


1993 Spring/Summer Compendium of Wildlife Appreciation Opportunities

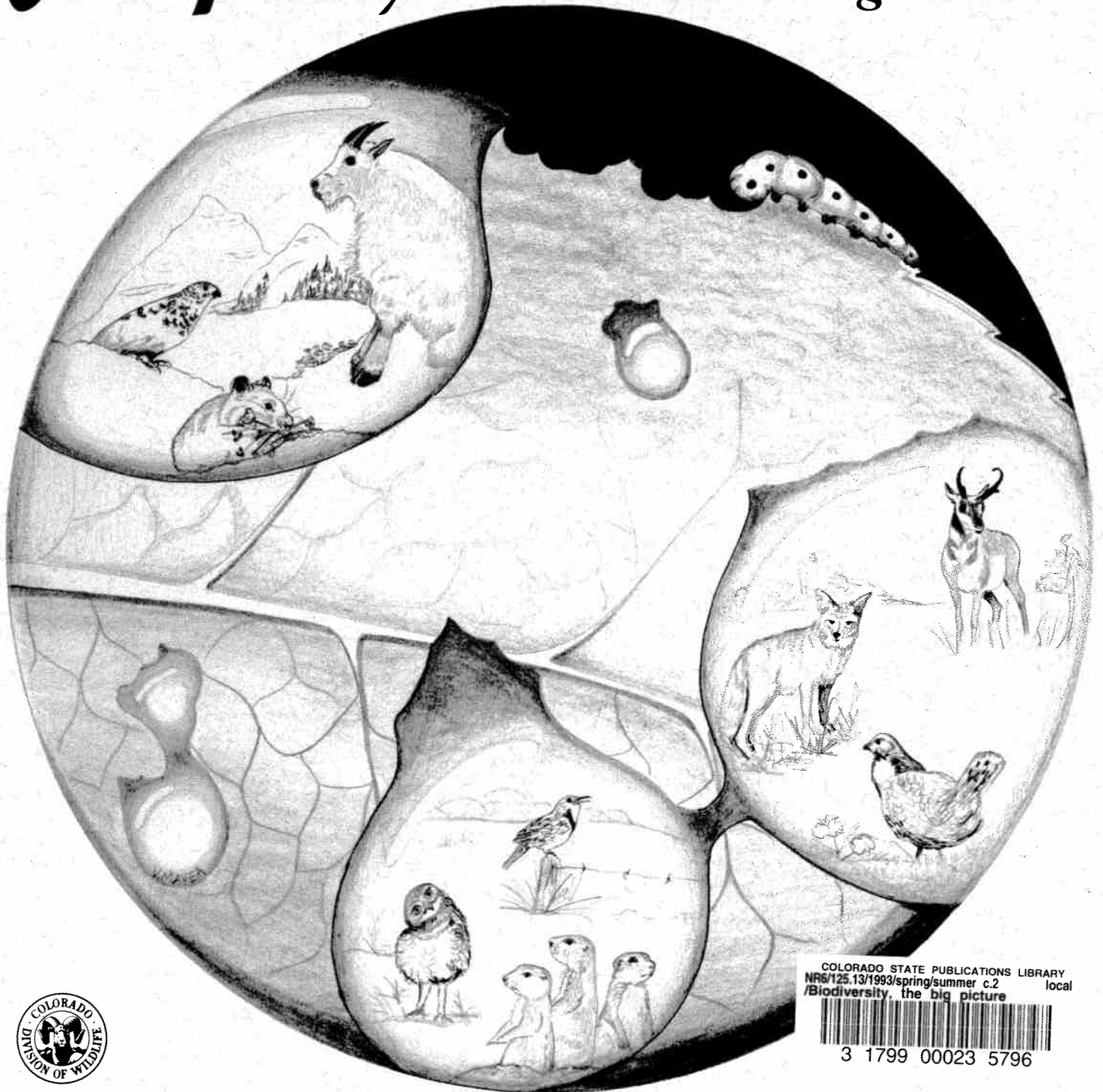
# Colorado's Wildlife Company

COLORADO DIVISION OF WILDLIFE

 Nongame and Endangered  
Wildlife Program

 Watchable Wildlife Program

## Biodiversity - The Big Picture



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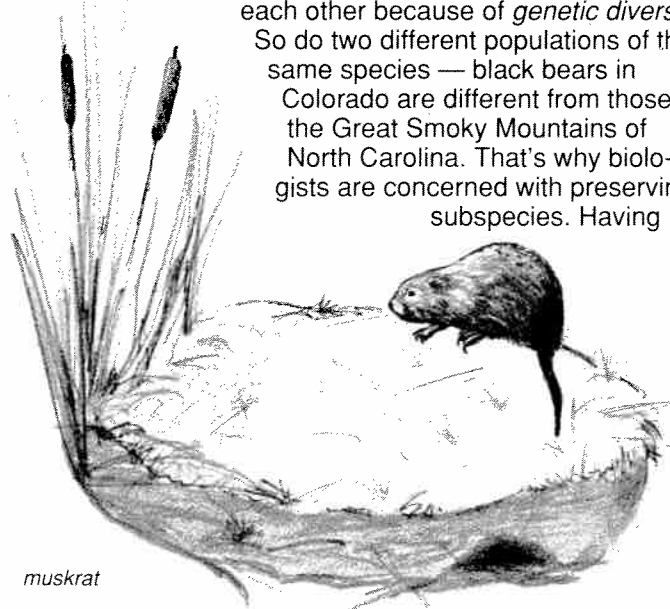
# BIO - Life DIVERSITY - Variety

By Mary Taylor Gray

Despite the name, *bio-diversity* is more than just lots of plants and animals, or lots of species. The simple definition for biodiversity is "the variety of life and its processes." It's sort of a technical word for nature. It describes not just the variety of life forms on earth, but the processes, like predation and decomposition, that tie them together.

So how is this different than an ecosystem? Biodiversity isn't a thing; it's a property or characteristic, one that can be measured. Perhaps a good analogy is the concept of health. Health consists of many components, like good teeth and a sound heart, but also healthy body processes like good circulation and regeneration of cells. All these components and processes are interrelated. Likewise, biodiversity encompasses all life forms, like fungi, ferns, and frogs, as well as processes like photosynthesis and fire that tie them together.

Just as we can think of health at many levels — healthy organs, healthy body, healthy community — biodiversity exists at many levels. Two black bears differ from each other because of *genetic diversity*. So do two different populations of the same species — black bears in Colorado are different from those in the Great Smoky Mountains of North Carolina. That's why biologists are concerned with preserving subspecies. Having



muskrat

evolved in the river systems of Colorado's eastern slope, the greenback cutthroat trout has unique characteristics not found in other subspecies of cutthroat living in different areas of the West.

*Species diversity* is the biodiversity level we're most familiar with. From lichens to limber pines to lark buntings, we know the world is filled with a variety of species. But plants and animals don't exist in a vacuum. Whether they live in the Rockies or the Smokies, those black bears are interdependent parts of a community of other organisms and processes. *Ecosystem diversity* describes those many communities, like forests, wetlands, and prairies, which make up the natural world.

Finally, biodiversity operates in the way these communities are distributed across a *landscape*. Each site may have something unique about it that allows certain species to live and interact there. A low-lying spot on the dry prairie collects water. Cattails spring up and red-winged blackbirds stake out a territory among them, a tiny marsh amidst the buffalo grass.

Now that we've got an idea of what this mysterious biodiversity is, why do we care about it? Like health, biodiversity is a property we want to conserve. At each of its levels — *genetic, species, community/ecosystem, landscape* — biodiversity contributes to a healthy, diverse world. Businesses diversify to lessen the impact of changes and losses. In turn, the greater the diversity of plant and animal species and communities in an ecosystem, the greater the system's stability.

The reasons for preserving biodiversity include values that go beyond human needs. **Ecologically**, even species and processes that appear worthless or detrimental to humans have a role in nature. Beavers gnaw down valuable trees, but in doing so have an important role in creating wetlands and meadows. Though we may fear fire and seek to control it, fire is essential to the life cycle of many communities, such as a prairie. Fire clears out vegetation, returns nutrients to the soil in the form of ash and charcoal and creates a rich bed for new plant growth.

**Aesthetically**, people derive pleasure from nature. A diversity of plants, animals, and communities adds to the texture of life. How dull the world would be if it were all manicured bluegrass parks with rows of evenly-spaced trees and water running through in concrete channels. What if the only wildlife left was starlings, pigeons, fox squirrels and white-tailed deer?

**Practically**, humans derive great agricultural, medical and scientific benefits from nature. By allowing some species to disappear, we may lose important resources we don't even know about. The Pacific yew, destroyed for years as a "trash" tree, has recently been found to be effective in the treatment of breast cancer.

Just as poor health results from certain influences, biodiversity can be lost or degraded. Physical changes to the land can impact biodiversity. Pollution may directly poison wildlife and vegetation or degrade the habitat until it can't support life. Introduction of non-native plants and animals often harms or eliminates native species by out-competing them for resources, bringing in disease, interbreeding, or predation.

*Caution: Physical changes sometimes seem to increase biodiversity. Clearcutting old-growth forest, for example, creates edge habitat favorable to numerous species. Many edge species will expand into the area, but those dependent on dense old-growth forest are lost.*

As our understanding of biodiversity grows, wildlife management is changing. Initially we took a species-by-species approach, rushing to save a species only after its numbers had dropped perilously low. The problem is this crisis-by-crisis approach is prohibitively expensive, inefficient and ineffective. Over 15 years, Colorado alone has spent about \$100,000 annually on peregrine falcon recovery. That doesn't include the money spent by the federal government and many other states.

Even if a species is rescued from extinction, it can't survive if the community on which it depends is degraded or destroyed. So we've come to the realization we must broaden our management to include ecosystems. By protecting community types — marshlands, deciduous forest, tallgrass prairie, prairie potholes — we protect most plant and animal species, including low profile species of insects, algae, and amphibians which may be "invisible" to us but are crucial to the system. Basically, by keeping the house, grounds and resources healthy and diverse, we keep the residents healthy. (Though we move toward ecosystem management, we will continue to manage some individual species where it is appropriate, such as



mud slider

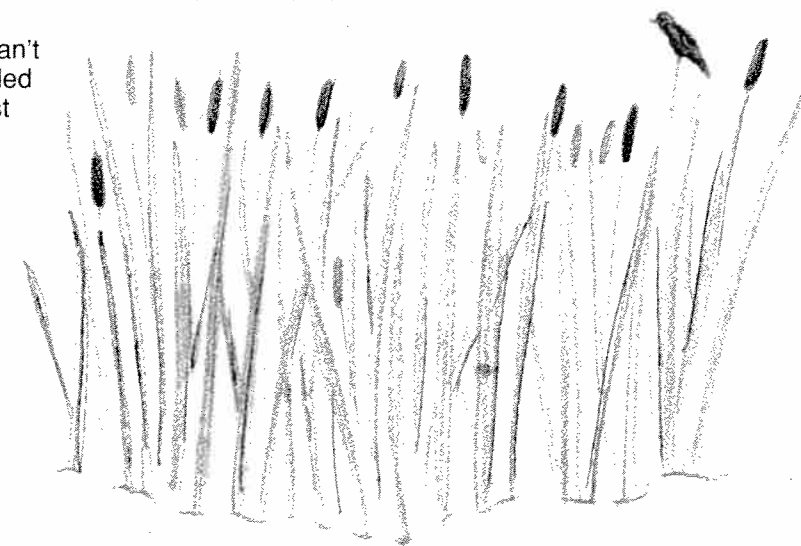
with threatened and endangered wildlife. Wildlife management of the future will be a combination of both ecosystem and species management.)

Approaches to ecosystem management vary widely. Some say humans are a part of the ecosystem so their actions and impacts are natural and should proceed unchecked. This approach sees no difference between the effects of a nuclear war and the extinction of the dinosaurs. It ignores the fact that human impacts occur in the time frame of a decade or century, not the millennia of evolutionary and geologic processes. Others see humans as totally unnatural and advocate no human uses or impacts on resources or the environment whatsoever.

Both these approaches are unrealistic. Humans are going to use the earth's resources and in so doing have a significant effect on the ecosystem. But that effect needs to be moderated so it is not devastating. We need lumber, fossil fuels, and agricultural land, so we must find a way to preserve biodiversity while making wise use of the earth's resources. And, finally, we need to preserve those other "varieties of life and their processes" because we depend on them too.

*Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself.*

Chief Seattle



red-winged blackbird

# Great Outdoors Colorado!...Now What Happens?

By Mary Taylor Gray

Things are looking bright for wildlife, parks, open space and outdoor recreation in our state with the passage of Great Outdoors Colorado! (GO-CO to its friends). Once existing debts are paid off, net proceeds from state lottery games (including Lotto) will go into a trust fund and will be administered by a board appointed by the Governor. Funds will go to state agencies — the DOW and Parks and Outdoor Recreation — and to local communities as direct and matching grants.

## GO-CO dollars will be spent to

*Develop wildlife watching opportunities...Support nongame and endangered wildlife efforts...Protect crucial habitat...Improve existing state parks and establish new ones...Build more trails and greenways...Maintain water levels in rivers and lakes for fishing, boating, swimming and rafting...Acquire land for parks, open space and natural areas...Develop public information and education materials on wildlife, parks and outdoor recreation.*

## Some Misconceptions About Go-Co

**Myth:** Local parks and recreation departments will no longer get lottery money for the building of community recreation facilities.



red fox

**Reality:** Local parks departments will continue to receive the same amounts, and possibly more. Only money being spent on capital construction projects is being redirected.

**Myth:** Construction debts previously paid by lottery dollars now won't be paid.

**Reality:** Capital construction debts already incurred will still be paid by lottery money. They will be paid off by 1998.

**Myth:** All the money from lottery will go to the outdoors, even if other state programs need dollars.

**Reality:** Funds to outdoor programs are capped at \$35 million annually. The balance will go into the General Fund.

**Myth:** With this new source of funds the General Assembly will just cut the existing budgets for wildlife and parks.

**Reality:** Lottery funds are specifically appropriated in addition to existing budgets.

## Tools For Biodiversity

Conserving biodiversity will take new and different tools from those used for traditional wildlife management. **Gap analysis** uses computerized mapping to look at vast amounts of data — how particular species are distributed, what kind of habitat is where, whether land is public or private — and to make management decisions. The word "gap" analysis refers to gaps in protected habitat. The

By identifying and protecting particular habitats, biologists hope to protect most of the amphibians. That's managing for biodiversity, rather than for a particular species.

Another biodiversity tool with a technical-sounding name is the **index of biotic integrity**. The goal here is to

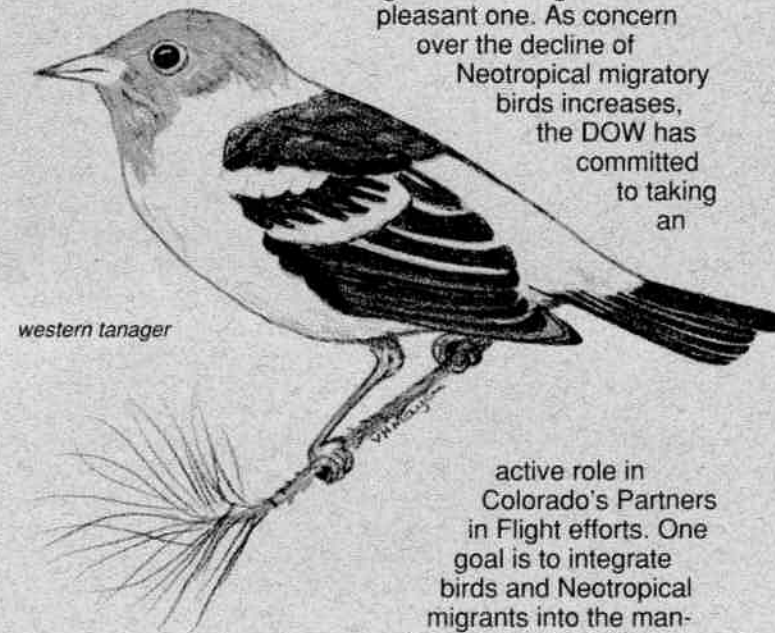
# DOW Working For Wildlife

## Report: Biodiversity

As recognition of the importance of biodiversity grows, the DOW is expanding its focus beyond traditional game species management.

## Eye On The Sky

A spring without robins and hummingbirds, lark buntings and western tanagers? The image is not a pleasant one. As concern over the decline of Neotropical migratory birds increases, the DOW has committed to taking an

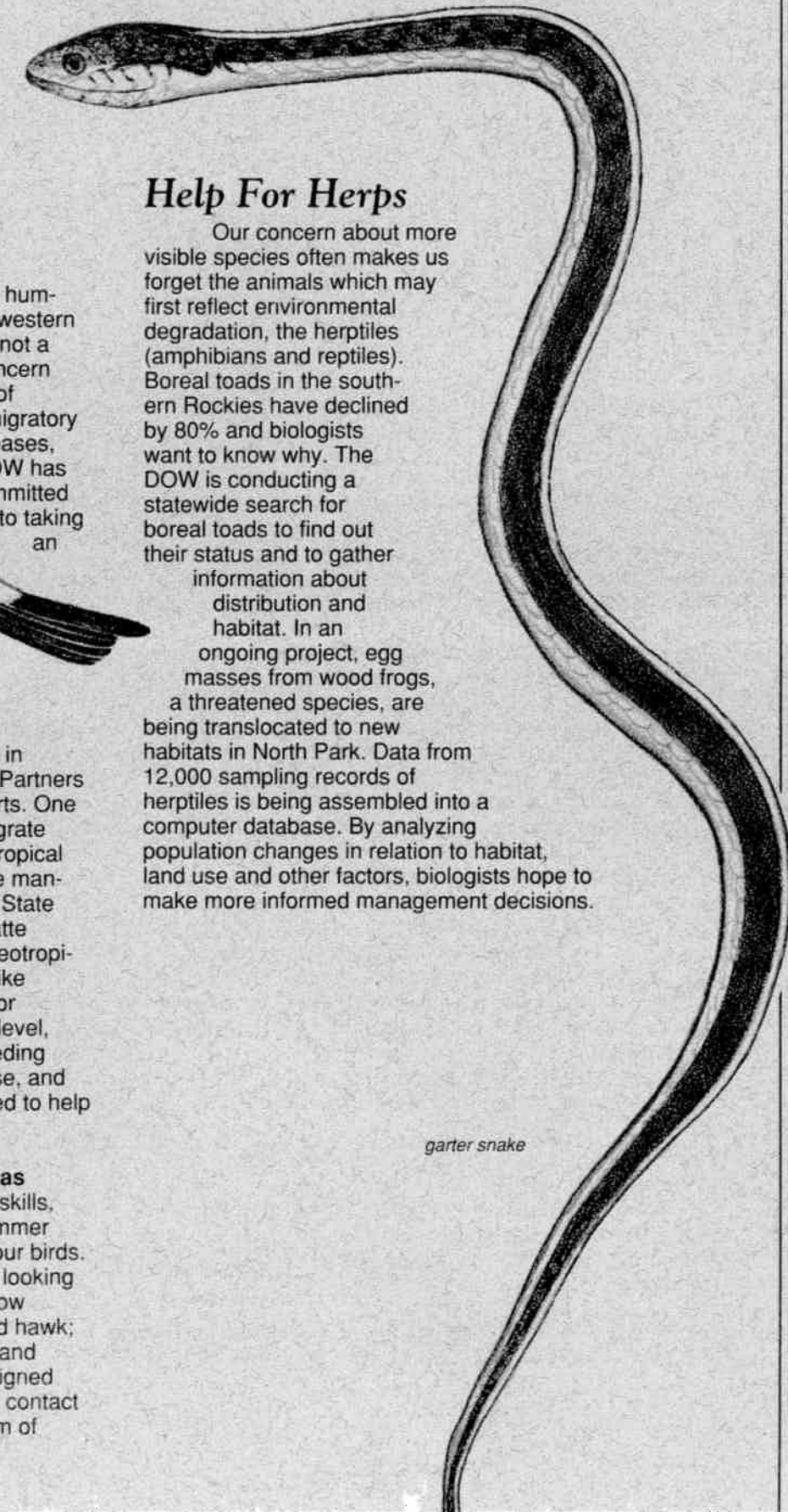


western tanager

active role in Colorado's Partners in Flight efforts. One goal is to integrate birds and Neotropical migrants into the management of several State

Wildlife Areas, such as those along the South Platte River. Developing a Project Wild curriculum on Neotropical migrants and involvement with public events like International Migratory Bird Day head up efforts for education and public information. On a technical level, activities to catalog bird nesting, through the Breeding Bird Surveys and Breeding Bird Atlas, will increase, and information from a variety of sources will be pooled to help researchers rank threats to Colorado birds.

**Bulletin: The Colorado Breeding Bird Atlas** needs volunteers! If you have good birdwatching skills, here's a chance to do field work outdoors this summer while helping gather essential information about our birds. Field workers scour habitats in three-mile blocks, looking for evidence of breeding birds. You'll learn to follow scolding chickadees to an intruding sharp-shinned hawk; become familiar with the songs of different birds; and witness fascinating parental behaviors, like the feigned broken-wing display of a killdeer. For information, contact Hugh Kingery, c/o Zoology Dept., Denver Museum of Natural History, 303-333-0161.



garter snake

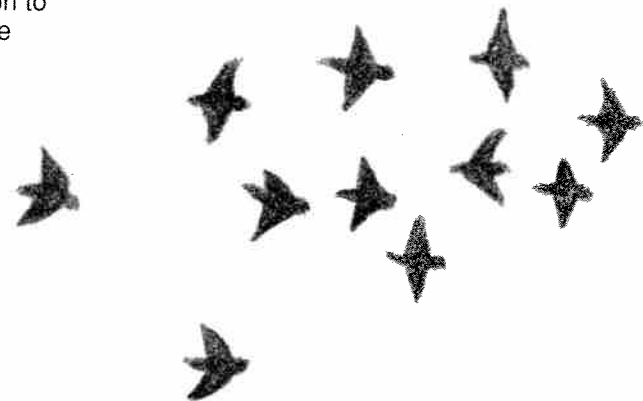
## Help For Herps

Our concern about more visible species often makes us forget the animals which may first reflect environmental degradation, the herptiles (amphibians and reptiles). Boreal toads in the southern Rockies have declined by 80% and biologists want to know why. The DOW is conducting a statewide search for boreal toads to find out their status and to gather information about distribution and habitat. In an ongoing project, egg masses from wood frogs, a threatened species, are being translocated to new habitats in North Park. Data from 12,000 sampling records of herptiles is being assembled into a computer database. By analyzing population changes in relation to habitat, land use and other factors, biologists hope to make more informed management decisions.

"gap" analysis refers to gaps in protected habitat. The goal is to find and plug those holes.

For example, biologists are concerned about amphibians in Colorado. By looking at computer-generated maps showing distribution of various amphibian populations, they can see where populations are concentrated. Overlaying this with another map will tell what kinds of habitats support those concentrations. A third map reveals land ownership, indicating which habitats are located on public land and which are on private land. Discovering areas with high concentrations of amphibians allows wildlife managers to focus on protecting important habitats. This information might influence a decision to acquire land or to work with landowners to continue private protection of the habitat.

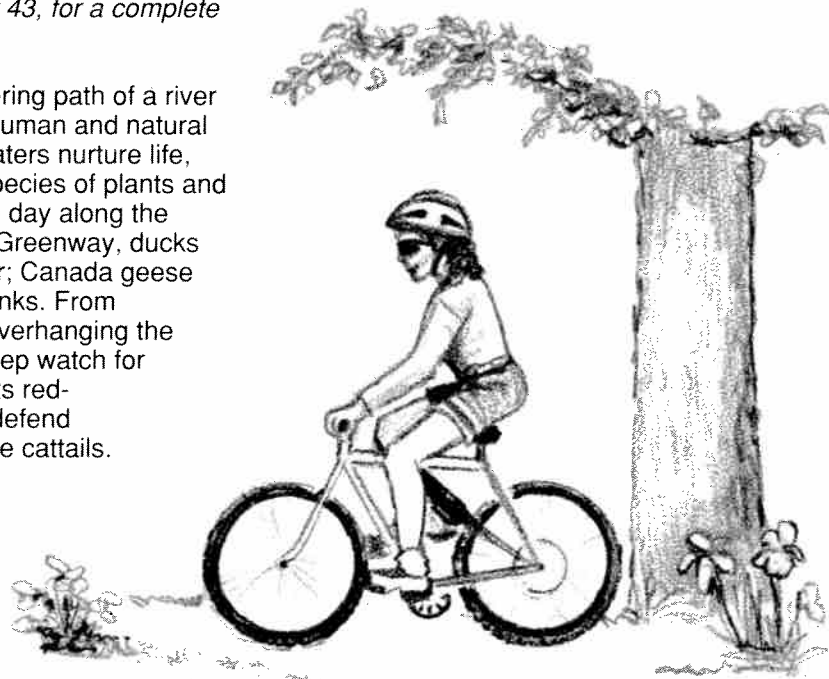
name is the **index of biotic integrity**. The goal here is to evaluate the health of an ecosystem by comparing it to "natural" conditions. Factors like the percentage of introduced and exotic species, the number of injured or unhealthy animals, and other information about the wildlife and vegetation are measured and compared to similar data from an area that reflects natural conditions. This technique has so far been used to evaluate streams and is beginning to be applied to terrestrial habitats. The big challenge is to find habitats unaffected by human impacts and as close to natural as possible to use as the basis for comparison!



## South Platte River Greenway

The South Platte River Greenway is a 30-mile paved bike and walking path following the South Platte River through Denver, from Chatfield State Park to the river's confluence with Clear Creek. See the Colorado Wildlife Viewing Guide, site number 43, for a complete description.

The meandering path of a river ties together both human and natural communities. Its waters nurture life, supporting many species of plants and animals. On a June day along the South Platte River Greenway, ducks dabble on the water; Canada geese graze on grassy banks. From cottonwood twigs overhanging the river, kingfishers keep watch for fish. In marshy spots red-winged blackbirds defend territories among the cattails. Where the water is still, algae bloom and crayfish feed. Killdeer run along sandbars and gravel washes, mindless of the hand-like prints of raccoons in the soft sand. Clouds of insects swarm overhead.



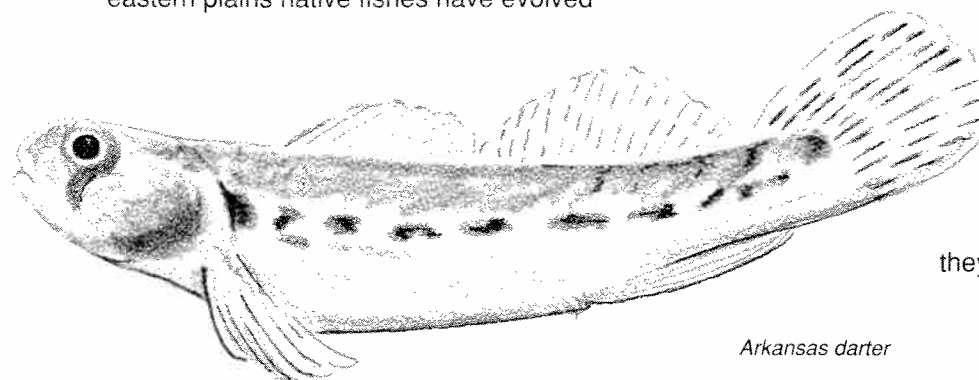
But a greenway through an urban area is especially affected by human actions. A century of human activities made the South Platte River as we see it today, and

continue to shape its present and future. In places like the South Platte Park natural area in Littleton, the last unchannelized stretch of the Platte through Denver, the river is rich in biodiversity. In other spots, where the river's banks are lined with concrete, little moves but the water. Yet nature adapts to influences from all components of a community; the effluent from the Englewood wastewater treatment plant is rich in nutrients and a gathering point for many species of waterfowl.

Humans are still an integral part of this riverway. All along the river, people walk, bike, kayak, watch birds, exercise their dogs; they live and work in the buildings along it. And while significantly changing the river, humans also revitalize it, through cleanups, tree plantings, and building of a bike trail.

## Getting To Know Our Eastern Natives

Many of them are tiny animals no more than an inch or two long, the little fishes that dart away when our shadow crosses the shallow water of a pool. Colorado's eastern plains native fishes have evolved



Arkansas darter

to survive in the often harsh habitats of eastern Colorado and many of them may be disappearing before we even know much about them. A massive and intensive inventory project, covering 600 sample sites, is underway to identify distribution, abundance and population trends for native eastern plains fishes. By computerizing all this data, biologists hope to identify the species of eastern plains aquatic wildlife communities, their status and habitat requirements, and what threats they face.

## Partnerships for Biodiversity

The Division of Wildlife only has authority to manage the wildlife component of biodiversity so it must work with other agencies whose responsibility is management of land and other resources. These partnerships are proving an effective road to achieve the full picture of biodiversity. The DOW is working with the U.S. Forest Service and the Division of Minerals and Geology to protect nesting and roosting sites for bats on public and private land. The Division has also made a strong commitment to migratory bird conservation through involvement in *Partners in Flight*, an international cooperative effort involving groups as diverse as the U.S. Forest Service, Bureau of Land Management, National Audubon Society, and National Fish and Wildlife Foundation.

Local chapters of five different professional societies the American Fisheries Society; the Society of American Foresters; the Society for Range Management; the Wildlife Society; and the Society of Wetlands Scientists — representing various areas of resource management, have come together to endorse a joint position statement urging Colorado to make conservation of biodiversity a top priority. "Management of natural resources must be directed at maintaining healthy, productive, sustainable ecosystems," it reads in part.

## Colorado's Wildlife Company WILDLIFE HERITAGE COUPON

Yes \_\_\_\_\_ I want to help preserve Colorado's wildlife heritage. Enclosed is my check for \$ \_\_\_\_\_ (Please make your check payable to **Colorado's Wildlife Company/DOW**. This is a tax deductible contribution and will directly support the Watchable Wildlife and Nongame and Endangered Wildlife Programs.)

Yes \_\_\_\_\_ I want to keep receiving Colorado's Wildlife Company free of charge through 1993

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# Checking In On The Check-Off

Thanks, Colorado, for supporting the Nongame Checkoff on your state income tax form in 1992!

Initial results are in, and the winner is . . . Colorado Wildlife!

With about 99% of the returns processed (as of May 31), we have: 54,639 contributors out of 1,677,165 tax returns (3.26%) for a total of \$338,397 in donations.

These donations continue to support research and recovery projects for threatened and endangered species, as well as activities to prevent other species from becoming threatened or endangered. Many of these projects we've told you about before — bald eagle and peregrine falcon recovery, monitoring of nesting piping plovers and least terns on eastern Colorado reservoirs, surveying for bats in abandoned mines which are scheduled for closure, and the search for Mexican spotted owls in Colorado.

One species benefitting from the Checkoff is not exactly a household word — the Rocky Mountain capshell snail. This rare mollusk exists in only 2 localities in the U.S. — Glacier National Park, and Peterson Lake in

Colorado. In the late 1960s, a survey of Peterson Lake found 72 capshell snails per square meter. In 1992, a two-day diver-assisted search found only three specimens. DOW is part of a coop working group trying to find out why the snail has declined, and how to recover it.

Finally, some of the Checkoff money is used to produce this publication. So, Colorado, **you** can thank **you** for bringing **you** Colorado's Wildlife Company!



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