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1990 Summer Compendium of Wildlife Appreciation Opportunities

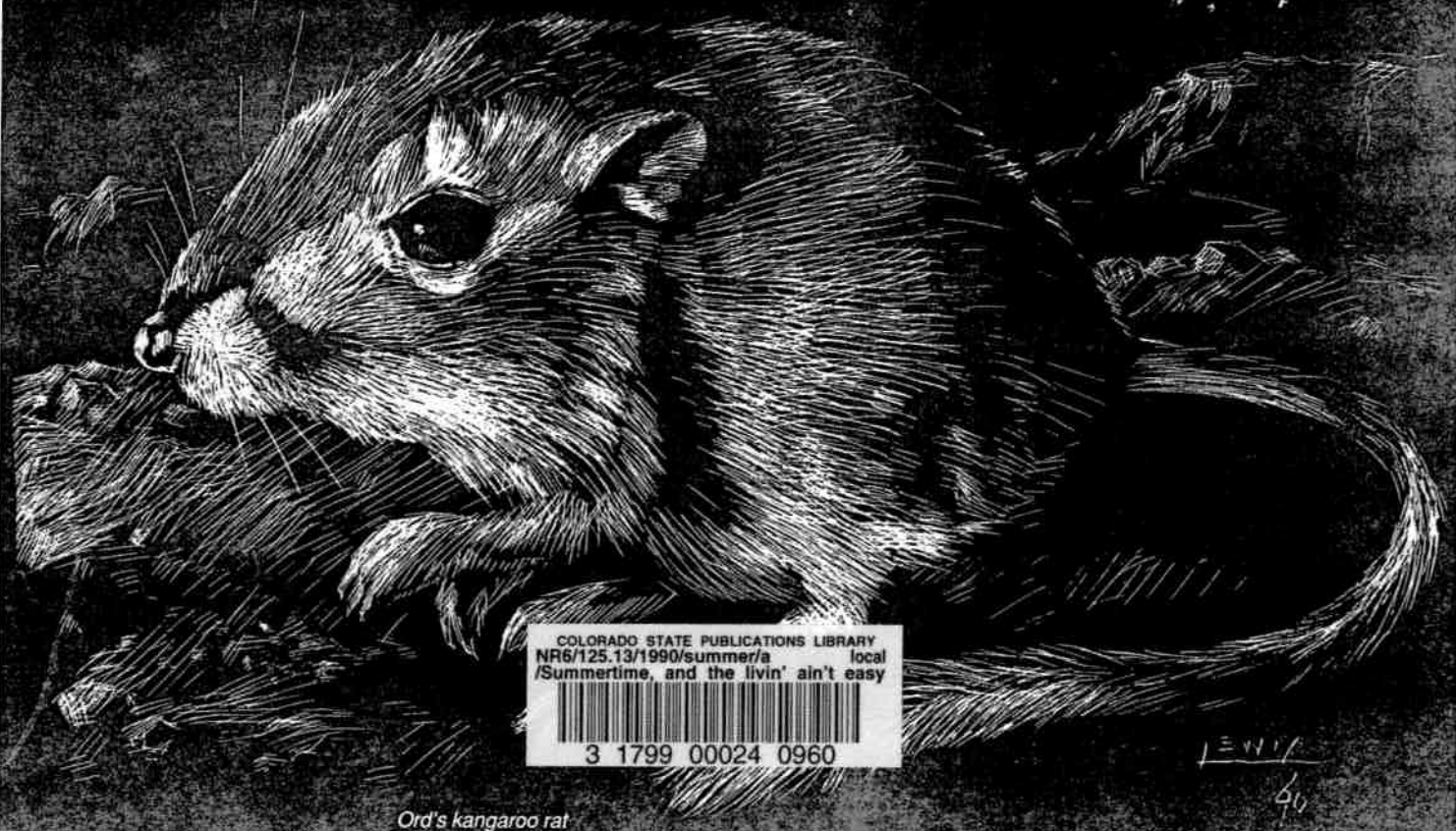
Colorado's Wildlife Company

COLORADO DIVISION OF WILDLIFE

 Nongame and Endangered
Wildlife Program

 Watchable Wildlife Program

Summertime, and the Livin' Ain't Easy



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Ord's kangaroo rat

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Surviving the Hot and Dry

During mid-summer, when daytime temperatures on Colorado's plains and arid plateaus can rise to over 100 degrees, native wildlife use a variety of mechanisms to deal with the rigors of heat and drought.

Sheltering and Nocturnal Activity

Many small mammals survive summer by sheltering from the heat of the day in deep burrows that maintain a constant temperature. The Ord's kangaroo rat is active above ground only at night. During the day, it rests in a deep, cool burrow, plugging the entrance with sand to reduce moisture loss. The kangaroo rat drinks very little free water and derives most of the moisture it needs from metabolic water produced by digestion. In fact, a kangaroo rat can subsist on a diet of dry seeds, without drinking any liquids.

Though dependent on rising ambient temperatures to warm their bodies, reptiles and amphibians can become too hot on summer days. They, too, seek cool burrows and shady places during hot times of day to avoid overheating. In mid-summer, for example, rattlesnakes at lower elevations rest under rocks and ledges during the day and are most active at night.

Spadefoot toads use the spadelike appendages on their legs to dig cool burrows where they shelter from hot, dry conditions. An insulating layer of dead skin helps them further reduce moisture loss. Unlike most amphibians, spadefoot toads do not require a permanent water source; they wait underground until a rainstorm triggers emergence from their burrows.

Perhaps more than any other group, fish are affected by temperature; water temperature has a direct effect on their metabolism and activities. When the sun is overhead, fish seek shady overhangs and deeper water, altering their activity cycles to cooler times of day. Cold water fishes, like trout, can't tolerate water temperatures above 75 - 80 degrees Fahrenheit. Warmer water holds less dissolved oxygen, favoring species like catfish and carp, which can tolerate lower oxygen concentrations.

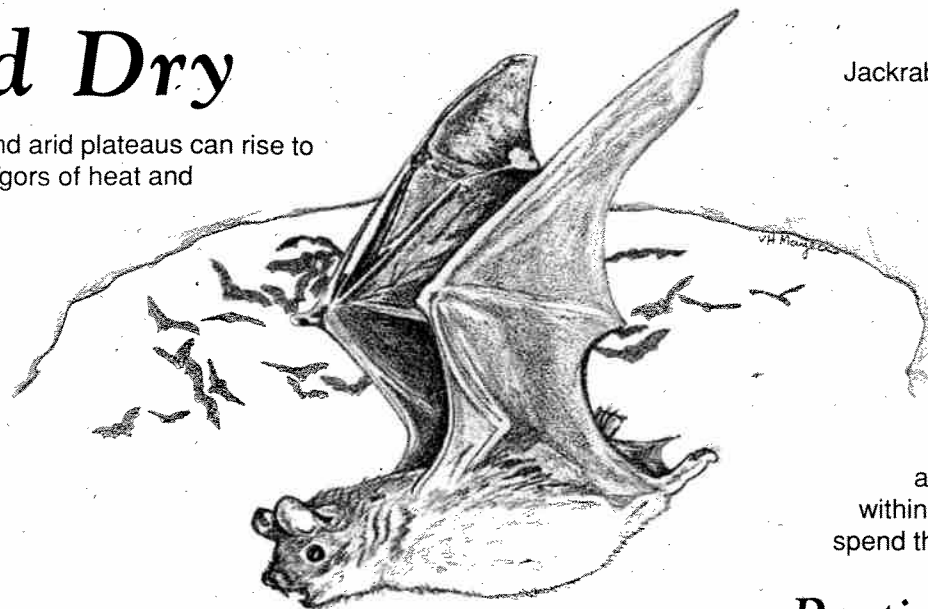
Estivation and Daily Torpor

Though we associate hibernation with winter, some animals undergo a hot-weather version of this "deep sleep" called estivation. This state of physiological dormancy or torpor lowers the animal's need for food and water, and lessens the metabolic heat it produces. Many small desert-dwelling mammals, such as the pocket mouse, cycle through a daily period of torpor during high daytime temperatures followed by increased activity when temperatures cool in the evening. Studies indicate, however, that estivation is more a response to reduced food and water than to elevated temperature.

A daily period of torpor helps bats manage heat stress; they hang in a sheltered spot until the cool of evening, when they become active.

Loss of Heat Across Membranes

Blood vessels in bats' ears and wing membranes dilate to increase the flow of heated blood to the body surface; cooling is aided by extension and fanning of the wings. Although sweating in an arid climate can cause excessive water loss, bats achieve the same result (surface cooling) by licking themselves.



little brown bat



plains spadefoot toad peering from burrow

based on photo by Lauren Livo

Jackrabbits use their huge ears in a similar way. A network of capillaries close to the surface fills with blood, which is cooled when the wind blows across the ears. This works, however, only when the air temperature is lower than the body temperature. Otherwise, they will gain heat!

In high heat, birds become less active and seek shade; some species bathe their feet and legs in water to cool the body. Vultures and cormorants spread their wings to cool off, while some large birds allow rising thermal air currents to carry them up to cooler altitudes.

Migration Patterns

Usually associated with the avoidance of winter, migration allows some animals to avoid summer heat as well. Chickadees, nuthatches, and juncos winter in plains areas and return to higher elevations in the spring to nest. Ruby-crowned kinglets migrate within Colorado from their wintering grounds in lowland riparian and pinyon-juniper forests to spend the summer on the alpine tundra and in high-altitude coniferous forests.

Panting and Gular Fluttering

Panting is an important method of cooling for many animals, including birds. Air passes through the nose and mouth, and the resultant evaporation cools the tissues and blood. A robin can dissipate about one half of its metabolic heat on a hot day by panting. Numerous birds--pelicans, cormorants, pigeons, doves, owls, great blue herons, Gambel's quail, bobwhites--use a mechanism similar to panting called gular fluttering. This rapid movement of the throat skin aids panting and hastens evaporative cooling.

Body Size and Fur Insulation

For large animals, body size is itself a protection against heat. With a low surface-to-volume ratio, they take on less outside heat in proportion to their size. A very hot day that might quickly overheat a deer mouse might not elevate the temperature of a buffalo at all. It's like the difference in time it would take to boil a cup of water and a tub of water on the same temperature burner.

We usually think of fur as something to keep an animal warm and, therefore, to shed in summer. However, the qualities of fur make it an important insulator against heat when the outside air is hotter than the animal's body temperature. A protective fur coat also reduces water loss through the skin. Light coat color helps reflect, rather than absorb the sun's rays.

Bats Need Your Help

Misunderstood and even feared for centuries, bats are actually shy, intelligent animals that make important contributions to overall ecosystem balance.

Bats do not attack people or become entangled in their hair; they are not blind or dirty; and the true vampire bat, which is not found in Colorado, generally feeds on the blood of birds and mammals other than humans. The concern that bats spread rabies, like most other bat misinformation, has been greatly exaggerated. Bats collected from roosting populations far removed from cities generally have low incidence of rabies (one half of one percent of the population).

Bats also are beneficial to mankind. In North America, bats are the only major predators of night-flying insects; they consume thousands of tons of insects annually. In addition, these flying mammals pollinate flowers, disperse seeds, and provide an important source of organic fertilizer in the form of guano.

Bats retreat from the heat of day in cool, shady shelters. Most of Colorado's 17 species of bats prefer to roost in caves, fissures, mines, and old buildings. The red bats of the eastern plains, however, roost in deciduous trees near rivers and streams; other species prefer to hide in coniferous forests.

If you come upon a group of roosting bats, do not disturb them. Be especially considerate if you enjoy spelunking in their cave homes. Bat roosting areas should not be sealed off unless absolutely necessary and should include plans for survival of the resident bat population. A bat house in your back yard will control insects without the eerie blue light and disturbing noise of electric insect catchers.

Are You Afraid of Snakes?

Myth: Snakes are "bad" animals and serve no purpose.

Truth: Snakes are extremely valuable for control of rodents and other pests. They have a function in the ecosystem, or they wouldn't be here!

Myth: Rattlesnakes have one button on their rattle for each year of life.

Truth: The buttons on the rattle are a dried remnant left each time the skin is shed. Snakes may shed their skin two or more times a year, and the dried buttons frequently break off.

Myth: Snakes are deaf.

Truth: Though snakes do not have an outer ear, they "hear" vibrations via bones that connect the lower jaw to the inner ear.

Myth: Snakes have slimy skin.

Truth: Snakes have smooth, dry, scaly skin, unlike the moist skin of amphibians.

Myth: Most snakes are poisonous.

Truth: Of the 31 species of snakes in Colorado, only the massasauga (found in the southeastern part of the state) and the western rattlesnake (found statewide) are poisonous. There are two subspecies of the western rattlesnake - the prairie rattlesnake and the midget faded rattlesnake.

Myth: Rattlesnakes aren't poisonous until they are adults.

Truth: Rattlesnakes possess venom and are poisonous at birth.

Myth: All snakes are aggressive and will always bite.

Truth: Given an opportunity to escape, snakes will choose flight over fight. If approached in a nonthreatening manner, snakes are

quite friendly. (Try being a friend yourself sometime with a nonpoisonous snake.)

Myth: Poisonous snakebites are usually fatal.

Truth: Snakes often "hold back" their venom when biting defensively; they generally use venom to kill prey, not to protect themselves. Forty percent of bites by poisonous snakes show no venom, and ninety-eight percent of bites are on the extremities, not vital areas.

Myth: Many people die each year from snakebites.

Truth: More people are killed by lightning and bee stings than by snakebites.

Myth: All snakes hatch from eggs.

Truth: Both rattlesnakes and garter snakes bear live young.

Myth: Snakes charm their prey.

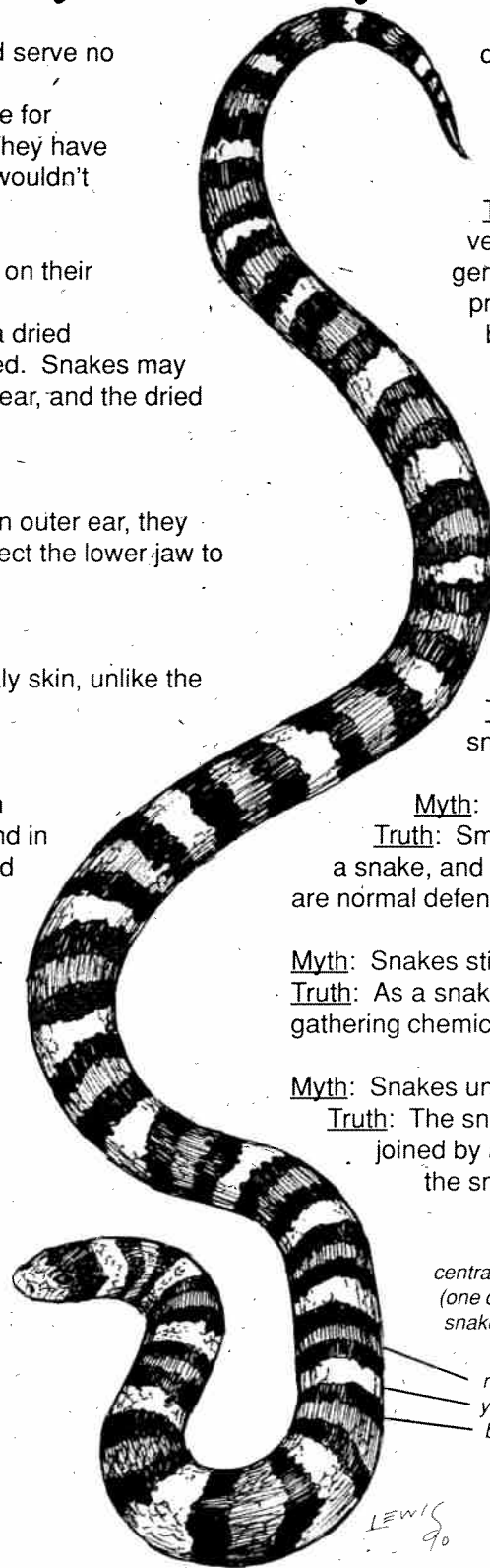
Truth: Small animals may freeze when they see a snake, and birds may flutter above them, but these are normal defensive reactions.

Myth: Snakes sting or bite with their tongues.

Truth: As a snake flicks its tongue, it is "smelling" or gathering chemical information, not stinging.

Myth: Snakes unhinge their jaws to swallow prey.

Truth: The snake's lower jaw is made of two halves, joined by an elastic ligament that stretches when the snake swallows large prey.



central plains milk snake
(one of the most beautiful
snakes in Colorado)

red
yellow
black

The Demise of Colorado's Fragil Ancyloid

Why Should We Care?

Governor Romer Talks Wildlife

Governor Romer announced the formation of Great Outdoors Colorado! on April 9, 1990. This new initiative will be important to the future of Colorado Division of Wildlife's Watchable Wildlife and Nongame and Endangered Wildlife Programs. It will give all citizens of Colorado an opportunity to invest their time, energy, and resources in caring for the wildlife of our state.

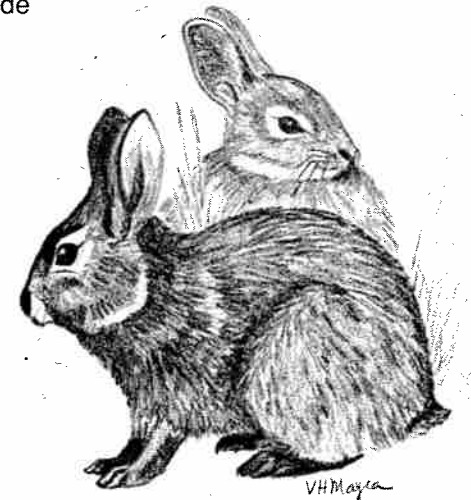
"We must develop a strong environmental ethic, one in which we live in a way that permits our environment to be sustained not just for years or decades but for generations to come," said Governor Romer.

On May 1, the governor appointed a citizen's committee representing business, outdoor recreation and conservation interests, the Colorado Legislature, and local governments to develop recommendations and funding sources in time for submission to the 1991 Colorado Legislature.

Great Outdoors Colorado! will focus on providing more trails, parks and open space. It also aims to fund wildlife programs, habitat improvement, and opportunities for people to watch wildlife. Regarding wildlife specifically, Great Outdoors Colorado! will include new efforts to:

- Protect important habitat for wildlife through purchase, donation, lease, easements, and improvements on public lands.
- Increase efforts to manage nongame and endangered species.
- Promote a state watchable wildlife program; developing facilities, trails, and interpretive projects.

This exciting new program promises to provide equitable, broad-based funding sources for Colorado's outdoor resources, including wildlife. It will enable wildlife programs to be financially supported by everyone, not just hunters and anglers. Your continuing support for this program is essential.



cottontail rabbits



Keep Your Eyes Peeled

Northeast Region:

Learn about **Operation Osprey**. Early July, watch as osprey chicks from Idaho are introduced to their new home in Fort Collins. The chicks will be placed in a hack box on a tower within the C.S.U. Environmental Learning Center; they will be fed fish (with no contact from humans) until they fledge. Viewing opportunities and interpretive programs will be available for about a month and a half until the chicks fly from the hack box. Call Bud Smith, DOW Regional Office, 484-2836.

In mid- to late August, look for kettles of **hawks** and other birds of prey, particularly Swainson's hawks. You may see as many as 100 - 120 hawks in one large group (a kettle) as they prepare for migration.

Throughout July, August, and September look for **wood ducks** along the South Platte River and the lower end of the Poudre River (between Fort Collins and Greeley). If you're traveling through North Park, watch for **osprey**. Four or five active osprey nests are located in the Big Creek area. And watch for **prairie dogs and burrowing owls** as you travel through the grasslands of northeast Colorado.

Northwest Region:

You can drive several routes in this part of the state to view wildlife right from the road:

Travel the **Buford - New Castle Road** through White River National Forest to see **deer, elk, songbirds, and small mammals**. Take the New Castle exit off I-70. Turn north on West Elk Creek Road (FS 244), and follow to Buford. Take the **Great Divide Road** northwest from Craig to enjoy **antelope, raptors, songbirds, and small mammals**.

The **Glade Park Loop** outside of Grand Junction will show you **deer, elk, and raptors**. From Grand Junction, take Hwy 340 west to the east entrance of Colorado National Monument. Continue to Glade Park store on DS road. Turn south on Mud Springs Road, and continue through Grand Mesa National



American avocet

Nongame biologists are worried about the fragil ancyliid, a mollusk species that once lived in Colorado, but can't be found today. They're concerned that Colorado may be losing a native resident before we learn to appreciate its importance to the ecosystem. In fact, some biologists believe that Colorado's fragil ancyliid represents the situation facing many mollusks and amphibians worldwide.

Shi-Kuei Wu, invertebrate zoologist with University of Colorado and noted authority on mollusks, recently completed an inventory of Colorado mollusks for the Division of Wildlife. He found 41 different species, two of which are in serious trouble. The **fragil ancyliid** was last collected by G.W. Bryce, Jr., in 1965 in Yuma County's Stalker Lake, its only known Colorado habitat. Just 4 mm long, its shell provided only partial protection from predators and the surrounding environment. In 1989, Wu could not find any fragil ancyliids in Stalker Lake.

The rare **Rocky Mountain capshell** is the only North American species in its family (Acroloxidae). First found in Colorado in 1920, the capshell was not seen again in Colorado for 50 years, when Bryce discovered 72 individuals per square meter in Peterson Lake. Today Peterson Lake, located at the base of Eldora Ski Area, is highly eutrophic (rich in dissolved nutrients and deficient in oxygen); Wu could locate only one capshell after 90 minutes of intensive search on the least affected shore. He reported, "Because of increasing commercial development in the vicinity of Peterson Lake, and concurrent rapid decrease in its population density, this relict species is greatly endangered."

A Biological Early Warning System

Biologists--those people who study living animals in the hinterlands and keep accurate records by constantly jotting in pocket-sized, spiral notebooks--are finding that the populations and distributions of many animals they study are declining in Colorado and all over the world.

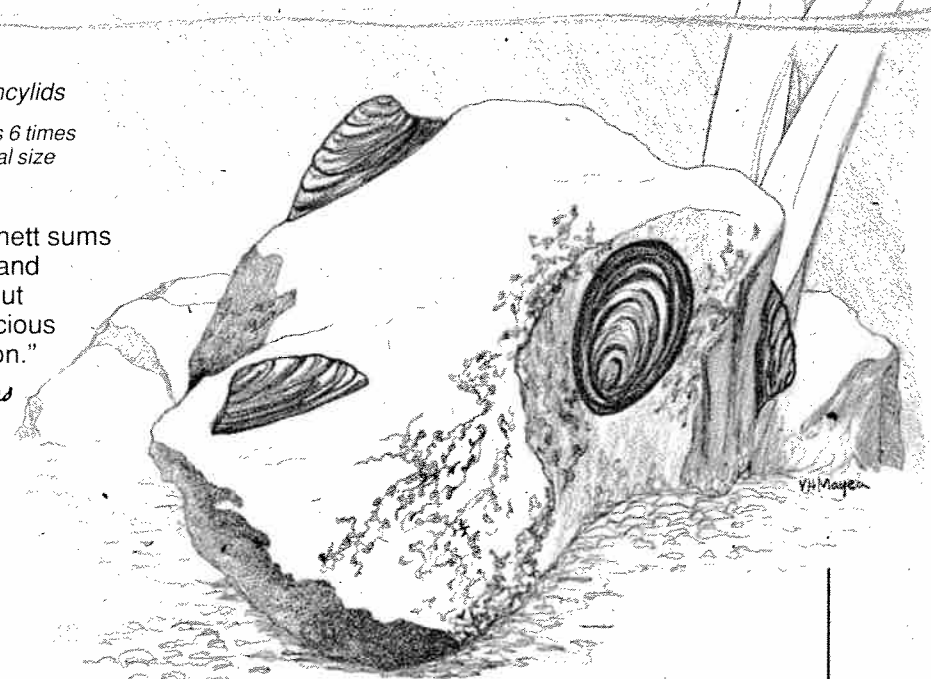
For example: **Boreal toads** used to be so abundant in the Rocky Mountains of Colorado and Wyoming that you couldn't walk down the trail without seeing them. Now they are difficult to find. Populations of **tiger salamanders** seem to be declining in high Colorado lakes. **Frogs** at a field research station in Brazil were once abundant and diverse. In 1982 a returning biologist found that of the 30 common frog species, 6 had disappeared completely and 7 had dramatically reduced populations. Similar trends are evident in frog populations in Colorado's high country.

What really worries biologists is that significant numbers of animal populations are declining even in pristine, protected areas. The fact that mollusks and amphibians--animals that have survived on Earth since the time of the dinosaurs--are now dying out, is of primary concern to biologists. These species may be serving as an early warning system regarding what our polluted environment is doing to every animal on Earth, including the human animal.

In order to understand what the fragil ancyliid and the Rocky Mountain capshell are telling us about Colorado, we need to know more about their populations and life requirements.

However, limited resources put DOW priorities elsewhere. DOW Nongame Biologist Jim Bennett sums up the problem this way: "We need to know the status and biology of these animals before decisions are made about management priorities. Such decisions should be conscious and knowledgeable, not based on tradition or assumption."

fragil ancyliids
drawing is 6 times
actual size



Calling All Parts of Colorado

NEW! Watching Wildlife Close to Home. published by DOW. Detailed map highlights 20 of the best sites to view wildlife near Denver. Guide covers area from Barr Lake on the north to Chatfield Reservoir on the south, and from Gun Club Road on the east to the hogbacks on the west. For information, call DOW, Central Region, (303) 291-7230.

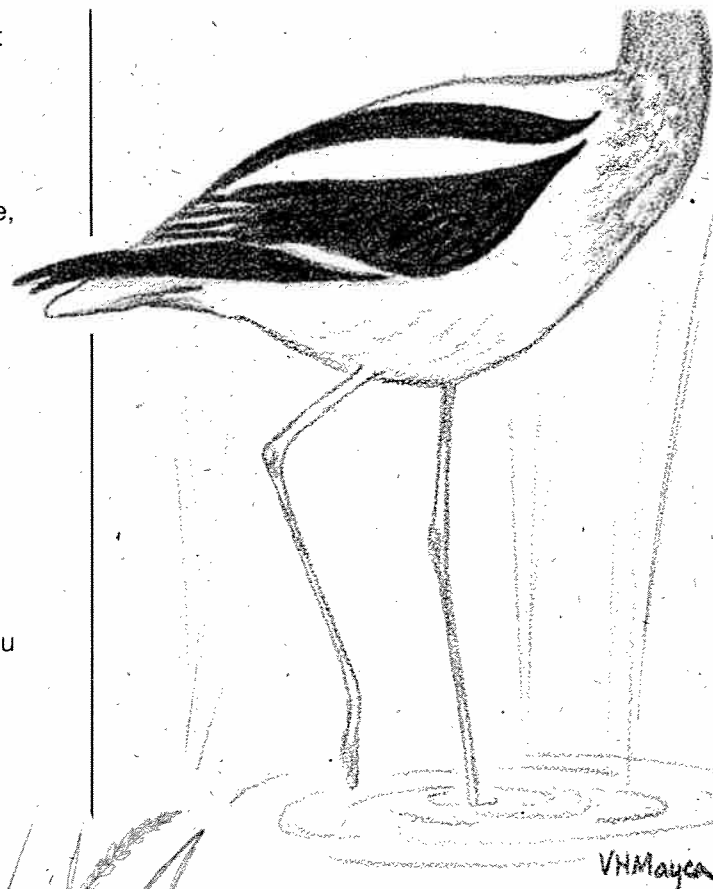
NEW! Guide to Viewing Bighorn Sheep. published by DOW. Guide to 30 sites to see bighorns in Colorado, ranging from roadside vistas to locations that require extensive hiking. Call DOW (303) 297-1192.

NEW! Life at the Top: Wildlife Above Timberline.

videotape produced by DOW. A wildlife biologist takes you on a journey to see Colorado's alpine wildlife. He shares his enthusiasm for animals and knowledge of their behavior. Call DOW (303) 297-1192.

The **Arapaho National Wildlife Refuge** in North Park offers a self-guided 6-mile auto tour with opportunity to view wildlife in the highest-altitude refuge in the lower 48 states. Write Refuge Manager, P.O. Box 457, Walden, CO 80480.

Visit the **Pawnee National Grasslands Birds of Prey Area** overlooking Pawnee Buttes. Contact U.S. Forest Service, Pawnee National Grasslands, 353-5004.



Central Region:

There's lots to see in the Denver metropolitan area: Watch for wildlife in open areas along irrigation canals, rivers, and stream corridors. Watch in parks and cemeteries, too, especially when they include ponds or marshes. In July and August you might see **American coots, barn swallows, kingfishers, nighthawks, and western grebes.** Mammals you might see include **bats, prairie dogs, and weasels.** And don't forget to watch for **bullsnakes, frogs, lizards, and box turtles** this time of year.

The Carrier Pigeon

Dear Editor,

I am writing to let you know why I wouldn't even consider being on the mailing list (for **Colorado's Wildlife Company**): I love non-human animals, and Colorado Division of Wildlife actively supports hunting and trapping, which obviously makes them suffer!

Sincerely,
C. Raymer
Denver, Colorado

Dear C. Raymer,

Thank you for your candid remarks regarding Colorado Division of Wildlife and our compendium. You have identified the paradox of wildlife management. What is your answer to the following reality?

1. Managing and protecting all wildlife in Colorado is the job of Colorado Division of Wildlife.
2. Wildlife habitat in Colorado is fast disappearing due to encroaching urban development and the human population explosion.
3. Managing and supporting viable wildlife populations in the face of dwindling habitat is expensive and requires broad public support.
4. Your taxes do not support the Colorado Division of Wildlife.
5. **Wildlife management carried out by the Division is supported primarily (77%) by hunting and fishing license fees.** The remainder comes from federal assistance programs funded with a special tax on hunting and fishing equipment (17%) and other sources (6%) including Nongame Income Tax Check-off contributions. (Based on Fiscal Year 87-88 actual revenue sources.)
6. The Division of Wildlife recognizes the public's interest in wildlife for more than hunting, fishing, and trapping. To meet that growing interest, the Division has formed two programs that have nothing to do with hunting, fishing, or trapping. They are the Nongame and Endangered Wildlife Program and the Watchable Wildlife Program, sponsors of **Colorado's Wildlife Company**.
7. The Nongame and Endangered Wildlife Program is primarily (57%) funded through Nongame Income Tax Check-off donations. The remainder comes from excise taxes on hunting and fishing equipment (32%), the Federal Endangered Species Act (10%), the Colorado General Fund (1%, discontinued after 1987), and some hunting and fishing license revenue. (Based on a 10-year average of revenue sources.)
8. The Watchable Wildlife Program is funded with a portion of hunting and fishing license fees and contributions.
9. Hunters, trappers, and fishermen are the major source of financial support for wildlife in Colorado.
10. People who do not hunt, fish, or trap have only limited opportunity to financially support the wildlife they love and enjoy.

Yes. The Colorado Division of Wildlife actively supports hunting, trapping, and fishing; hunters, trappers, and fishermen actively support all of Colorado's wildlife. Would you be willing to purchase an annual license to watch wildlife? Would you buy an annual nongame stamp to support nongame management? The Watchable Wildlife and Nongame and Endangered Wildlife Programs would welcome your ideas, as well as your support for their work.


Editor



Thanks Colorado!

Guess I like income taxes a lot more than you do (being a chipmunk has its advantages), but it's great every April to see all your contributions to the Nongame Check-off. When you think about it, the Check-off is really the only way people who don't buy hunting and fishing licenses can financially support wildlife.

Anyway, I appreciate your help, and I thought you might like to know what's going on so far. As of May 31, 1990, 57,872 people have contributed to wildlife. That means the Nongame and Endangered Wildlife Program has been given \$396,683 with an average donation of \$6.85. The final results won't be in until July, but I'm optimistic because they say more people are receiving refunds this year than last year.

Thanks again for remembering wildlife. 

Colorado's Wildlife Company

Colorado Division of Wildlife 6060 Broadway Denver, CO 80216

Yes. I want to keep receiving the Compendium.

If there is an asterisk on your mailing label, we have received your request to remain on our mailing list.

Name _____

Street Address _____

City, State, Zip _____

Please add the following friends of wildlife to your mailing list:

Name _____ Name _____

Street Address _____ Street Address _____

City, State, Zip _____ City, State, Zip _____

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