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Abstract: Describes an Earthwatch project involving two different wetlands to find the common indicators of ecosystem health. Research in one of the most remote and dramatic areas of the United States and the tundra/taiga landscape of southern Hudson Bay in Canada; Rate of which wetlands are lost in the US and other countries; The project, led by Dr. Ralph Garono, Jim Kooser and Dr. Lauren Schroeder. INSETS: Everglades ecology;Arctic & desert wetlands.

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ARCTIC & DESERT WETLANDS

Finding a standard for wetland health

Big Bend National Park, Texas, and Churchill, Manitoba, Canada--Down along the Rio Grande, just across the water from the Mexican mountains, where the river takes a sharp turn through igneous canyons, lies Big Bend National Park, one of the most remote and dramatic areas you can visit in the United States. The park lies within the Chihuahuan Desert, but you've actually come to study water. Wetlands, in fact. Hidden among the mountains and rock spires, dotting the desert, are springs, complete with water plants and water creatures. Among them live the particular objects of your attention, the reason you have come thousands of kilometers and hiked through cactus, scrub, and jagged rocks in a blazing sun: flies.

Every year, thousands of hectares of wetlands around the world are lost to filling, diking, and development. For example, in the U.S., half of all the country's original wetlands have been lost, an amount that translates to 24 hectares an hour, every hour, for the past 200 years. And the story is no better in other countries. To offset this, environmental authorities often create new wetlands or try to restore degraded areas. But there is more to wetlands than wet land. These new wetlands, though they may appear as beautiful as the old ones, often lack the attributes necessary to sustain the same diverse ecosystem. How do you know if a wetland is really functioning properly if it looks healthy and lush?

Dr. Ralph Garono, a research associate at Oregon State University who has been studying wetland insects since 1980, says that flies. in this case caddisflies, have very specific habitat requirements regarding oxygen concentration. water velocity, pH, temperature. and so on. In other words, if a wetland isn't entirely health\: the caddisflies won't be there

in appropriate numbers. Simply by sampling the insects. Garono can determine the health of a wetland. But to make it work, he needs to know first what normal is. That's why he's here m Big Bend and. this year also in Churchill Manitoba. He and his colleagues Jim Kooser (Conservation Biology, Intituteo) and Dr. Lauren Schroeder (Youngstonw State University), are looking at two very different wetlands to find the common indicators of ecosystem health.

At both sites, you will set out fluorescent light traps to catch caddisflies, retrieve and catalogue the insects, take water samples, and record plant species (the flies' habitat). You'll feed all this information into the project's Geographical Information System.

In Big Bend, you'll camp in spectacular wilderness, hike through rugged canyons, and share in cooking camp meals. Churchill is on the shores of Hudson Bay and is famous around the world as the only place where you can see large numbers of polar bears, which congregate here each summer. Your base will be the Churchill Northern Studies Center. Within a few minutes' travel from the center are examples of spruce taiga, dry old beach areas, meadows and wetlands dominated by birch and willow shrubs, many shallow ponds, arctic streams, sedge meadows, moss- and lichen covered lowlands and salt marshes along Hudson Bay The center offers a basic but comfortable environment, with bunk beds, showers, and a cook to prepare breakfast and supper. And, of course, large, hairy neighbors.

In both locations, your work will provide an essential component in protecting wetlands around the world and the many species they harbor.

EVERGLADES ECOLOGY

Everglades National Park, Florida--On August 24, 1992, the southern eye wall of Hurricane Andrew crossed Long Pine Key, How have the native subtropical hardwood and pine trees fared in the wake of the storm? Have natural fires and other disturbances compounded the effects of the hurricane? Staying in a field station on Key Largo, you'll travel to the mainland each day to hike through the beautiful pine savannas and hardwood hammocks to record survival and growth of trees. Your work with Harold Slater (aCaribe Research Center) and Dr. Bill Platt (Loisiana State University) will help guide management in the last remaining intact region of the "river of glass," as naturalist Majorie Stoneman Douglas so eloquently dubbed the Everglades.

PHYSICALLY EASY

FIELD STATION

TOILETS

SHOWER

1998 TEAMS (15-DAY TEAMS)

IV: Jan 10-24

V: Jan 31-Feb 14

VI: Feb 14-28

VII: Mar 7-21

VIII: Mar 21-Apr 4

IX: Apr 4-18

MEMBERS'S SHARE OF COSTS

$1,195

GCP750

¥ 143,400

RENDEZVOUS SITE

Miami International Airport, Florida

ARCTIC & DESERT WETLANDS
TASK: Set up light trap wetlands and retrieve insects, taken water samples, and record plants

SETTING: One of the most remote and dramatic areas of the United States, and the tundra/taiga landscape of southern Hudson Bay in Canada

LOGISTICS: Sleep in tents, hike though desert, and help prepare meals (Big Bend), or stay in a cozy research station with a cook (Churchill)

DIFFICULT

TENT

FIELD STATION

NO TOILETS

TOILETS

SHOWERS

COOK

1998 TEAM (7-, 9-, 14-, AND 17-DAY TEAMS)

I: Jun 15-Jul 1

Ia: Jun 15-23

IIa: Aug 26-Sep 1

IIb: Sept 2-8 (Churchill)

MEMBERS' SHARE OF COSTS From $695

GCP 430

A$965

¥ 83,400 (see share-of-costs list in center booklet)

RENDEZVOUS SITE

Midland, Texas or Churchill, Manitoba

PHOTO (COLOR): The rugged desert mountains of Big Bend National Park (left) could not different more strikingly from the tundra flats of Churchill, Manitoba. Yet both sites will host Earthwatch teams helping Ralph Garono and collegues find out what makes for healthy wetland, the better to restore them.

PHOTO (COLOR): EVERGLADES ECOLOGY
