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How Far Should Man Go To Save Waning Species?

Floras, Faunas Become Extinct In Natural Cycle

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A SNAPDRAGON-like plant called the Furbish lousewort . . . the Indiana bat . . . the snail darter and its cousin, the leopard darter . . . the El Segundo Blue Butterfly . . . Smith's Blue Butterfly . . . the Mississippi sandhill crane . . . the northern riffle shell . . . the "Higgin's Eye" clam . . .

The names sound like an inventory of rare inhabitants of a zoological park or a botanical garden, but they are America's most controversial wild organisms — plants and animals with political clout that in recent months have halted or threatened construction of multimillion-dollar dams, highways, and other projects.

All are rare, almost extinct species protected under a 1973 federal law, the Endangered Species Act, that forbids any federal construction or other project that might modify or destroy the "critical habitat" of extinction-prone animals or plants.

THE LAW ALSO provides for citizen suits to prevent any government agency or any person from taking an action that might threaten endangered species.

Thus, the snail darter, discovered in the peaceful gravel shoals of a stretch of the Little Tennessee River in Loudon County, Tenn., has halted construction of the Tennessee Valley Authority's Tellico dam project. The $116 million dam, already 95 per cent complete, would flood the darter's habitat.

Its cousin, the leopard darter, which also looks like a minnow, is halting construction of the $31.5 million Lukfata Dam on the Glover River near Tulsa, Okla.

THE FURBISH lousewort, a flower related to the snapdragon, was thought to be extinct until 1976 when it was discovered along a stretch of the St. John River in northern Maine. It is delaying a dam project that would flood its habitat.

The Mississippi sandhill crane halted and then forced re-routing of an interstate highway in Mississippi, a highway that would have passed near the habitat of the last 40 such cranes known to be in existence.

The Indiana bat delayed construction of a dam in Missouri. The northern riffle shell a fresh-water mollusk, threatens the Big Darby Creek Dam near Columbus. The "Higgin's Eye" freshwater clam delayed a dredging project in Minnesota.

WHEN THE ENDANGERED Species Act was passed in four years ago, 109 species were listed as endangered. The number has grown to 172, and is expected to increase. The potential, after all, is enormous — more than 1.25 million different species are known to science. About two-thirds of these are animals and one-third plants.

No biologist would consider that the count is anywhere near complete.

The law has caused sufficient conflict between rare and apparently "useless" plants and animals and the hard economic interests of man for members of Congress to propose its revision.

Even conservationists and other persons are beginning to wonder if there might not be a biological basis for allowing certain extinction-prone plants and animals to become extinct.

These, after all, are organisms that cannot "make it" on their own. In the natural course of events, these may be organisms that nature has "marked" for extinction.

PERHAPS surprisingly, several biologists, to whom these questions were posed, generally agree that there may be exteme circumstances that would justify man to allow a species to become extinct.

When it is a matter of man's survival vs. the survival of an extinction-prone plant or animal, for example, all these biologists say that they would bid good-by to the plant or animal.

But aside from such extreme circumstances, these biologists agree that man should make as great an effort as possible to preserve endangered species, and they say there is no biological rationale for doing otherwise.

LAYMEN MUST recognize, they agree, that on an evolutionary time scale there is a natural birth and death of species — a natural waxing and waning of entire floras and faunas that involves the replacement of archaic species by more modern ones.

In the past, extinctions of plants and animals occurred as the result of climatic or other factors not related to man's activities. Biologists fully recognize, for example, that the vast majority of animals and plants that ever lived on earth are extinct today, due to natural forces.

About 12,000 years ago, for example, at least 30 entire genera of animals became extinct in North America, for reasons still unclear. A few scientists, incidentally, believe the animals were killed by Stone Age hunters who swept across the Bering Strait. Most others dispute this notion and attribute the extinctions to natural events.

There are more recent and more fully documented instances in which substantial extinctions have occurred among animal populations on isolated islands. When one such island was declared a natural reserve in the 1920s, it harbored 208 bird species. By 1970, 45 of these had become extinct, and several other species were down to a few individuals.

"BUT THE SITUATION in populated areas of the world today is vastly different," Harold Mayfield says. "It is clear that the agent of extinction today is man. Most animal species would be doing fine except for man's incursions into their habitats and his other activities."

Mr. Mayfield, a resident of Waterville, is the world authority on a single endangered species, the Kirtland's warbler, which nests in Michigan. He has been described as America's most competent amateur ornithologist.

Even the whooping crane, perhaps the most widely known example of an endangered species, probably would be thriving today if man's agricultural activities had not destroyed so much of the crane's habitat, he says. The world population of 100 whooping cranes is so fragile that wildlife biologists expressed concern last fall when a single crane flew into a fence and killed itself.

"IN ONE SENSE, any attempt by man to preserve endangered species works against the grain of evolution," Dr. William Jackson, director of the environmental studies center at Bowling Green State University, says. "The normal course of evolution is toward extinction."

But Dr. Jackson, along with other biologists, emphasizes the role played by man in accelerating the natural leaning toward extinction.

Dr. John Terborgh, a Princeton University biologist who in scientific papers has reported on the problem of extinction-prone species, says that when the disruptive effects of human activities are superimposed on natural processes, it usually is the former that prevail in determining the pace of extinction.

"The effects of these changes on natural communities are nothing less than cataclysmic," he noted in a report in the journal BioScience. "A minority of species, including pests and weeds, profit spectacularly in filling the void left in distorted or obliterated ecosystems. Given that our objective is to maintain diversity, it is evident that we must act to provide conditions that will retard the pace of extinction."

THE NEED TO preserve endangered species for esthetic and genetic reasons is emphasized by Mr. Mayfield, Dr. Jackson,