of these sites. Delegates also lamented the fact that some countries (including Canada, Finland, Japan, Netherlands, Norway, the U.K. and the U.S.) list wetland sites that already enjoy full protection under national statutes. It was suggested that countries should

follow the lead of Denmark, the Federal Republic of Germany, Italy, and Uruguay, and use Ramsar designation proactively. These nations list their sites and then find ways to protect them as soon as possible.

Currently, the representation in Ramsar is dominated by developed nations. This is due in part to the lack of financial support and trained personnel to carry out conservation work in developing countries. To help alleviate this problem, a clearinghouse has recently been proposed through Ramsar to help developing nations draft conservation proposals and get financial support. IUCN, IWRB, and other international conservation organizations are also compiling inventories of major wetlands in every country and are developing training courses for biologists and resource managers.

Perhaps the greatest benefit the Convention provides is the opportunity for nations to exchange the technologies needed to manage and protect wetlands and waterfowl. It was this opportunity to share valuable experiences that finally motivated the United States to sign the treaty in 1985. In compliance with the Ramsar guidelines, the United States has listed six sites to date: Ash Meadow National Wildlife Refuge (NWR) in Nevada; the "Brigantine" and "Barnegat" units of the Edwin B. Forsythe NWR in New Jersey; Isembek NWR and State Game Range in Alaska; Okefenokee NWR in Georgia and Florida; and Everglades National Park in Florida; and the Chesapeake Bay.

The Ramsar Convention is an encouraging step toward the preservation of international wetlands and the wildlife that inhabit them. As all nations realize, however, the treaty's success lies with each country and its ability to strike a balance between development and environmental protection.

Kathleen Rude is Senior Writer with Ducks Unlimited magazine and a freelance environmental writer. She has a Master's degree in Natural Resources from The University of Michigan and was a former editor of the Reprint. This article was adapted from Ducks Unlimited (Jan/Feb 1986) with additions from the author.

Book Review

Waterlogged Wealth

by Edward Maltby

The goal of resource management is to maximize human benefit while minimizing adverse impacts on the resource system. The path to this goal is one of research, testing, implementing, and monitoring. While we've seen these principles applied extensively to the management of forests, rangeland, game, and fisheries, there has been comparatively little application to the management of the world's wetland systems. And as Edward Maltby points out in *Waterlogged Wealth*, the results have been devastating.

Dr. Maltby's text chronicles the development and subsequent destruction that has occurred or currently threatens many of the globe's most important wetland systems. He examines the many types and remarkable complex functions of wetland systems and appropriately places them within the context of existing indigenous human activity. It is this context that controls the present and future condition of the world's remaining great wetlands. While the industrialized nations of the world have drained, filled, flooded, and cleared most of their original wetlands into submission, developing nations have only recently begun to exert destructive pressure on their wetland resources. With growing demands for agricultural land, water, and fuel, second and third world countries are turning to wetlands, often with the aid and encouragement of the first world. Dr. Maltby has filled his book with examples from South and Central America, Africa, and Southeast Asia that illustrate the physical and economic circumstances which face these nations. The dilemma of wetland development ultimately is boiled down to two choices:

1.) "Turning them over to short-term direct food production, high density aquaculture or intensive livestock rear-

ing (or using them to make foreign currency savings through peat mining or commercial wood production; or

2.) Conserving them for long-term economic, ecological and environmental reasons."

For example, proposed agricultural development in Southeast Asia's Mekong Delta or Fiji's coastal wetlands could influence fisheries production not only in the immediate vicinity but perhaps for thousands of miles out to sea. These types of examples make it clear that decisions of national policy have global implications in such areas as wildlife, fisheries, water availability, sedimentation, and nutrient, carbon, and heavy metal pollution.

Waterlogged Wealth has collected and condensed a myriad of such case studies from the front lines of the wetland conflict from the last 20 years. Written for environmentally concerned citizens more so than professional resource managers, it broadly states the current issues involved in wetland development from around the world. However, the generality of the text may be due to the fact that the essential body of knowledge necessary for sound wetland management practices simply does not exist at this time. This lack of complete knowledge is an issue of immense concern because the functions of each individual wetland are a series of complex interactions with their surrounding physical environment that become even more complex as human impacts increase. Also, wetland environments are constantly changing ecosystems that need to be studied over an extended period of years before critical decisions about their development or non-development can be made. This point is made directly and indirectly throughout the book and is perhaps the

largest hurdle standing in the way of the race to save the world's wetlands.

These ecosystems are coming to be recognized as the most diverse and productive on earth. Edward Maltby's book serves as an excellent introduction into the issues that surround their development and a description of what may become the number one environmental battleground of the 1990's.

Reviewed by Woody L. Held, a graduate of the landscape architecture program at The University of Michigan and an employee in the Environmental Planning and Management Studio at Johnson, Johnson and Roy Inc.



Waterlogged Wealth is published by Earthscan Paperbacks - International Institute for Environmental Development, 1 717 Massachusetts Ave. N.W., Suite 203, Washington D.C. 20036 (202) 462-2298

Beginning with this issue, the *UPDATE* will feature *Technical Notes*, a joint effort between the staffs of the *UPDATE* and the Center for Conservation Biology. The emerging discipline of conservation biology is a composite of information, theory, technology, and experience of several academic disciplines, historically considered separate from each other. We recognize that one of our most critical challenges is the coordination of the talents and efforts of those groups to identify and respond to conservation problems. This can only be accomplished by communication of ideas, priorities, and data among all members of the conservation community, including federal and state agencies, non-governmental conservation organizations, zoos, and academic institutions. We envision *Technical Notes* as an information clearinghouse designed to facilitate such communication. We hope that you will use it as a forum to announce new projects and those that are being contemplated, to advertise symposia, to proffer new ideas for discussion, and to solicit assistance from and interaction with other members of the community in an effort to help solidify the community in a functional sense. Contributions may be addressed to Kathy Freas or Bruce Wilcox, Center for Conservation Biology, Department of Biological Sciences, Stanford University, Stanford, CA 94305, (415) 723-5924.

WWF Workshop: Genetics and Conservation

Combining the expertise of university, zoo, and other conservation organizations, World Wildlife Fund hosted a "Workshop on the Conservation Applications of Population Genetics", in Washington D.C. on July 27-28 1987. Twelve leading population biologists and geneticists met to discuss the potential applications of genetics to conservation and to determine the role of WWF

in supporting work in conservation genetics. Discussion focused on the importance of genetics in small, diminishing, and/or managed populations; the use of existing genetics research in conservation planning; the importance of systematics in achieving conservation goals; and the means by which integration of the academic and conservation communities may be further enhanced such that population genetics theory may be profitably applied to conservation problems. It is anticipated that proceedings of the workshop will be published in the *Journal of Conservation Biology*.

Conference on Restorations

Restoring the Earth, a project of the Tides Foundation (founded in 1985), is convening a four day national conference on ecological restoration and innovative design solutions to environmental problems. The conference will be held on January 13-16, 1988 on the Berkeley campus of the University of California. The conference is cosponsored by the University of California, Berkeley, College of Natural Resources and the Center for Environmental Design Research. Scientific and technical sessions will address restoration of coastal ecosystems, estuaries, rivers, lakes, streams, and fisheries, rangelands, prairies, forests, and agricultural lands. Additionally the issues around ecologically sustainable development and the control of toxic waste will be discussed. Information can be obtained from Restoring the Earth, 101 Giannini Hall, University of California, Berkeley, CA 94720.

Plant Conservation

The California Nature Conservancy has received a \$400,000 donation from the David and Lucille Packard Foundation to support its Wild California Research Program. Wild California repre-

sents a unique effort to unify the talents of conservation organizations, agencies, and academics to conduct scientific investigations. Their inquiry will be directed toward increasing our understanding of some 200 threatened species and ecosystems found throughout the state of California. Ultimately the goal of the program is to improve existing techniques for restoration, management, and design of nature preserves.

The focus for one of these projects is the alkali sink scrub community, formerly common in the southern San Joaquin Valley. The spread of agriculture in the valley has reduced this salt-tolerant plant community to a few disjunct patches in Kern County. The Kern Lake Preserve is presently the location of the only known population of *Atriplex tularensis*, Bakersfield saltbush. Formerly thought extinct, this annual plant species was rediscovered in this location in 1983. Low population numbers and reproductive failure since its rediscovery have been compounded by reduced soil moisture have made this species vulnerable to extinction.

The Nature Conservancy has joined forces with the Center for Conservation Biology at Stanford University to begin recovery efforts for this species. The goal of this project is to produce a seed bank, through ex situ propagation, sufficient to maintain the existing population at Kern Lake Preserve and to establish additional populations in other areas. This, in addition to efforts to augment soil moisture conditions, will help ensure the continued existence of this species and community type in southern California.

Bulletin Board

NWF Wetland Conference

The National Wildlife Federation's Corporate Conservation Council along with other cooperating organizations is sponsoring a symposium on wetlands creation and restoration in Washington D.C., October 4-7 1987. The Conference, entitled, "Increasing Our Wetland Resources", is designed as a forum in which engineers, scientists, agency and government officials, conservation leaders, and corporate executives will share their experiences and provide a springboard for enhanced understanding and support of wetlands protection, creation, and restoration.

The conference will be divided into three sections: The first sessions will focus on the status of national and international wetlands. The National Wildlife Federation will release its "Status Report on the Nation's Wetlands" during this period. The second section will examine critical issues affecting wetland restoration and creation. And the final section of the conference will center around the needs of the future. Legislative, public, and private actions to encourage the rebuilding and preservation of wetlands will be discussed.

Proceedings of the symposium and the wetlands status report will be pub-

lished. The early registration deadline for the conference is September 15. To receive the proceedings and gather more information on the conference, contact the Corporate Conservation Council, National Wildlife Federation, 1412 Sixteenth Street N.W., Washington, D.C. 20036-2266.

DU Celebrates Its 50th Anniversary

Over the past 50 years, Ducks Unlimited has been involved in and contributed to broad-based wetland conser-



1937-1987

vation throughout North America. Since 1937, Ducks Unlimited has raised over \$4 million to fund 3,300 wetland projects covering over 4 million acres in Canada, the United States, and Mexico. This work translates into habitat protec-

tion not only for game species, but also for some rare and endangered species that are dependent on wetland ecosystems. The organization does not buy land; instead it works with land owners and state, provincial and federal governments through long-term lease agreements.

Ducks Unlimited's Wetlands America program consists of three initiatives: U.S. Habitat, MARSH, and Habitat Inventory and Evaluation. Started in 1984, U.S. Habitat works on government owned and controlled lands in Montana, Minnesota, Alaska, and the Dakotas, where 28 percent of North America's waterfowl breed. This program provides the funding and technical expertise for designing, developing and reflooding prime waterfowl habitat.

The MARSH program (Matching Aid to Restore States Habitat) makes money available through matching funds to state fish and game departments for a variety of wetland work. And in the Habitat Inventory and Evaluation Program, Ducks Unlimited is working to identify the continent's prime wetland areas using NASA's landsat 5 satellite.

For more information on these programs, call or write: Ducks Unlimited, One Waterfowl Way, Long Grove, Illinois 60047 60047, (312) 438-4300.

Endangered Species UPDATE

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