BIRDS OF PREY I.D. GUIDE

MARK VAN DONSEL

Keep an eagle eye open
for color, light, and action.

Coming in January . . .
the Seventh Annual Special Photo Issue.

see page 35

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Montana Outdoors (USPS 360 280), the official publication of the Montana Department of Fish, Wildlife and Parks, is published bimonthly (January, March, May, July, September, and November). Contributions (manuscripts or illustrations) are welcome with the understanding that the department or the editor cannot be responsible for loss or damage. All contributions will be published at the discretion of the editor. For subscription information, phone 800/678-6668 (toll-free). Subscription rates are $7 for one year, $12.50 for two years, $17 for three years. (Please add $3 per year for Canadian subscriptions. All other foreign subscriptions, air mail only, are $22 for one year.) Individual copies and back issues cost $1.50 each, plus 25 cents for postage and handling. Although **Montana Outdoors** is copyrighted, permission to reprint articles is available by writing our office or phoning us at 406/444-2474. All correspondence should be addressed: **Montana Outdoors**, Department of Fish, Wildlife and Parks, 1420 E. Sixth; Helena, MT 59620.

Indexed by States' Periodical Index, 1660 Smithville Rd.; Havre, MT 59501.

Postmaster: Send address changes to: **Montana Outdoors**, Department of Fish, Wildlife and Parks, 1420 E. Sixth; Helena, MT 59620. Second-class postage paid at Helena, MT 59620, and additional mailing offices.

MONTANA OUTDOORS

Nov./Dec. 1987
Volume 18, Number 6

FEATURES

DEPARTMENTS

COVERS

Fall is the season of color, sometimes golden, bronze, blinding. At other times, the season's shades are subtle, somber, melancholy even. Inspiration for Joe Thornbrugh's front cover painting of a northern goshawk came during a late fall elk hunt south of Hamilton, and it suggests that winter's icy starkness cannot be far behind. It's also an invitation to this issue's identification guide to Montana's birds of prey, for which Thornbrugh did the art. Mark Van Donsel's inside front cover shot of a bald eagle *could* also be an introduction to the birds of prey guide; instead, it's the preview of a coming attraction: the Seventh Annual Special Photo Issue, coming in January. For some who believe fall is the only season, the antelope is also the only animal: Rodney Schlect's back cover photo of the pronghorn shows you why.

CLARK FORK R_X— PRESCRIPTION FOR RENEWAL?

by Liter Spence

"Before there was man, there was the river. It preceded the mountains, the trees and virtually all other forms of life. A healthy river, in its natural condition, is a complete ecosystem, vibrant with energy and life. It is a vital link to creation, to the longevity of the planet Earth. Without it, our society—indeed, all living things—would perish."

—Bill Thomas
"American Rivers, A Natural History"

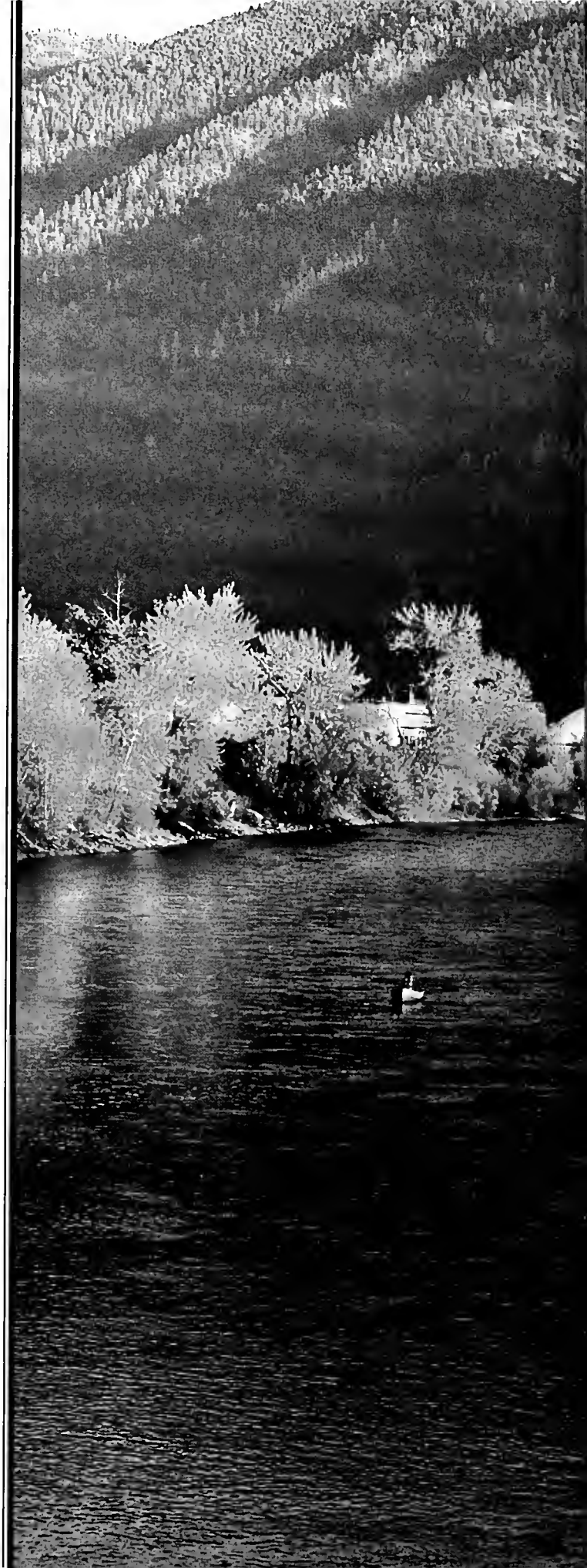
The Clark Fork River in western Montana is a troubled stream. A century before "ecology" and "ecosystem" became household words, destruction of the river's ecosystem began. How did it happen? What about the future? The story begins with...

The Miners

In 1852, Francois Finlay, also known as "Benetsee," discovered gold nuggets in Gold Creek, a small tributary of the Clark Fork upstream from the town of Drummond. Benetsee decided the quantity was insufficient to be profitable, so he did not pursue the find. About five years later, James and Granville Stuart, brothers wintering in the Beaverhead Valley, heard about the discovery and decided to investigate. They prospected the creek and were convinced there was sufficient gold to mine. They left the territory in search of mining equipment and returned in late summer 1860. Word spread, and within two years, a small group of miners had settled at Gold Creek. Miners worked there until the rich strikes at Bannack and Virginia City caused most of them to leave for the Beaverhead country.

However, those who remained continued to mine. As placer mining faded in the late 1860s, the miners turned to hydraulic mining as "the ultimate form of placering." This involved the use of high pressure hoses to wash away entire stream banks and beds. Historian Otis Young observed the consequences of such activities on the streams of the area: "Hydraulic mining dealt effectively with remarkable quantities of low grade gravels, but had the drawback of putting into circulation vast tonnage of slickens, or sluice tailings. The easiest and cheapest way of disposing of this effluvium was to drain it into the nearest major watercourse."

"The nearest major watercourse" was ultimately the Clark Fork River, and the effects of "hydraulicking" were soon apparent. James A. Garfield (later a U.S. president) traveled down the Clark Fork in 1872 and wrote in his diary: "The beautiful river has been permanently ruined by the miners; and



has been for three years as muddy as the Missouri. Before the discovery of gold, it was as clear and pure as any mountain stream could well be."

With discovery of gold at Gold Creek, miners began prospecting other areas in the vicinity. Two miners, Humphreys and Allison, discovered enough gold on the hillsides above Silver Bow Creek in the very headwaters of the Clark Fork to entice other miners into the area. By 1865, three mining districts had been established near Butte. Miners built several ditches to supply water to their claims. One ditch even brought water from east of the Continental Divide. A.K. McClure, a correspondent for the prestigious *Engineering and Mining Journal*, described the Deer Lodge Valley as one of the most beautiful he had ever seen. However, he soon came upon Silver Bow Creek where "the muddy waters tell it is employed to aid the miner to produce precious metals."

In the 1870s, the easily mined gold had mostly run out in the Butte area. The real wealth—copper and silver ore—remained, awaiting the coming of the railroads, heavy equipment, and capital investment. In the mid 1870s, the silver boom hit. Railroads allowed miners to ship the silver ore to smelters outside the area, and Montana became the second largest silver supplier in the nation.

One of the most important silver-producing areas in the early 1880s was around Philipsburg. Historians suggest that, in its time, the Granite Mountain Mine may have been the world's greatest silver mine. However, as it goes with the mining industry, the "boom" was followed by a predictable "bust"—the bottom dropped out of the silver market when the government stopped supporting silver prices. Miners left the silver camps, and the remnants are today's "ghost towns."

Also left along Flint Creek and the upper Clark Fork were mine tailings and smelter slag, laced with heavy metals and the toxic by-products of chemical ore processing.

Copper found during silver mining in Butte in the 1870s did not attract much interest because it was not particularly valuable. However, this changed with the advent of electricity and the telephone, which created a demand for copper wire and other copper products. It became extremely valuable and made rich men of W.A. Clark and Marcus Daly who had wisely invested in the copper deposits.

As the copper industry expanded, reduction works and smelters were established on Silver Bow and Warm Springs creeks where water was plentiful. For almost 100 years, wastes from these smelting activities were carried into the Clark Fork River. In addition, other pollutants were dumped into nearby creeks, including raw sewage and wastes from timber treatment and packing plants. The Clark Fork River, its beauty so impressive to earlier travelers, soon bore little resemblance to those early descriptions. "Red water," rusty-colored water produced when untreated metals in mining wastes (particularly iron) are carried in suspension, occurred frequently. According to early accounts, there were major fish kills between 1890-1900, and the only fish in the upper Clark Fork were found in some tributary streams and side sloughs of the river. This apparently was the situation until the 1950s when the Anaconda Company constructed treatment ponds on Silver Bow Creek in which wastes were settled out of the water before it entered the upper Clark Fork. Company officials also began adding lime to the river near Warm Springs to reduce the acidity of the water, causing toxic metals to precipitate and settle out.

Clark Fork River (photo: JACK TUHOLSKE)

River conditions began to improve, but the red water still frequently occurred in the river as far downstream as Bonner, where it was somewhat diluted by the clean waters of the Blackfoot River.

In 1955, the Montana Water Pollution Act was passed by the 34th Legislature. Until its passage, water pollution was primarily a health problem as far as the state was concerned. No recognition was given to its effects on other uses such as fish and wildlife. The new act changed this. A water pollution council was established, and by 1958 it had developed water quality classifications for the streams of the state. The classifications recognized fish and aquatic life as important water uses.

However, Silver Bow Creek and the Clark Fork received the council's lowest classification—"agricultural and industrial uses"—all the way to Bonner. To allow the various water users time to develop improved waste treatment measures, a schedule was established to upgrade this classification, by reaches, between 1964 and 1969. Silver Bow Creek and the Clark Fork between Warm Springs Creek and the Little Blackfoot River would retain their original classifications. However, from the Little Blackfoot to Bonner, the Clark Fork could be upgraded to include fish and wildlife uses. Various water users were given time to develop improved waste treatment measures.

At least it was a start. However, red water continued to flow down the Clark Fork during the 1960s. In 1967, the state adopted new water quality standards in response to the Water Quality Act of 1965. These new standards were approved by the federal government in 1968. The standards required a reclassification of portions of the upper Clark Fork. Silver Bow Creek retained its original classification. However, the mainstem Clark Fork was upgraded so that most of the river was classified to allow for the "...growth and propagation of salmonid fish and associated aquatic life...." The river between Warm Springs Creek and the Little Blackfoot River was classified somewhat lower—to allow for "growth and *marginal* propagation of fish and associated aquatic life...." Thus, the potential for improvement continued.

Today the river has basically the same classifications. There are, however, two classifications between Warm Springs Creek and the Little Blackfoot. The river between Deer Lodge and the Little Blackfoot has been upgraded to remove the term "marginal." The upper reach from Warm Springs Creek to Deer Lodge continues to contain this term; however, an upgraded classification is certainly appropriate considering the greatly improved stream conditions.

The upgrading of stream classifications and the hint of legal recognition of the importance of fish and wildlife were great strides forward and perhaps provided the impetus for eventually reclaiming the river. The classifications were goals, but the principal problems remained.

In 1969, the state established implementation schedules for pollution abatement in the upper Clark Fork which included the cleanup of mining wastes. The Anaconda Company was given

until July 1972 to comply with the existing water quality standards, which meant it had to adequately treat all its wastes. New treatment facilities were installed and the real cleansing of the river began.

Red water still occurs occasionally during high flows which are not retained by the pond treatment system. As recently as July 1987, a fish kill occurred in the upper river due to a thunderstorm which washed tailings directly into the river. Compared with the past, these are infrequent events, but the potential is still there.

Effects of Anaconda's new waste treatment facilities soon became apparent. River fish populations made a significant comeback. During the late 1960s and as recently as 1972, Department of Fish, Wildlife and Parks (DFWP) biologists found no fish in the Clark Fork River when they sampled a two-mile section of stream immediately below Warm Springs Creek (and the Anaconda settling ponds). Since then, the population has increased substantially. By 1986, biologists estimated 2,300 brown trout per mile in the same reach—the highest concentration per mile of brown trout in the entire upper Clark Fork. This illustrates the great resilience of biological populations when habitat conditions improve. From a water quality standpoint, the river has made a dramatic recovery.

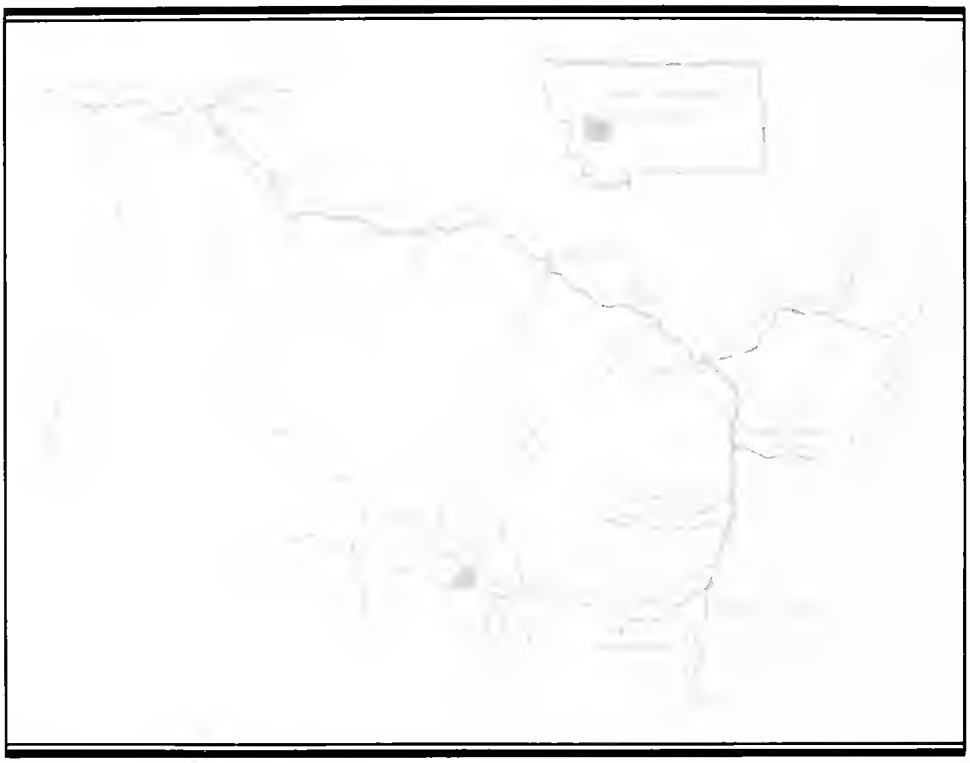
The Ranchers

Early travelers in the upper Clark Fork repeatedly mentioned the fine grasslands, particularly in the Deer Lodge and Flint Creek valleys. Wildlife apparently flourished in these valleys, and it was not long before settlers took advantage of the areas for livestock production. By the mid-1860s, cattle were thriving in the upper river valleys. Naturally, the first ranches were established along the most sheltered and best water courses, many bordered by natural hay meadows. In 1865, Conrad Kohrs purchased the holdings of Johnny Grant and soon had the largest cattle holding in the Northwest. Kohrs first visited the Deer Lodge Valley in the early 1860s and made the following observation about the stream which flowed through the valley: "It [the Deer Lodge River] was a beautiful stream, the water clear and sparkling and alive with the finest trout, and the same was true of every stream we crossed. The valley was full of antelope and many herds of fat cattle belonging to the mountaineers who lived there."

By the mid-1860s, cattle ranchers in the Deer Lodge Valley were prospering. Ranchers sold their cattle to local miners, Indians, military personnel, and wagon trains. With the coming of the railroad, cattle were sold in distant markets. The cattle industry boomed during the 1870s and early 1880s. The Deer Lodge Valley supported large herds, but the business also began to center on the vast ranges east of the mountains.

The mountain valley ranges eventually became overcrowded and subsequently overgrazed. The combination of an extremely severe winter in 1886-87, overstocked ranges, and a depressed cattle market destroyed the open-range cattle industry. Ranchers who survived, like Conrad Kohrs, rebuilt their operations on a smaller, more diversified, scale, similar to that of the 1860s.

Sheep production was also important in the upper Clark Fork. From the beginning of settlement in the valleys, sheep provided mutton to the mining camps. Several large cattle operations also had bands of sheep, including Conrad Kohrs and W.A. Clark. By 1875, Deer Lodge County had over 5,000 sheep, most of them owned by Peter Valiton. Again, railroad access encouraged raising sheep for distant markets. Sheep operations expanded in the 1890s. By the 1950s, Deer Lodge was the Rambouillet sheep capital of the world, due primarily to the early efforts of the Williams and Paully (later Williams-Tavenner) Ranch. However, sheep imports from Australia after 1950 soon became too competitive, and large-scale sheep production declined after the



mid-1950s.

Today, ranching is still important to the social and economic structure of the upper Clark Fork valleys, despite the ups and downs of the weather and livestock markets.

Grain crops and hay were well established in the Deer Lodge and Flint Creek valleys by 1870. Commercial agriculture appeared in the 1880s and by the 1890s, the area was known for its progressive farming practices, including many "firsts" in farming techniques. Beginning in the late 1800s, irrigation played an important role in development of agriculture in the upper Clark Fork valleys. However, despite the many streams, water shortages occurred, the worst during the drought of the 1930s. Because the doctrine of prior appropriation was the water law of the mining camps, the same rules applied to the use of water for irrigation. "First in time" was "first in right," and water users who had first priority controlled the available water.

The earliest water rights recorded were those of the ditch companies in the 1860s and '70s, of which Conrad Kohrs' Rock Creek Ditch Company was a major one. Continuing into the 20th century, other water users organized into irrigation companies for more effective control and utilization of water. Water was diverted from numerous tributaries as well as from the Clark Fork itself. In those early years, all water was distributed by gravity ditch systems.

JERRY MANLEY

Fisheries surveys in 1972 found no fish in a section of the Clark Fork immediately below Warm Springs Creek. The most recent survey (1986) showed 2,300 brown trout per mile. From a water quality standpoint, the river has made a dramatic recovery.

Today, appropriation and diversion of water continue in the upper Clark Fork Basin. Sprinkler systems, using pumped water, have opened new lands to irrigated crops. Thus, stream depletions, which began in the mid-1800s, continue today. Many streams, including portions of the Clark Fork itself, become severely dewatered; in dry years, irrigation takes practically all of the water out of some streams.

Water rights for many of these diversions have priority dates going as far back as the 1860s and '70s, and they are as valid today as they were then.

Fish populations and, consequently, fishing and recreation, cannot be maintained under conditions of frequent stream dewatering. Fish and other aquatic life require a continuous water supply.

The water supply in the upper Clark Fork is limited and always has been. Ever since man arrived in the upper valleys, water shortages have existed, some more severe than others. Even today, competition for available water continues. New permits for diversion rights are issued by state government on streams already heavily utilized by those claiming earlier rights. Although these new permits do not have the senior priority dates of those earlier water rights, they have a higher priority than any right existing for fish and wildlife. Fish and wildlife currently have no water right in the mainstem Clark Fork or most of its tributaries (the Big Blackfoot and Rock Creek near Clinton are exceptions). And the only legal means of securing such instream rights is through a process known as water reservations.

BILL THOMAS

The Reservations

Water reservations are a form of water right granted by the Board of Natural Resources and Conservation to any agency or political subdivision of the state of Montana or the United States for existing or future beneficial uses, or to maintain a minimum flow, level, or quality of water. Water reservations were authorized by the 1973 Water Use Act, Montana's current water law. The act also declared (for the first time by statute) that fish, wildlife, and recreation were legal beneficial users of the state's waters.

Water reservation applications are submitted to the Department of Natural Resources and Conservation. The DFWP has prepared and submitted an application for instream flow reservations in the upper Clark Fork River and 17 tributary streams from Warm Springs Creek to Milltown Dam near Bonner (see map and table).

DFWP INSTREAM FLOW REQUESTS

Stream	Flow Requests (cfs)
Clark Fork River	
Reach #1	180
Reach #2	400
Reach #3	500
Reach #4	600
Warm Springs Creek	
Reach #1	50
Reach #2	40
Barker Creek	12
Cable Creek	10
Storm Lake Creek	10
Twin Lakes Creek	13
Lost Creek	16
Little Blackfoot River	
Reach #1	17
Reach #2	85
Snowshoe Creek	9
Dog Creek	9
Racetrack Creek	
Reach #1	26
Reach #2	3
Dempsey Creek	3.5
Gold Creek	34
Flint Creek	
Reach #1	50
Reach #2	45
Boulder Creek	20
North Fork Flint Creek	6
Stuart Mill Creek	14
Harvey Creek	3

The requests are intended to protect fish and wildlife populations by (1) preventing further depletion of the stream flow and (2) maintaining existing water quality.

If granted, the reservations will not make more water occur in the streams. But they will prevent further dewatering through use of the miners' old doctrine "first in time is first in right." The priority dates of the reservations would be senior to any permits issued by the state *after* the reservations are granted. In other words, the department would have a "prior right" to use the water instream. THIS "RIGHT" WOULD IN NO WAY INTERFERE WITH WATER RIGHTS ALREADY IN EFFECT AT THE TIME THE RESERVATIONS ARE GRANTED. The law simply does not allow that to happen. Older water rights will always have priority over instream reservations. This means that in a dry year, with low stream flow, senior water users could still take all the water from the streams. The reservations preserve the status quo; they do not increase water availability.

The water quality situation is similar to that of water quantity. Since the reservations will only maintain the streams' *existing* flow conditions (as they vary from year to year), they will only help maintain *existing* water quality by diluting the lingering toxic mining wastes still entering the streams. High flows each spring cause the toxic deposits along the Clark Fork River's floodplain to be resuspended and carried in the water. Toxicity due to copper is believed to suppress river fish populations. Copper concentrations commonly exceed the Environmental Protection Agency's criteria for some fish species in the river. This situation will persist as long as mining wastes are present in the drainage.

The extent of mining wastes contamination and methods of dealing with the problem are being evaluated through the "Comprehensive Environmental Response Compensation and Liability Act," the so-called "Superfund." Silver Bow Creek, the old Anaconda Smelter site, Milltown Reservoir, and the upper Clark Fork River's floodplain are on the Superfund cleanup list. But cleanup is a long-term process—it may be decades before ultimate recovery of the river and its fisheries will be achieved. Yet, the potential is there—to improve the Clark Fork and establish a first-class fishing and recreation stream throughout its length. Of concern, however, is the danger of stream flows falling even lower because of new depletions, causing the fisheries to be even more hard-pressed to survive than they are today.

The instream flow reservations will protect existing stream flows and water quality, thus ensuring at least the current level of use and enjoyment of the river. These water reservations, combined with eventual reclamation of mining wastes, should allow the Clark Fork of the future to be an even better recreational stream.

In fact, without instream flow reservations, the benefits of reclamation may not be fully realized.

Thus the story continues. Perhaps historians will recall the next hundred years as a time when the Clark Fork regained life, when it shed the yoke of the previous century's uncaring attitude and became again "...a beautiful stream, the water clear and sparkling and alive with the finest trout...."■

* * * * *

• *The author is indebted to Mary C. Horstman, Missoula, who compiled the historical information about mining and ranching presented in this article, through an agreement with the department's Missoula office. Her 1984 paper, "Historical Events Associated with the Upper Clark Fork Drainage," is available free from the Conservation Education Division, Department of Fish, Wildlife and Parks, 1420 East Sixth; Helena, MT 59620.*—Liter Spence

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THE CATCHALL

Pheasants Forever

During spring of 1987, the first Pheasants Forever (PF) chapter in Montana, the Flathead Chapter, was organized at a fund-raising banquet in Kalispell. Soon after, fund-raising banquets were conducted in Ronan (Mission Valley Chapter), Choteau (Teton Chapter) and Rudyard (Northcentral Chapter). Many more communities throughout the state have expressed an interest in organizing chapters.

According to PF's quarterly publication, *Pheasants Forever*, the purpose of the organization is to restore pheasant populations throughout the United States, to develop and restore habitat for use by pheasants, and to educate the public about the need and benefits thereof. PF has a national membership of more than 25,000 sportsmen, spread among some 140 chapters. To date, these chapters have completed more than 3,300 projects on thousands of acres across the country.

In Montana, PF chapters are in the process of raising funds for local needs. PF allows the majority of money raised by a chapter to remain within that chapter for its own projects. Immediate concerns of Montana's four PF chapters include habitat enhancement and public education and awareness programs. Current habitat projects are directed toward establishing woody cover, nesting cover, and food plots. In addition, a percentage of funds raised will be available for statewide programs, such as promoting legislation to aid in pheasant habitat restoration.

As PF chapters increase in membership and initiate more projects across the state, an increase in the amount of habitat available to the wily ringneck may truly mean...Pheasants Forever!—*Brian Giddings, research aide, Kalispell*

Safari Club Donates Dollars

Safari Club International (SCI) is an organization that backs up promises with cash. The SCI has been pumping dollars into preserving Montana's wildlife for years. The club recently funded construction of bear traps and purchase of a capture gun to help game wardens in southern Montana. Ron Carlson, Big Timber game warden, said the club was asked for materials for two traps ($2,400) and a complete capture gun kit (about $800). Carlson said if the club would donate the material, wardens would build the traps. It did—and they did.

The traps were designed by Carlson and Livingston warden Hank Fabich, and Fabich did most of the construction. Carlson said it took almost a year to complete the traps which are being used to trap both grizzly and black bears. One went to Region 3 (Bozeman) and the other to Region 5 (Billings).

The request for funds went first to Dennis Moos, a Big Timber resident active in the Montana Chapter of SCI. Roger Warwick was club president at the time and was succeeded by Dr. Lance Parker, who continued to support the grant.

As Carlson notes, thanks is overdue, but the thanks that goes out to Moos, Warwick, Parker, the SCI board, and general membership is nonetheless sincere.

BOOK REVIEWS

ELK TALK, by Don Laubach and Mark Henckel, E.L.K., Inc., Box 85, Gardiner, MT 59030; 1987, 202 pages, $12.95 (plus $1.50 postage), soft cover.

As the title suggests, "Elk Talk" is primarily a book about calling elk—about duplicating the sounds that bulls, cows, and calves make. But it's much more than that—it's a valuable reference on elk biology and behavior, a comprehensive digest of elk hunting tactics and techniques, and a tribute to a majestic animal that many people consider to be Montana's ultimate big game trophy.

Don Laubach and Mark Henckel are uniquely qualified to write such a book. Laubach, a dedicated archer, has taken 12 elk in the last 12 years with bow and arrow, the last of them a six-point bull. A few years ago, he invented a cow call which has added a whole new dimension to elk hunting; he has also designed a new bugle call that is effective and easy to use. Henckel, who has been outdoor editor of the Billings Gazette for the past 15 years, is an avid elk hunter in both archery and rifle seasons. He's an award-winning writer and author of "A Hunter's Guide to Montana."

In "Elk Talk," the authors drew on their extensive experience hunting elk in Montana, but also marshaled the expertise of several elk biologists and expert hunters—including Terry Lonner and Dr. Richard Mackie in the former category, and Bill Hoppe, Vince Yannone, and Jim Zumbo in the latter. The result is a practical, easy-to-read guide to finding, calling, and hunting elk with a rifle, bow and arrow, or camera.

In addition to chapters on calf talk, cow talk, and bull talk, the book includes sections on reading sign, stand-

ing and stalking, map work, care of downed game, and planning your hunt. Whether you're new to the elk hunting game or a seasoned veteran, this book should be in your library.—*Dave Books*

RESTORING AMERICA'S WILDLIFE, U.S. Department of the Interior, Fish and Wildlife Service, Superintendent of Documents, Government Printing Office, Washington, D.C. 20402-9325; 1987, 394 pages, $15 hard cover (includes postage).

"Restoring America's Wildlife" chronicles 50 years of wildlife conservation in America. Its publication marks the 50-year anniversary of the Federal Aid in Wildlife Restoration Act, a far-sighted program created in 1937 by some far-sighted individuals who helped engineer the world's most remarkable rebound of native wildlife. Under this conservation program, popularly known as the "Pittman-Robertson" program, dozens of the nation's wild birds and mammals have re-emerged to record levels.

Sportsmen and women alone have funded this assistance to state wildlife management, land acquisition, and research programs through Pittman-Robertson's unique funding arrangement. President Ronald Reagan's introduction to the book emphasizes the importance of those dollars: "Pittman-Robertson's 50th anniversary is an ideal time to take stock of what this remarkable program has accomplished, what still needs to be done, and what the future seems to hold for our wildlife in a period of rapid change."

"Restoring America's Wildlife" features conservation luminaries such as Joe Linduska on the wood duck and Maurice Hornocker and Howard Quigley on the mountain lion. Montanans are not ignored: Dr. Richard J. Mackie, coordinator of statewide deer research studies for the Montana Department of Fish, Wildlife and Parks, wrote the mule deer chapter; Dr. L. Jack Lyon, research project leader at the Intermountain Research Station in Missoula, collaborated with Dr. Jack Ward Thomas on the elk section.

To anyone seeking illumination of the "big picture" of wildlife conservation in the United States during the past 50 years, "Restoring America's Wildlife" should go in the "must-read" stack.

NONGAME NEWS

THOSE LONG WINTER NIGHTS

Many nongame animals have developed special adaptations to survive Montana winters. Not everyone can leave and head to the sunny climates of Arizona or Mexico. Temperature regulation during the short winter days and the long winter nights becomes a serious factor when the temperature drops below zero. Most of the larger mammals and overwintering birds have good insulation with long, dense fur or feathers and a thick layer of fat. The legs of the ptarmigan and the snowy owl become heavily feathered in winter.

Many animals, such as the otter, mink, and muskrat, spend considerable time in cold water even during the winter months. Although they lose heat through their foot pads and nose, their bodies are insulated by a layer of air trapped by their fur.

Some animals avoid the cold temperatures by spending as much time as possible beneath the snow. Voles, mice, and shrews use runways and nests under the snow (called the subnivean environment) to insulate them from the cold.

Ptarmigan dig tunnels as roost sites into the snowbanks to avoid the cold.

A few species avoid the cold months altogether by hibernating. Ground squirrels and marmots are true hibernators and spend long periods of dormancy in their burrows. They do not store food but use stored fat as their energy source.

Although not related to temperature change, a few animals change color during winter. The short-tailed weasel or ermine changes from the brown coat of summer to all white with a black-tipped tail. The color change is triggered by the decrease in daylight and is independent of temperature. The white-tailed ptarmigan also changes from brown to white in the winter. The snowshoe hare's winter coat appears white but is actually tricolored—from dark gray to tawny brown to white. The hare's dense coat also provides good insulation; the heat retention capacity is 27% greater in winter than in summer.—*Marilyn Wood, DFWP biologist, Kalispell*

AROUND THE STATE

In an effort to reduce the problems of feral/stray cat predation on small birds and mammals in the Billings area, the Yellowstone Valley Audubon Society donated funds to the city of Billings to purchase 3,000 cat bells. The double bells are provided on request, free, to people licensing their cats. "Bells for Birds" will attempt to decrease losses of birds and mammals to free-roaming cats, and raise the consciousness of cat owners around the state's biggest city.

Another service available from the city of Billings is an extensive Wildlife Damage Control Library. This library contains a large collection of reprints and pamphlets on non-lethal and humane capture techniques for controlling nuisance wildlife in urban and agricultural areas. For more information or reprints, contact Dave Pauli, superintendent, Department of Animal Shelter, City of Billings, P.O. Box 1178; Billings, MT 59103.

DISCRIMINATING TASTES

Many of us feed birds during the winter, and everyone has his or her own

ptarmigan
JAN BONHAM METZMAKER

ideas about what birds prefer. While most agree that sunflower seeds are an excellent choice, those who feed birds disagree about which type our most common feeder visitors favor—the large, striped variety, or the smaller, black (oil) seeds.

The Flathead Audubon Society has honored both sides of the issue by offering both seed types during its annual sunflower seed sales. However, this changed in 1987, based on results of an experiment conducted by Brent Mitchell of Kalispell, who compared the selection of seed types by birds presented with a choice. The winner? Black, or oil, seeds were preferred, 5-to-1.

Mitchell tested preferences in two ways. In one test, he split a large window feeder into three compartments. He provided the two seed types, one cup at a time, in the end compartments, while he left the center unit empty. He alternated location of the two seed types. Then he recorded the type of seed taken by each bird which visited the feeder during a series of repeated 10-minute surveys. He conducted a similar experiment on two cleared areas on the ground; once again he provided the two types in equal amounts, alternating between the two plots.

In both feeding situations, birds selected the black seeds far more often than the striped seeds. Red-breasted nuthatches and mountain and black-capped chickadees selected the black seeds 85%-90% of the time. When feeding on the ground, evening grosbeaks (infamous for their sunflower seed gluttony) always landed on the black seeds first and would not shift to the other seeds until the black seed area became too crowded or until few black seeds remained.

What are the reasons for this preference? Many of these birds may key in on the black seeds because they are smaller and closer in size to the seeds on which the birds naturally feed. (Black seeds averaged 1,727 seeds per cup, compared with only 815 striped seeds per cup.) While the edible portion of the striped seed is nearly twice the size of the black seed, the oil seeds could have a higher nutritional value, offsetting the additional effort the birds must expend to shell the seeds. While more experiments need to be conducted, the Flathead Audubon Society was convinced: They offered only black seeds during their 1987 seed sale.

MONTANA OUTDOORS INDEX

The major items published in *Montana Outdoors* in 1987 are indexed below. Extra copies of all '87 issues are available—$1.50 each, plus 25 cents for postage. Some earlier back issues are available at the same price.

To inquire about or order a back issue write: Back Issues, *Montana Outdoors*, Department of Fish, Wildlife and Parks, 930 Custer Ave. West; Helena, MT 59620.

BOOKS REVIEWED

Montana's Early-Day Rangers—by Robert C. (Bert) Gildart (March/April).

The Only Good Bear is a Dead Bear: A Collection of the West's Best Bear Stories—by Jeanette Prodgers (March/April).

Clearing—by Matthew Hansen (May/June).

Prairie Wildflowers—by Dr. Dee Strickler (May/June).

Yellowstone Is...—by Mike Logan (July/August).

Montana's Flathead Country—by Robert C. (Bert) Gildart (July/August).

The Madison River—by Craig Mathews and Gary LaFontaine (July/August).

Elk Talk—by Don Laubach and Mark Henckel (Nov./Dec.).

Restoring America's Wildlife—U.S. Department of the Interior, Fish and Wildlife Service (Nov./Dec.).

FISH/FISHING/WATER

Perspectives—"Everyman's Old Man of the River"—If Dan Bailey was the high priest of fly-fishing, Pat Barnes is a most worthy deacon (Tom Palmer, March/April).

The Search for Moby Pike—Searching for the toothy pike in Canyon Ferry Reservoir was only one research project undertaken by students at a summer science camp (Gil Alexander, March/April).

Piscatorial Prophecies—The number of theories to explain fish distribution trends on the Clark Fork are nearly as numerous as the trout (Glenn Phillips, March/April).

Holton Named "Fish Pro"—George Holton is selected as "Fisheries Professional of the Year." The Catchall (March/April).

Thanks, Art Whitney—Art Whitney ends a 35-year career with the department's Fisheries Division. The Catchall (March/April).

Skipper's Inspection List—Before the first launch of the season, all watercraft should be thoroughly inspected. The Catchall (Tim Pool, March/April).

Spring Creeks—Precious Secrets—Montana's spring creeks are special to many people, for many different reasons (Janet Decker-Hess, illustrated by Shirley Cleary, May/June).

Perspectives—"Are They at Melrose Yet?"—Unless you live near salmonfly streams, have a flexible schedule, and reliable informants, it's not easy to "catch the hatch" (Jim Belsey, illustrated by Harvey Eckert, May/June).

What's Bugging That Fish?—The department's Fish Health Lab has the answer—and they welcome calls from concerned fishermen (Jim Peterson, May/June).

The One-That-Didn't-Get-Away Club—1986—Montana's 1986 record-setting fish (May/June).

How the Cutthroats Reached Montana—What trout are really native to Montana, and how they got here (Jim Roscoe, May/June).

A Fish Called Cisco—The cisco is the long awaited new forage fish in Fort Peck Reservoir (Bill Wiedenheft, May/June).

Voluntary Reservations on the Smith—Under a voluntary reservation system, users decide what sort of floating experience they want to have. The Catchall (Gary "Woody" Baxter, May/June).

Mandibles—A newcomer to the Flathead Lake aquatic community—the opossum shrimp—has jaws that are quick and hungry (Robert T. Bukantis and Janet Grinde Bukantis, illustrated by Larry E. Hughes, July/August).

Perspectives—"Of Nature and a

River''—The lushness and vigor of a river's spring had thinned to reveal another world of icy blue waters and fall's ashen colors (Greg Noose, Sept./Oct.).

Clark Fork R_x —Prescription for Renewal?—Western Montana's Clark Fork is a troubled stream. Is there hope for the future? (Liter Spence, Nov./Dec.).

On the Road to Fort Peck Lake—The infamous gumbo may become an inconvenience of the past (Tom Palmer, Nov./Dec.).

GAME/HUNTING

Elk Under the Wire—A powerline corridor, new roads, and their effect on elk hunting in the Clark Fork drainage of west central Montana (Mike Thompson, illustrated by Robert Spannring, March/April).

Black or Grizzly?—Eighteen pictures of black or grizzly bears test and improve your identification skills (Wayne Kasworm, May/June).

Volunteers Make it Work—Shooting and hunting sports are safer in Montana because of the efforts of 700 dedicated volunteer hunter safety instructors (Tim Pool, July/August).

A Big Boost to the Bighorn—Bighorn sheep were the real winners in auctions for bighorn sheep licenses. The Catchall (Bill Thomas, May/June).

The Here and Now Happy Hunting Ground—The Missouri Breaks is a haven for wildlife and it supports one of the world's outstanding elk herds (Tom Palmer, Sept./Oct.).

Montana's Trophy Bonanza—As the updated Boone and Crockett records prove, Montana continues its outstanding performance in producing superlative trophy game for the sport hunter (Norman C. Roettger, Jr., Sept./Oct.).

Caping in the Field—Bagging the trophy elk that you want to have mounted is only the first step (Gerry Schroeder, Sept./Oct.).

On Safari for Prairie Goats—The quarry, the chase, the stealth, the grandeur of the open plains—in Montana, hunting antelope is the closest thing we have to an African safari (Michael Korn, Sept./Oct.).

TIP-MONT Spells Success—A toll-free number has aided law enforcement officers in apprehending poachers. The Catchall (Sept./Oct.).

Bighorns on the Rise—Time nearly marched over the bighorn sheep. But bighorns haven't merely rebounded in Montana, they have reclaimed it (Tom Palmer, Sept./Oct.).

Perspectives—''Old and Young''—The young hunter has much to learn; the older hunter has much to share (Don Laubach and Mark Henckel, illustrated by Robert Neaves, Nov./Dec.).

GENERAL

Special Photo Issue—(Jan./Feb.).

The Bird's-Eye View of Lewis and Clark—When the Corps of Discovery entered what is now Montana, Meriwether Lewis began what turned into Montana's first inventory of birds (Ken Walcheck, March/April).

Cruwys' ''Redheads'' Wins—Roger Cruwys' painting, ''Evening Arrival—Redheads,'' won Montana's second annual waterfowl stamp contest (Tom Palmer, March/April).

Dancing Across the Waves—The popularity of sailboarding—the ''newest'' of water sports—is soaring in Montana (Bill Stroud and Jerry Walker, May/June).

Hegstad Leaves; Howell Arrives—Spencer Hegstad resigns as Commission chairman; governor appoints F.W. ''Bill'' Howell to Commission. The Catchall (Tom Palmer, May/June).

An Outdoor Classroom for Everyone—The Glacier Institute offers Glacier National Park as a classroom. The Catchall (Ursula Mattson, May/June).

See You in Bannack—Frontier days revisited in a July celebration (Dick Ellis, July/August).

Perspectives—'' 'See' First''—To ''see'' the mosaic of land and owner requires effort (Tom Pick, illustrated by Diane Nugent, July/August).

Quarriers of Stone—Stone-Age peoples in Montana mined chert, a glassy rock from which they made tools (Les Davis, July/August).

Montana's Centennial—A Time to Smell the Flowers—If a fund-raising drive is successful, Montana's Capitol will have an expanded floral display for the centennial. The Catchall (Tom Palmer, July/August).

The Man Who Moved Mountains—On the 100th anniversary of his birth, it's appropriate to remember Aldo Leopold's contributions to the art and science of resource conservation (Tom Butts, Sept./Oct.).

Hegstad, Aderhold Honored—The Montana Wildlife Federation recognized Spencer Hegstad as ''Conservationist of the Year'' and Mike Aderhold as ''Conservation Communicator of the Year.'' The Catchall (Sept./Oct.).

The Wolf at My Door—The image of the wolf and the sound of a door opening are still vivid, even after 45 years (Rand Robbin, Nov./Dec.).

WILDLIFE

Nongame News

March/April—great gray owl, rubber boa and plains hognose snakes, check-off reminder, good reading.

May/June—nongame symposium.

July/August—how some nongame animals cope with summer heat; fences and hummingbirds.

Sept./Oct.—bird names, Nongame Wildlife Program funding.

Nov./Dec.—birds' seed preferences, how some nongame animals cope with winter, free bells for cats.

Seeker of Solace—What Montana's common loons need most is a little peace and quiet (Don Skaar, March/April).

A ''Bully'' Idea—A ranch near Dupuyer is an ideal site for conservation-oriented research sponsored by the Boone and Crockett Club. The Catchall (Carol Susan Woodruff, March/April).

DU—Launching Waterfowl's Lifeboat—In three years, Ducks Unlimited has spent $2 million on wetland development in Montana (Tom Palmer, May/June).

WANTED: The Masked Stranger—The black-footed ferret is wanted—alive, wild, and free (Dennis Flath, illustrated by Karen Ray Brower, July/August).

Here's to the Sportsman!—This year marks the 50th anniversary of the Pittman-Robertson Act, a piece of legislation that has made a lasting difference to America's wildlife resource (Bill Phippen, July/August).

Beavers—Big and Busy—One of 101 mammals in Montana, the beaver can weigh more than 60 pounds (Vince Yannone, July/August).

Goats, Curly Bear, and Common Sense—From the standpoint of wildlife habitat, one would be hard pressed to find a stretch of country offering more than the Badger-Two Medicine (Gary Olson, July/August).

All for the Wolf—Wolf conservation in Montana is at a crossroads (Mike Aderhold, Sept./Oct.).

Identification of Montana's Birds of Prey—A guide to Montana's day-flying birds of prey—hawks, falcons, eagles, and vultures (Kristi DuBois and Dale Becker, illustrated by Joe Thornbrugh, Nov./Dec.).

Identification of Montana's Birds of Prey

"Big Hole River," by Joe Thornbrugh. Signed and numbered prints are available at selected galleries or directly from the publisher: Whitney Hibbard, 6013 Highway 12 West; Helena, MT 59601. Image size is 17-1/4 inches by 30 inches and retail price is $95.

by
Kristi DuBois and Dale Becker
illustrated by Joe Thornbrugh

The following is a guide to help you identify Montana's diurnal (active during the day) birds of prey (hawks, falcons, eagles, and vultures). Birds of prey are also called "raptors," because they prey on other animals for food. Birds of prey have large, hooked beaks; long, sharp talons (claws); and excellent vision, all adaptations for a predatory life style.

Even avid birders often misidentify birds of prey because their color varies greatly, even within the same species. This guide does not show all possible color

variations, but it describes the *most reliable* characteristics for distinguishing between species. Most people rely on size and overall color to identify a bird, but these are the least reliable criteria for birds of prey. Size is often hard to judge accurately, and overall color varies. Some species, such as the Cooper's and sharp-shinned hawks, are so difficult to distinguish that biologists who band hundreds of them each year disagree on how best to identify them. The calls of hawks can sometimes be very helpful, so don't overlook recordings of bird songs as a reference source.

No range maps are provided because most of the species described in this article range over most of Montana, either during nesting or migration.

Whether you are a bird-watcher, photographer, or someone who just enjoys being outside, remember that birds of prey require solitude. Most birds of prey are intolerant of man, especially during the nesting season. Federal and state laws prohibit killing birds of prey; destroying their nests; possessing feathers, mounted birds, or eggs; or keeping live birds in captivity without special permits. Enjoy them from a distance, so we can all continue to see them. If you find an injured bird, call a Department of Fish, Wildlife and Parks warden or biologist to capture it, as even the small species can do damage with their sharp talons. Birds of prey have very special needs, so only certified rehabilitators and falconers are allowed to care for them.

All birds of prey have the same basic needs: habitat for nesting, roosting, and foraging, and an adequate food supply. Their greatest threat is man—through habitat destruction, chemical contamination, and illegal shooting. Birds of prey primarily eat the abundant small mammals and birds considered "pests" by man, such as jackrabbits, ground squirrels, mice, pigeons, and starlings. Although raptors occasionally kill prey that is prized by man, such as game species and livestock, the effects of such losses are usually far outweighed by the numbers of pest species on which they prey. Montanans are privileged to be able to enjoy the beauty of an eagle on the wing. The future of birds of prey in the Big Sky is in our hands.

SUGGESTED READING

The following reading list provided most of the information for the species descriptions in this article. Many other excellent books and articles are available from libraries and bookstores.

General References:

Bent, A.C., "Life Histories of North American Birds of Prey," two volumes, Dover Publications, New York; Vol. 1—409 pp., Vol. 2—482 pp. (reprints of the original editions published in 1937 and 1938), 1961.
Brown, L., "Eagles," Arco Publishing Company, Inc., New York, 96 pp., 1970.
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Clark, W.S. and M.E. Pramstaller, "Field I.D. Guide for North American Raptors," Raptor Information Center, National Wildlife Federation, 1412 Sixteenth St. N.W., Washington, D.C. 20036, 1980.
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Grossman, M.L. and J.H. Hamlet, "Birds of Prey of the World," Clarkson N. Potter, Inc., New York, 1964.
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Terres, J.K., "The Audubon Society Encyclopedia of North American Birds," Alfred A. Knopf, New York, 1,109 pp., 1980.

Children's Books:

Patent, D.H., "Where the Bald Eagles Gather," Clarion Books, 56 pp., 1984.
Davis, B., "Biography of a Fish Hawk," G.P. Putnam's Sons, New York, 63 pp., 1977.

Technical:

Newton, I., "Population Ecology of Raptors," Buteo Books, Vermilion, South Dakota, 399 pp., 1979.
Brown, L., "Birds of Prey: Their Biology and Ecology," A & W Publishers, New York, 256 pp., 1977.
Clark, W.S., "The Field Identification of North American Eagles," *American Birds*, Vol. 37, No. 5, pp. 822-826, September/October, 1983.

BUTEOS

The most commonly observed hawks are the buteos. They have broad, rounded wings and broad tails, which are usually spread as they fly. Buteos soar high above grasslands and agricultural areas, often circling to take advantage of rising air currents to gain altitude. They are often observed perched on utility poles and fence posts.

Rough-legged hawk
(Buteo lagopus)

FIELD MARKS: Both sexes have dark brown back and wings, light mottled-brown head, and a white tail with a black terminal band. Most birds have a wide, dark brown belly band. In flight, the wing undersides are white with brown tips. Light-phase birds have a dark patch of brown midway along the forward edge of the wing. Dark-phase birds are dark chocolate-brown all over, except for white wing feathers on the undersides, and the mostly white tail. The sexes can be told apart by the tail: Males have dark barring above the terminal band, while females have a single solid terminal band, with no barring. **SIZE:** Rough-legged hawks range in length from 19-24 inches, and have a wingspan of 48-56 inches. **SIMILAR SPECIES:** Other Montana buteo hawks lack the white tail with dark terminal band. The time of year is the best clue, since rough-legs are the most common hawk seen during the winter, but are absent from Montana during the summer when other hawks are most common. Immature golden eagles are larger and have dark flight feathers. **HABITAT:** Rough-legs hunt over grasslands and agricultural land. They are often seen perched on utility poles and fence posts. **LIFE HISTORY:** Rough-legged hawks nest in northern Canada and Alaska, and migrate to the lower 48 states in winter. They are most numerous in Montana from October through March. In winter, rough-legs are the most common buteo hawk. **FOOD HABITS:** They primarily prey upon small mammals such as ground squirrels, rabbits, and mice. They occasionally eat birds and insects. **STATUS:** Rough-legged hawks are common during the winter in open country throughout the state.

Swainson's hawk
(Buteo swainsoni)

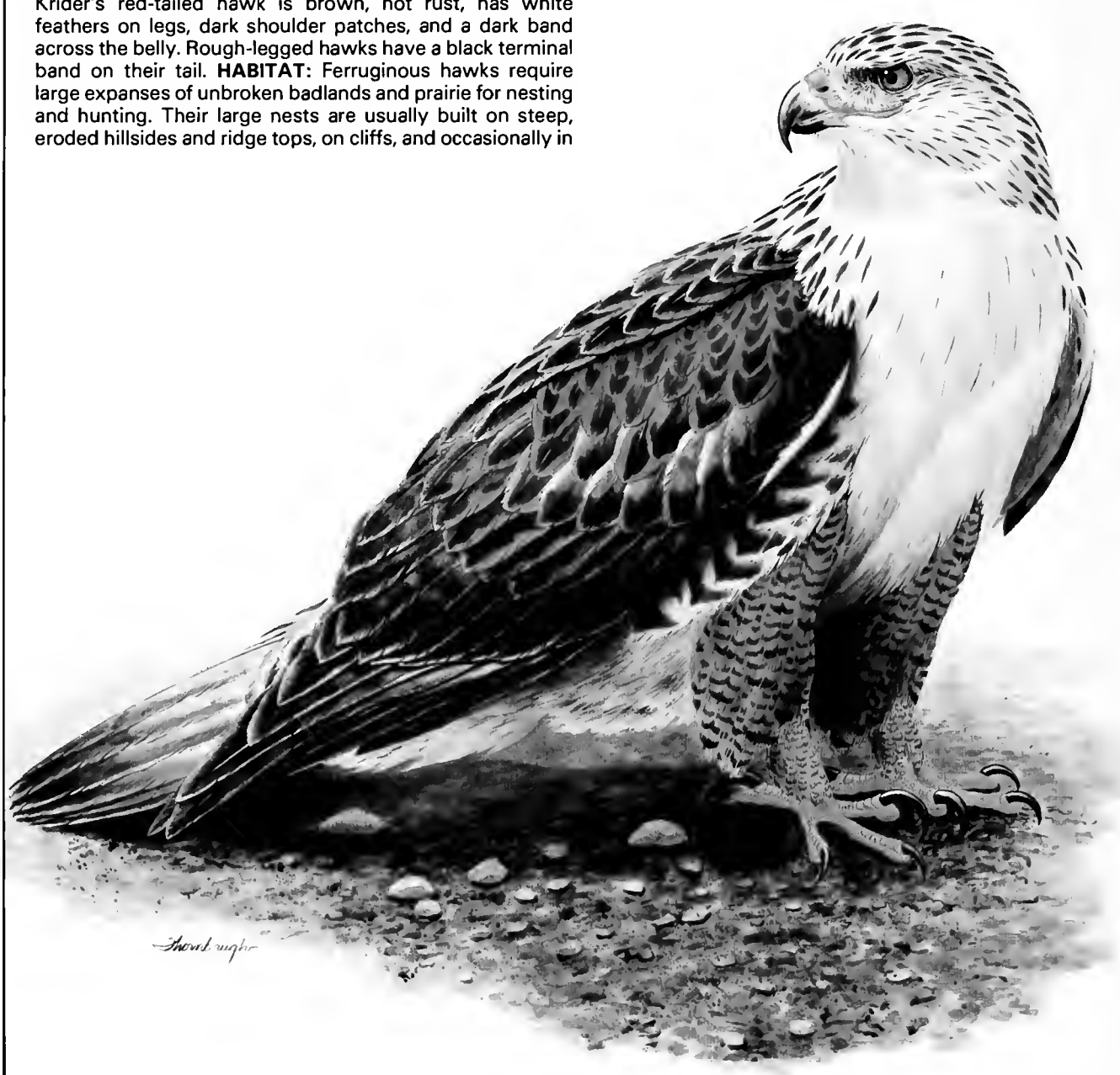
FIELD MARKS: Adults are dark brown above, and white with chestnut-brown bib below; tail grayish-brown, finely barred, becoming lighter toward the base. In flight, the wing undersides appear two-toned, with the flight feathers dark and the leading edge of the wing white. The wings of Swainson's hawks are slightly more pointed than those of other buteos. Dark-phase Swainson's hawks appear all dark brown above and below and on the entire wing undersides, making them look like a miniature eagle. Intermediate color phases occur, with dark brown bibs and chestnut barring on the belly. Immatures lack the bib and are more strongly barred or streaked underneath. Swainson's hawks are slightly smaller than red-tailed hawks, and have longer, narrower wings than other buteos. **SIZE:** Swainson's hawks range in length from 18-22 inches, and have a wingspan of 48-52 inches. **SIMILAR SPECIES:** All other buteo hawks have white flight feathers. Red-tailed hawks have a dark belly band and no bib, while Swainson's hawks have a bib, but no belly band. **HABITAT:** Swainson's hawks nest in river bottom forests, brushy coulees, and shelterbelts. They hunt in grasslands and agricultural land, especially along river bottoms. **LIFE HISTORY:** Flimsy nests are built in trees and shrubs, often as low as four feet from the ground. Swainson's hawks are more tolerant of humans than other hawks, and will often nest close to occupied houses. One to three eggs are laid in May, and incubated for about 28 days. The young fledge in late July and August. Swainson's hawks leave in late September, migrating to Argentina for the winter. They often migrate in large flocks. **FOOD HABITS:** Swainson's hawks prey on a wide variety of small mammals, songbirds, and insects. **STATUS:** Common in Montana, but populations have declined in some parts of the United States due to habitat loss from cultivation, removal of river bottom forests, and removal of shelterbelts.

Red-tailed hawk (red-tail, chicken hawk) *(Buteo jamaicensis)*

FIELD MARKS: Plumage is extremely variable, ranging from very light forms to very dark forms. The "typical" color phase is dark brown above and white below, with a band of dark speckling across the belly (belly band), and a rusty-red tail (paler underneath). Flying birds are white with brown barring underneath, dark brown edges around the wings, and dark brown shoulder patches. The dark belly band is easiest to see in flying birds. The western race of red-tailed hawks is darker with more streaking than the typical phase. Krider's red-tail is a very pale race found in the Great Plains, including eastern Montana. These are light mottled brown above and nearly pure white below. The belly band is often indistinct or absent, and the tail is usually light rust above and creamy white below, with faint barring. Harlan's red-tail (formerly considered a distinct species) is dark mottled brown above, and light brown and white streaked below, with a brown barred tail. They breed in northern Canada and Alaska, and are seen in Montana only during migration. All of these races can have light and dark individuals (color phases). The dark (melanistic) color phase is much less common than the light color phase. Melanistic red-tails have a dark brown belly, and dark brown wing "arms," with light flight feathers, giving their wings a two-toned appearance from underneath. The immatures of all color phases and races look similar to the adults, except they have brown barred tails and more brown streaking over the rest of their bodies. **SIZE**: Red-tailed hawks range in length from 19-25 inches, and have a wingspan of 46-58 inches. **SIMILAR SPECIES**: Krider's red-tails are easily mistaken for ferruginous hawks, but they have white feathering on the legs (ferruginous hawks have dark feathering on the legs). Rough-legged hawks of all ages and color phases have a white tail with a black terminal band, instead of the rust or brown tail of the red-tail. Swainson's hawks have a chestnut-brown bib, but no belly band, and have dark-colored flight feathers instead of light ones. **HABITAT**: Red-tails nest in trees and on cliffs, and hunt over grasslands, open woodlands, and agricultural areas. **LIFE HISTORY**: One to three eggs are laid in April. Incubation lasts about a month. The young fly in June or July when 6-7 weeks old. Red-tailed hawks migrate to the southern United States for the winter, although some winter in Montana. **FOOD HABITS**: Red-tailed hawks eat primarily ground squirrels and other small rodents, but also feed on a wide variety of other animals. Red-tailed hawks often eat snakes, including rattlesnakes. **STATUS**: The red-tailed hawk is common throughout Montana and most of North America.

Ferruginous hawk (ferruginous rough-leg) *(Buteo regalis)*

FIELD MARKS: Ferruginous hawks have rust backs and shoulders. Their wings are brown above and white below. Rusty legs form a dark "V" against the white undersides. The tail is white with a faint rust tip. Ferruginous hawks usually appear very light-colored when viewed from a distance. Dark-phase birds are dark brown on the body, but still have the whitish tail. Immature birds are brown instead of rust, and have brown streaking on the undersides. **SIZE:** Ferruginous hawks range in length from 22-25 inches, and have a wingspan of 53-56 inches. **SIMILAR SPECIES:** Krider's red-tailed hawk is brown, not rust, has white feathers on legs, dark shoulder patches, and a dark band across the belly. Rough-legged hawks have a black terminal band on their tail. **HABITAT:** Ferruginous hawks require large expanses of unbroken badlands and prairie for nesting and hunting. Their large nests are usually built on steep, eroded hillsides and ridge tops, on cliffs, and occasionally in trees. **LIFE HISTORY:** Two to five eggs are laid in early April, and incubation lasts about one month. Ferruginous hawks are much more sensitive to disturbance than other hawks and may abandon their nest if disturbed during incubation. The young usually leave the nest in July, when about 1-1/2 months old. Ferruginous hawks migrate to the southern United States for the winter. **FOOD HABITS:** Their primary prey is jackrabbits, ground squirrels, and prairie dogs, although they occasionally eat birds and reptiles. **STATUS:** Ferruginous hawks are a species of special concern in Montana. They are fairly common in some parts of the state, but some populations are declining due to habitat loss caused by cultivation of native prairie.

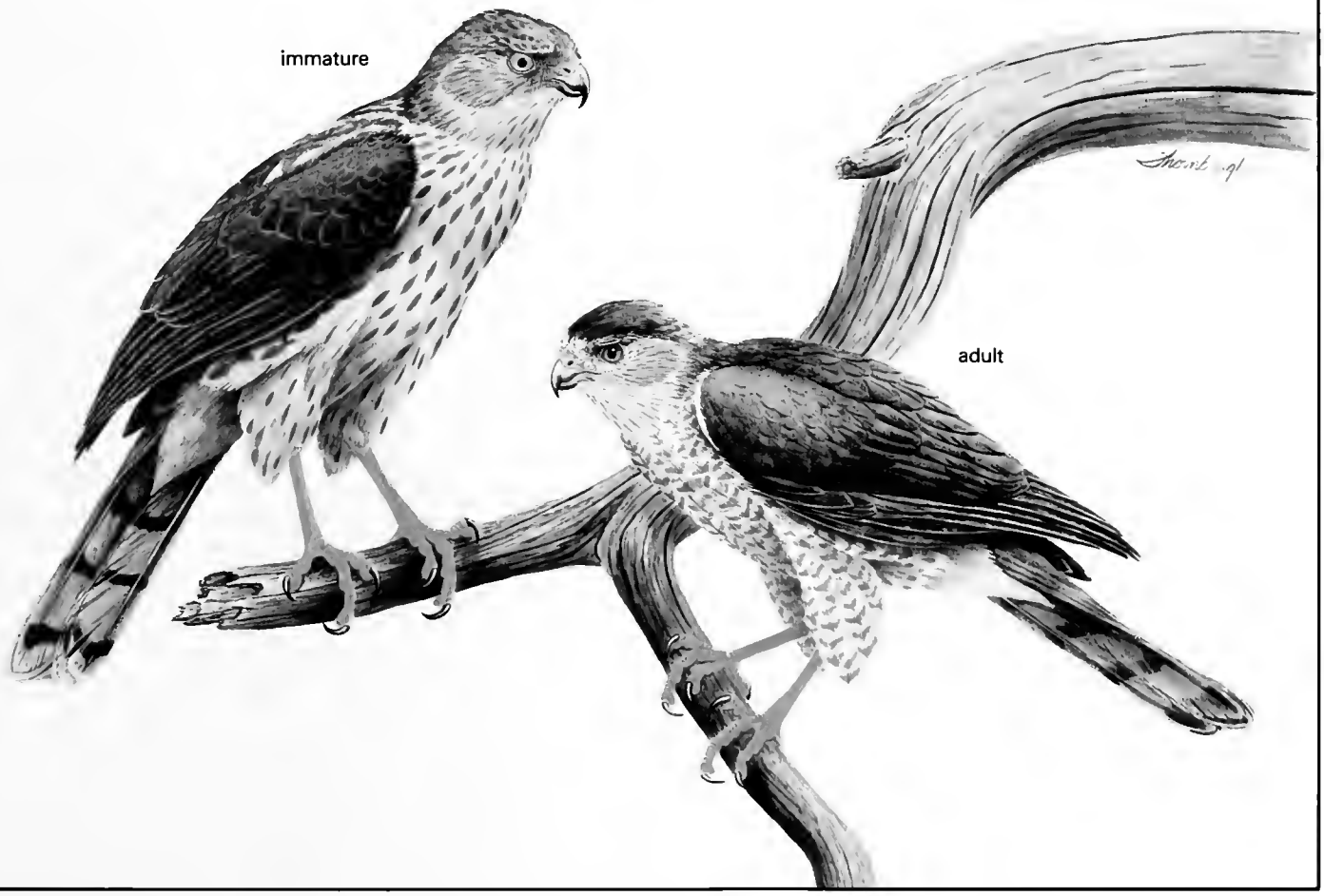


ACCIPITERS

Accipiters are low-flying hawks of the forest. They have short, rounded wings and long tails. They are usually seen darting through the forest in pursuit of birds. When flying in the open, accipiters exhibit a distinctive flight pattern of alternately flapping their wings a number of times, then gliding a short distance. Accipiters occasionally soar high in the air.

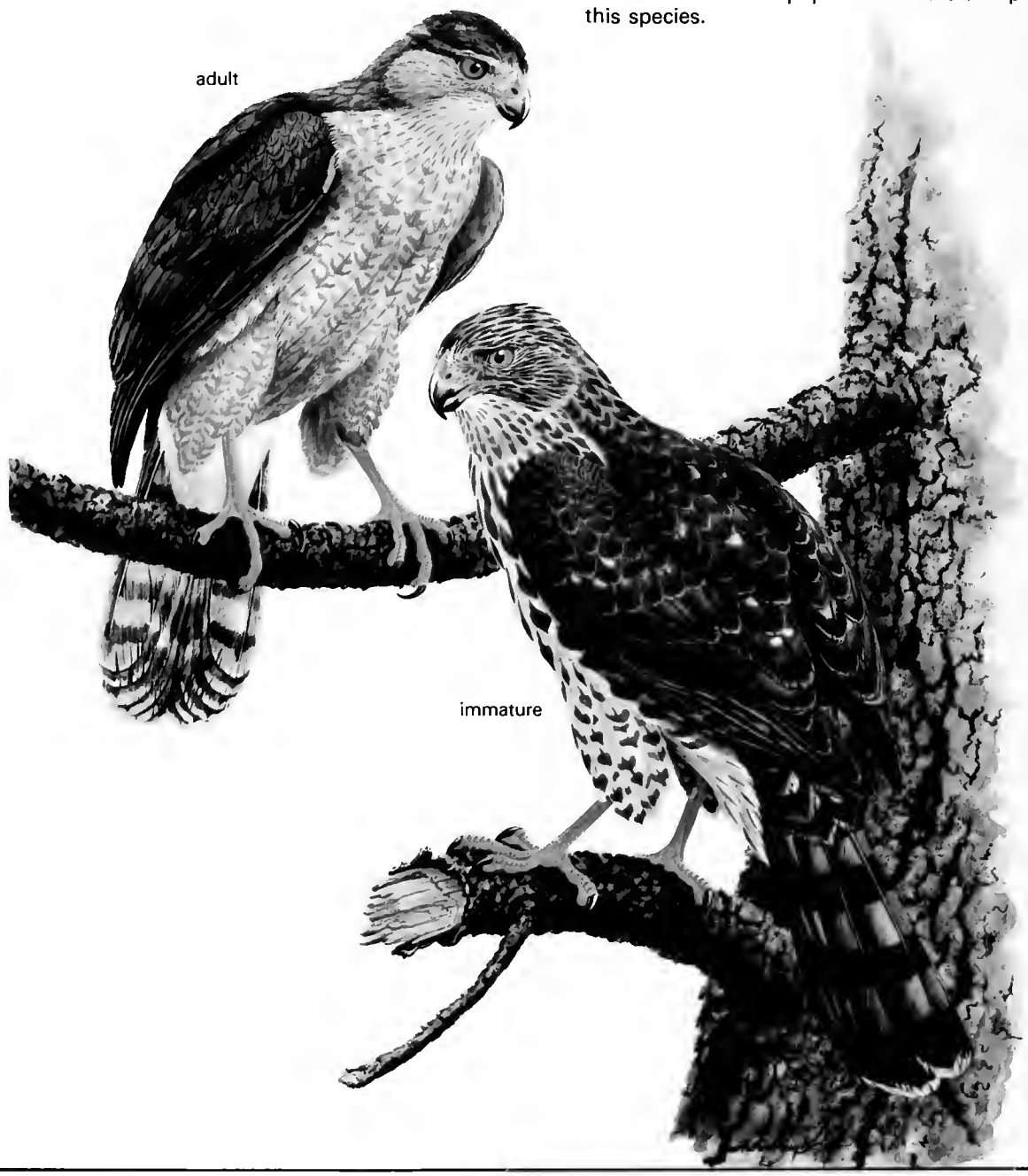
Sharp-shinned hawk
(Accipiter striatus)

FIELD MARKS: Adults are dark grayish-blue above, with a very dark crown. The tail is white-tipped with broad gray bars. Underparts are white with rusty barring from the throat to the legs, and white under the base of the tail. The legs are yellow and the iris of the eye is red. Adult females are similar to males, only duskier. Immatures are brown above, with rufous (rusty red) coloring on the neck. Underneath, they are dull white with distinct brown spots from the neck to the legs. Immatures have yellow legs and yellow eyes. In flight, sharp-shinned hawks exhibit typical accipiter flight of alternately flapping, then gliding. **SIZE:** Sharp-shinned hawks range in length from 10-14 inches, and have a wingspan of 18-24 inches, with the males smaller than the females. **SIMILAR SPECIES:** Cooper's hawks have similar coloration, but are larger (about crow-sized). In flight, sharp-shinned hawks exhibit a squared tail, and Cooper's hawks have a more rounded tail. These two species are among the hardest to tell apart in the field. Immature sharp-shinned hawks are colored like immature merlins, but have shorter, rounded wings, and yellow instead of dark eyes. Their heads are also smaller in proportion to their bodies than the merlin's. **HABITAT:** They most commonly use heavy timber, especially even-aged stands of conifers, but sometimes hunt in open areas. **LIFE HISTORY:** Sharp-shinned hawks arrive at the nest sites in late April, and complete their clutches of three to five eggs by late May. The nests are built in thick timber, usually well-hidden within the forest canopy. Incubation lasts about 33 days, and the young start to fly when about 23 days old. Sharp-shinned hawks occur in Montana year-round, but little is known about the migration patterns of the birds that nest here. **FOOD HABITS:** They feed almost entirely on songbirds, although they occasionally take small mammals and insects. **STATUS:** The sharp-shinned hawk is listed as a species of special concern in Montana. Although sharpshins are regularly observed, little is known about their status in Montana.



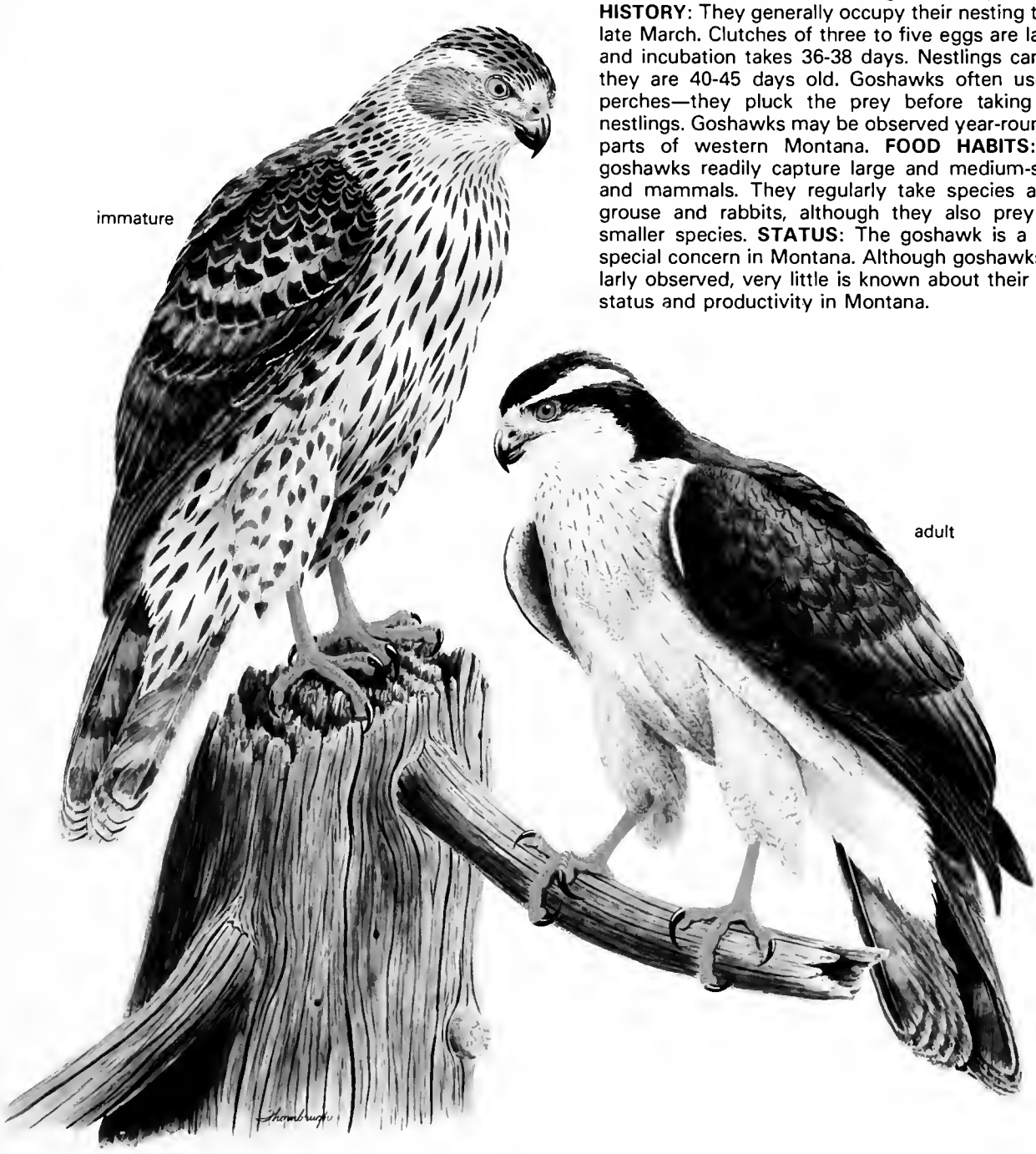
Cooper's hawk
(Accipiter cooperii)

FIELD MARKS: Male Cooper's hawks are dark gray on the back with a black crown and paler neck and face. The belly is white with distinct horizontal rufous bars extending from the neck to the tail and legs. The iris of the eye is deep red and the feet are yellow. Adult females have similar markings, except they have more brown on the back and the eye color is paler. Juveniles are brown on the back with some white streaking on the head and neck, white with brown streaking on the belly, and the tail has a white tip and three or four dark brown bars. **SIZE:** Cooper's hawks measure from 14-20 inches in length with wingspans of 27-36 inches. Females are somewhat larger than males. **SIMILAR SPECIES:** Appearance is similar to that of the northern goshawk and the sharp-shinned hawk. Cooper's hawks are somewhat smaller than goshawks and larger than sharp-shinned hawks. The tail of the Cooper's hawk appears more rounded in flight than that of the sharp-shinned hawk. **HABITAT:** They nest in dense deciduous and coniferous forest cover, often in draws or riparian areas. They hunt in these areas or in adjacent open country. **LIFE HISTORY:** Cooper's hawks arrive at their nesting territories in late March and early April. Clutches of three to five eggs are usually laid by mid-May. They hatch after an incubation of 30-34 days. The young fly about 30 days after hatching and remain in the vicinity of the nest for up to three weeks after leaving it. **FOOD HABITS:** Small to medium-sized birds comprise most of the diet of Cooper's hawks, although they also eat small mammals. **STATUS:** Listed as a species of special concern in Montana. Very little is known about the population status and productivity of this species.



Northern goshawk
(Accipiter gentilis)

FIELD MARKS: Adult males are dark slate-gray above and silver to white below, with fine vertical streaking on the breast and abdomen. The tail has a broad dark subterminal band and three to four narrower dark bands. A broad silver to white stripe extends from above and forward of the eye to the back of the head. The feet are yellow. The iris is yellow in young birds and bright orange in mature birds. Adult females are similar to males except for being more brownish. Juveniles are brown to rufous on the back and rufous on the belly, with reddish-brown streaking on the underparts. Tail feathers are brown with wide dark brown barring. **SIZE:** Goshawks range from 20-26 inches in length and have a wingspan of 36-48 inches, with the females usually larger than the males. **SIMILAR SPECIES:** Appearance is similar to the Cooper's hawk and the sharp-shinned hawk, but the goshawk is somewhat larger than the Cooper's and much larger than the sharpshin. Goshawks are much more silvery underneath than the Cooper's or sharp-shinned hawks. Goshawks also have a distinctive white eye stripe. Goshawks can be told from falcons by their shorter, more rounded wings, and alternating flap-and-glide flight pattern. **HABITAT:** Northern goshawks are birds of heavy forest cover. They usually nest in older growth stands of coniferous, deciduous, or mixed forest and hunt in the forest, clearings, or in open fields. **LIFE HISTORY:** They generally occupy their nesting territory by late March. Clutches of three to five eggs are laid in May, and incubation takes 36-38 days. Nestlings can fly when they are 40-45 days old. Goshawks often use plucking perches—they pluck the prey before taking it to the nestlings. Goshawks may be observed year-round in many parts of western Montana. **FOOD HABITS:** Northern goshawks readily capture large and medium-sized birds and mammals. They regularly take species as large as grouse and rabbits, although they also prey on many smaller species. **STATUS:** The goshawk is a species of special concern in Montana. Although goshawks are regularly observed, very little is known about their population status and productivity in Montana.

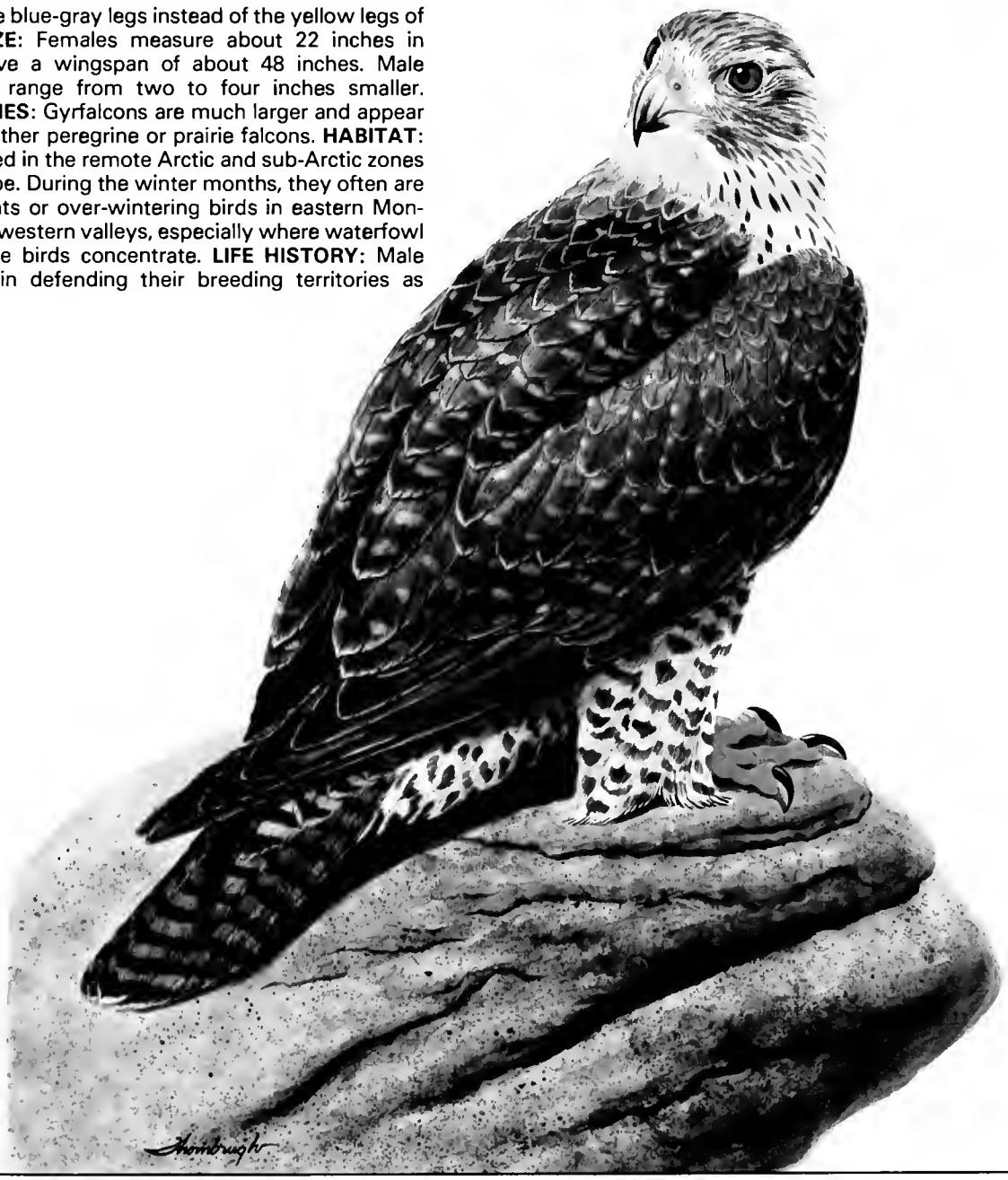


FALCONS

Falcons are fast-flying birds of open country. They are famous for attaining high speeds as they dive from high altitudes to knock unsuspecting birds out of the air. Falcons have long, pointed wings and fairly long tails, which are usually folded as they fly. Falcons flap their wings almost continuously during level flight, and they rarely soar.

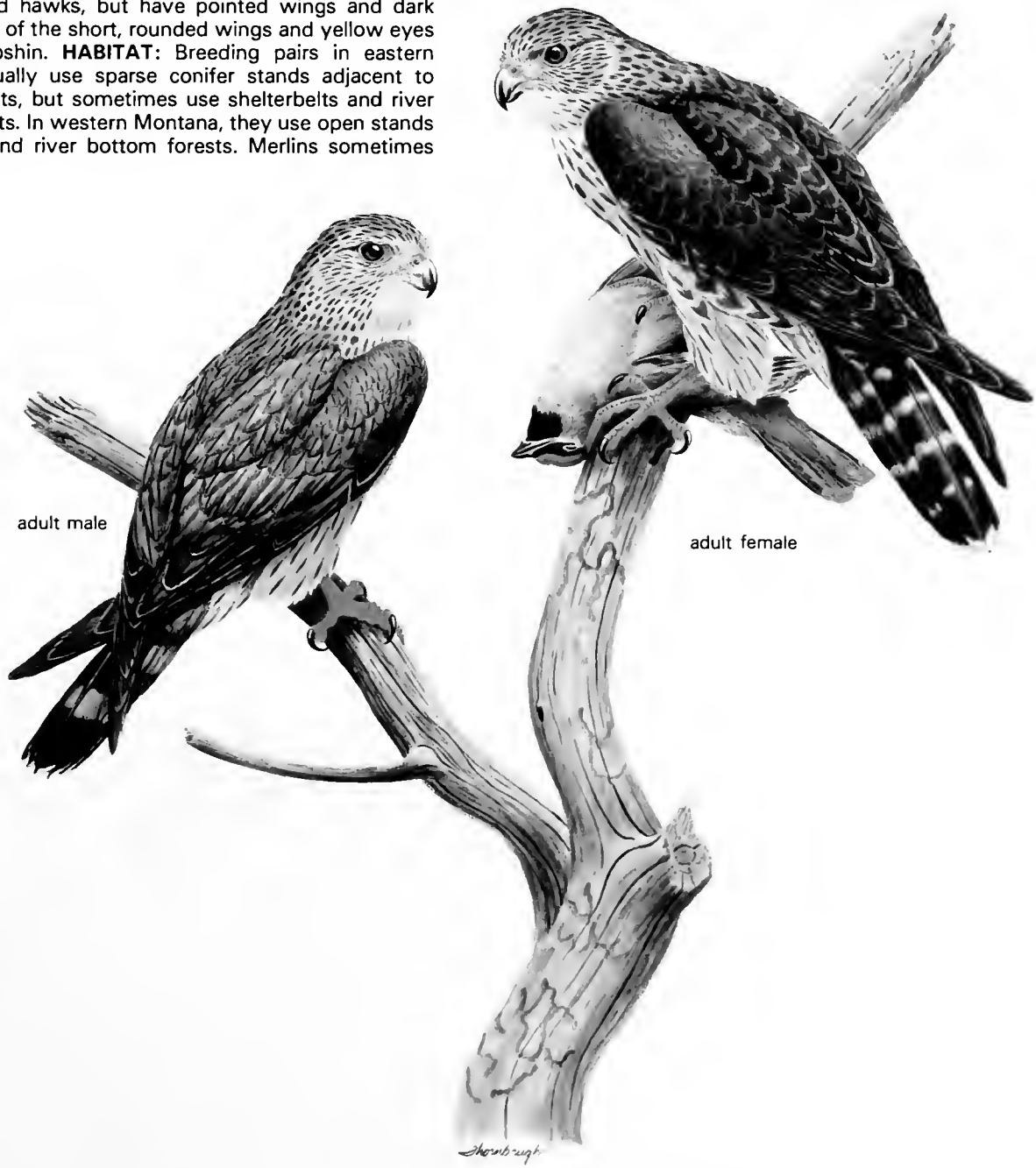
Gyrfalcon
(Falco rusticolus)

FIELD MARKS: Several color phases, ranging from white to dark slate-gray, exist. White birds exhibit varying degrees of dark barring on the upper parts of the body, but the undersides may be nearly pure white. Darker birds have considerable dark barring and streaking on a light gray breast and belly. Gray birds are more commonly observed in Montana than white birds. Immature birds are similar to adults, but have blue-gray legs instead of the yellow legs of the adults. **SIZE**: Females measure about 22 inches in length and have a wingspan of about 48 inches. Male measurements range from two to four inches smaller. **SIMILAR SPECIES**: Gyrfalcons are much larger and appear stockier than either peregrine or prairie falcons. **HABITAT**: Gyrfalcons breed in the remote Arctic and sub-Arctic zones around the globe. During the winter months, they often are seen as migrants or over-wintering birds in eastern Montana and in the western valleys, especially where waterfowl or upland game birds concentrate. **LIFE HISTORY**: Male gyrfalcons begin defending their breeding territories as early as January and February, and females arrive by March. Eggs are laid by late April or early May, and young hatch after 30-35 days of incubation. The young fly when about 7-8 weeks old. During years of prey shortages in the north, large numbers of gyrfalcons move down into the northern United States in winter. **FOOD HABITS**: Gyrfalcons primarily eat birds, ranging from small songbirds to ducks and grouse. **STATUS**: In Montana, gyrfalcons are rare winter residents and migrants.



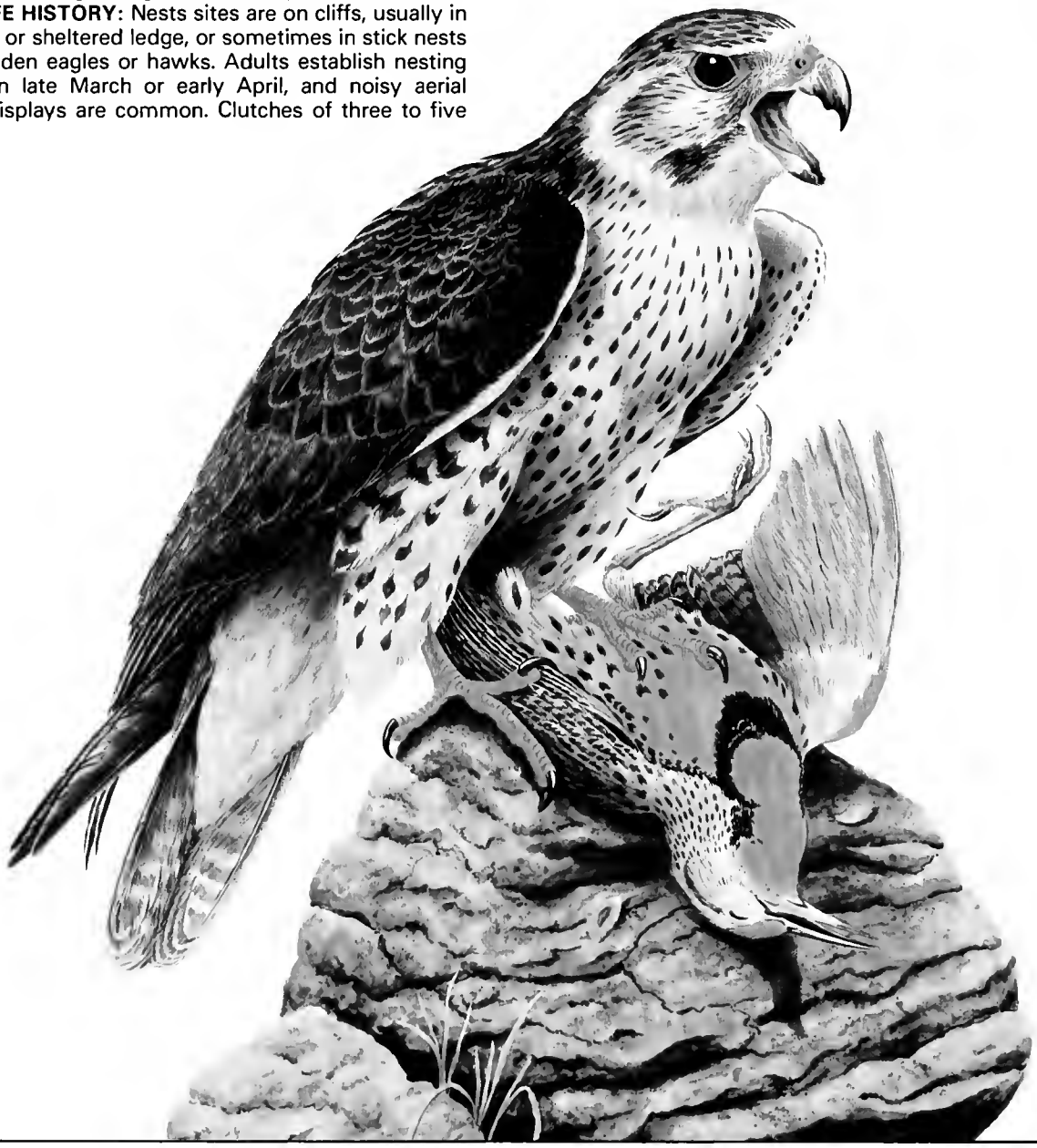
Merlin (pigeon hawk)
(Falco columbarius)

FIELD MARKS: Males are blue-gray to dark blue above and pale rufous to buff-colored below, with dark streaking or barring. Females are brown above and creamy to rufous below with darker streaking. The tail is barred dark with gray to white and exhibits a dark subterminal band. The eye is dark brown, and feet are yellow. Juveniles of both sexes resemble females, but are sometimes darker. **SIZE:** Merlins are from 10-12 inches in length, and have wingspans of 19-24 inches. Females are slightly larger than males. **SIMILAR SPECIES:** Merlins are significantly smaller than gyrfalcons, prairie falcons, and peregrine falcons. Both sexes are more uniform in color than the brightly colored American kestrel. Immature merlins resemble immature sharp-shinned hawks, but have pointed wings and dark eyes, instead of the short, rounded wings and yellow eyes of the sharpshin. **HABITAT:** Breeding pairs in eastern Montana usually use sparse conifer stands adjacent to prairie habitats, but sometimes use shelterbelts and river bottom forests. In western Montana, they use open stands of conifers and river bottom forests. Merlins sometimes nest in urban areas. **LIFE HISTORY:** Male merlins arrive at nesting areas in late March and early April, and females arrive slightly later. They use nests previously constructed by black-billed magpies or common crows; merlins, like other falcons, do not build their own nests. Clutches of three to five eggs are laid from mid-April to early June, and are incubated for about 30 days. The young fly when about 40 days old, but they may remain near their nests for up to a month afterward. Merlins in the wild live to be about 8 years old. **FOOD HABITS:** Merlins primarily eat small birds. In eastern Montana, common prey includes grassland birds such as horned larks, vesper sparrows, and lark buntings. In western Montana, prey includes various sparrows, finches, and waxwings. Young merlins often take larger insects such as grasshoppers and moths. **STATUS:** The merlin is listed as a species of special concern in Montana. Limited information on populations in Montana exists.



Prairie falcon
(Falco mexicanus)

FIELD MARKS: Sexes are similar in color, uniformly buffy brown above and creamy white below. The tail is rufous-brown with very fine barring. Adults have a brown-barred breast and belly, while juveniles have more boldly brown-streaked underparts. Both adults and young have dark brown feathers on the undersides of the wings near the body ("wing pits"), and a dark brown stripe running diagonally backward from below the eye. The eye is dark brown. **SIZE:** Males average about 15 inches in length and have a wingspan of about 37 inches, and females average about 17 inches in length with a wingspan of about 41 inches. **SIMILAR SPECIES:** Prairie falcons are about the same size as juvenile peregrine falcons, but lighter in color. They are much smaller than gyrfalcons, and much larger than female merlins. None of the other falcons have the dark "wing pits" under the wings. **HABITAT:** Prairie falcons use cliffs for nesting, and grassland and prairie habitats for hunting. **LIFE HISTORY:** Nests sites are on cliffs, usually in a large hole or sheltered ledge, or sometimes in stick nests built by golden eagles or hawks. Adults establish nesting territories in late March or early April, and noisy aerial courtship displays are common. Clutches of three to five eggs are usually laid in late April, and incubated for about one month. Young leave the nest when about 40 days old, but may stay nearby for up to four weeks afterward. Migration southward and eastward from Montana nesting areas is common. Maximum reported life span for a wild bird is 14 years. Mortality during the first year of life may be as high as 74%, and 25% during later years. **FOOD HABITS:** Prairie falcons feed primarily on birds and mammals, often exploiting locally abundant prey populations. In Montana, common prey are western meadowlarks, horned larks, and ground squirrels. **STATUS:** The prairie falcon is listed as a species of special concern in Montana. Prairie falcons are generally more common east of the Continental Divide, and can be locally abundant in good habitat. Prairie falcon populations were not greatly affected by pesticides such as DDT, because they prey so heavily on mammals which don't tend to accumulate the pesticides in their body tissues as do birds.

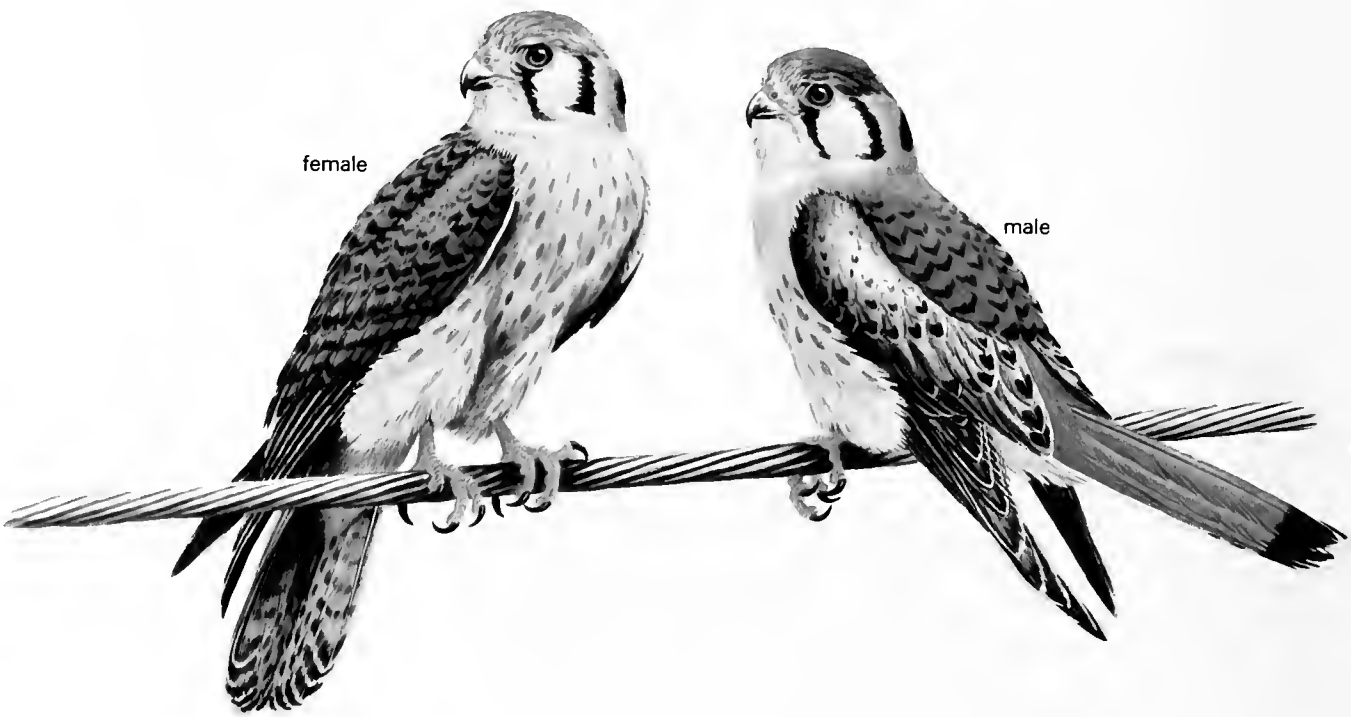


Peregrine falcon (duck hawk, bullet hawk) *(Falco peregrinus)*

FIELD MARKS: Adult peregrine falcons are dark blue to nearly black above, and light buffy to creamy below, with dark barring on the lower breast and abdomen and white on the upper breast and throat. Sexes are similarly colored. Juveniles are brown above and tan to buff below, with brown barring on the breast and abdomen. Feet are blue-gray on juveniles and yellow on adults. **SIZE:** Males range from 14-17 inches in length and have wingspans of about three feet. Females range from 17-20 inches in length and have wingspans of about 36-40 inches. **SIMILAR SPECIES:** Merlins are considerably smaller and gyrfalcons are larger. Prairie falcons are similar in size, but are more uniformly pale in color than juvenile peregrines and have dark "wing pits." **HABITAT:** Peregrine falcons prefer open areas, especially marshes, for hunting. For nest sites, they prefer cliff edges and cavities. Peregrines occasionally nest on buildings in cities or in trees. In Montana, peregrines were historically distributed along the major rivers of the state, probably because these areas offered the highest concentrations of birds used as prey. **LIFE HISTORY:** Adult peregrines arrive at breeding territories in the western United States in March and April. Courtship involves flight displays and loud vocalizations. Incubation of clutches of two to five eggs generally takes from 28-32 days. Young birds leave the nest at 35-42 days after hatching, usually during early July. **FOOD HABITS:** Prey consists primarily of birds, ranging from the size of swallows to ducks. Shorebirds and waders are taken in areas in which they are abundant near nesting sites or migration routes. **STATUS:** Listed as an endangered species, breeding populations were believed to have become extinct in Montana by the late 1970s. Efforts to reintroduce captive-bred peregrines since have shown promise. Migrants from Canada are sometimes observed, especially near areas of high concentrations of migrating waterfowl.

American kestrel (sparrow hawk) *(Falco sparverius)*

FIELD MARKS: Adult males are slate-blue on their wings and the crown of their heads. The back is rufous with distinct dark brown horizontal barring. The tail is uniformly rufous with a black band on the end. The breast is buff to cream with light vertical streaking. The female is uniformly rufous on the back and wings with dark brown horizontal banding. The tail is similarly marked. The breast is buff with heavy rufous streaking. Both sexes have a dark vertical stripe below, in front of, and behind the eye, with an additional dark stripe farther back on the head. Juvenile males differ from adults in having a more heavily marked breast and brown-tipped tail feathers. Juvenile females are identical to adult females. **SIZE:** American kestrels range from nine to 12 inches in length and have a wingspan of 20-24 inches. **SIMILAR SPECIES:** Merlins are slightly larger than kestrels. Female merlins are not as rufous as female kestrels. Male merlins have blue backs and wings. Sharp-shinned hawks have more rounded wings, and have blue or brown backs and wings. **HABITAT:** American kestrels are found in nearly all habitats in Montana. Nests are often located in cavities in trees, banks, cliffs, and buildings. They also use man-made nest boxes. They usually hunt in open habitat. Kestrels often perch on overhead wires or posts while looking for prey, or hover in midair. **LIFE HISTORY:** Male kestrels arrive at nest sites before females. A prolonged and often noisy courtship in May results in three to seven eggs which hatch after 28 to 30 days of incubation. The young fly when they are about a month old. Parents and young often stay together for up to a month after they leave the nest. **FOOD HABITS:** During the summer, kestrels feed heavily on large insects such as grasshoppers. Other prey includes small birds, rodents, and snakes. During winter they feed primarily on small birds and rodents. **STATUS:** The American kestrel is very common, the most abundant bird of prey in many parts of Montana.

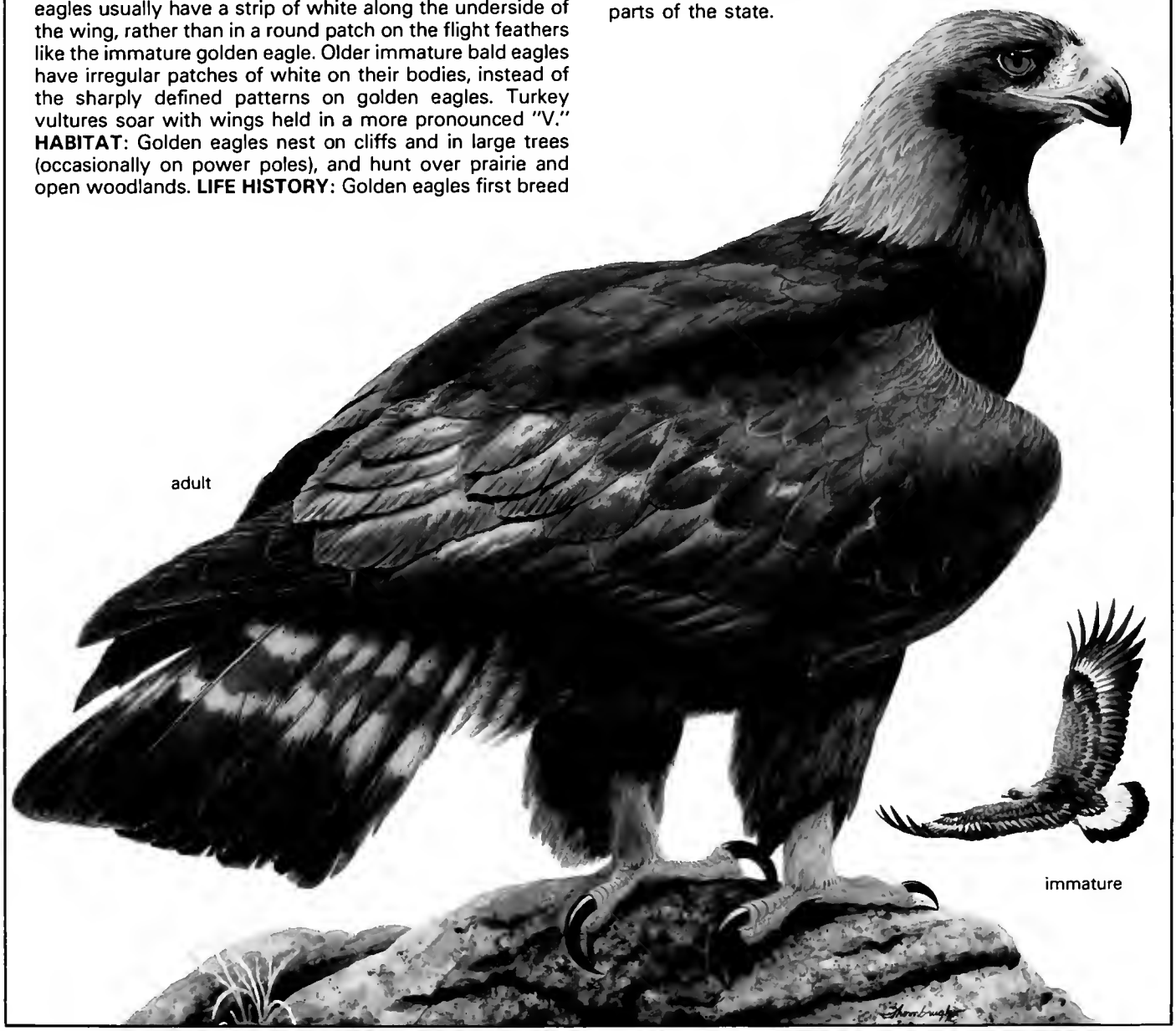


EAGLES

Eagles are large, soaring birds of open country and mountains. They have long, rounded wings and short tails that are spread as they fly.

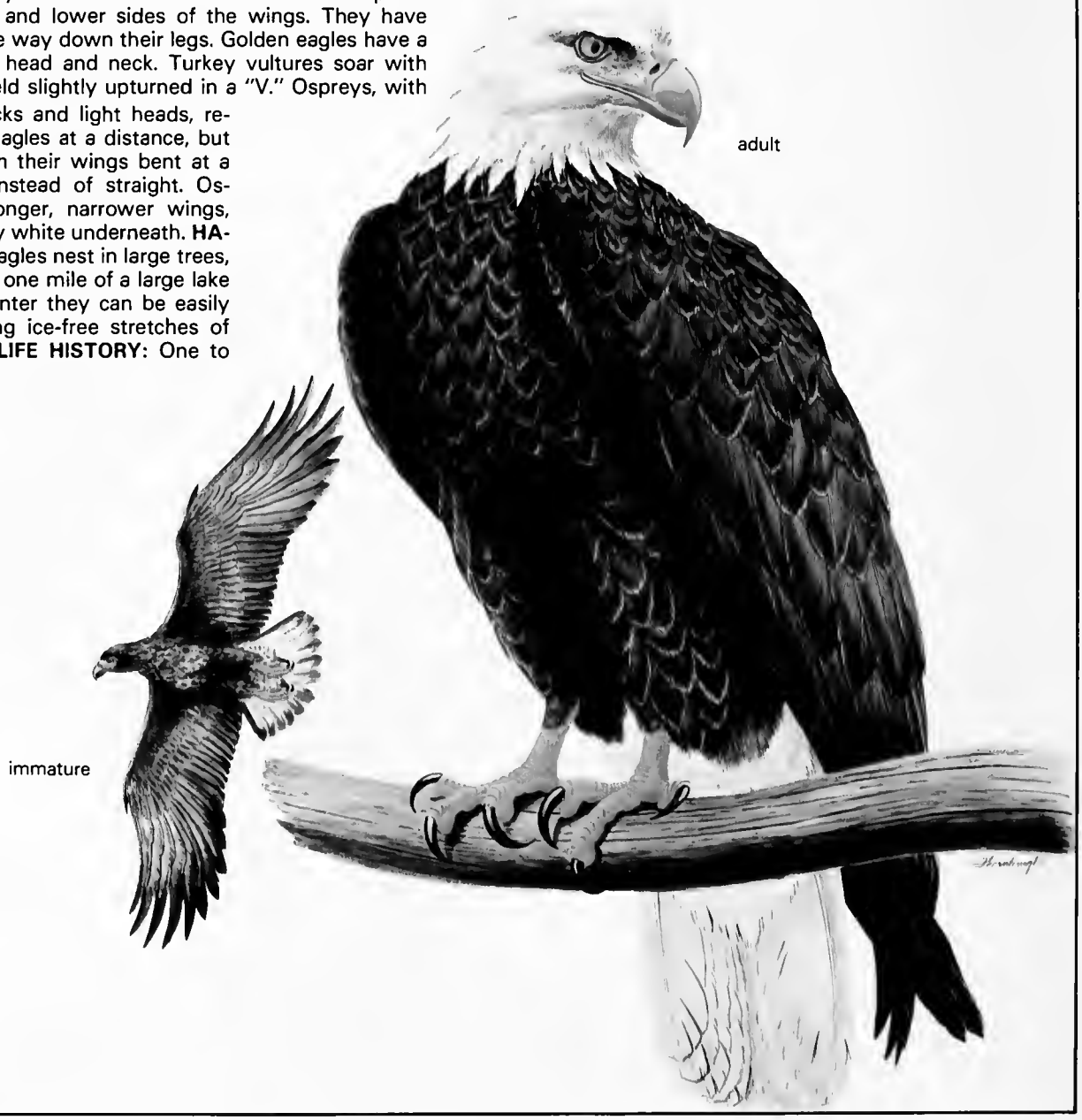
Golden eagle (mountain eagle, ring-tailed eagle) *(Aquila chrysaetos)*

FIELD MARKS: Adults are brown overall, gold on head and neck feathers, with light brown bands in the tail. Immature birds have white patches on the wings and white at the base of the tail feathers. Golden eagles often soar with their wings held nearly flat, but slightly upturned. The legs are heavily feathered down to the tops of the toes. **SIZE:** Golden eagles range in length from 33-38 inches, and have a wingspan of 6-1/2 to 7-1/2 feet. **SIMILAR SPECIES:** Bald eagles have feathers only part way down the leg, and usually soar with wings held completely flat. Immature bald eagles usually have a strip of white along the underside of the wing, rather than in a round patch on the flight feathers like the immature golden eagle. Older immature bald eagles have irregular patches of white on their bodies, instead of the sharply defined patterns on golden eagles. Turkey vultures soar with wings held in a more pronounced "V." **HABITAT**: Golden eagles nest on cliffs and in large trees (occasionally on power poles), and hunt over prairie and open woodlands. **LIFE HISTORY**: Golden eagles first breed when 4-5 years old. The same pair often uses the same nest year after year; nests are sometimes over six feet in diameter. One to three eggs are laid in March or April, and incubated for about 45 days. The eaglets fly in June or July when about 10 weeks old. Most Montana golden eagles probably remain in Montana throughout the year, but northerly populations are more migratory. **FOOD HABITS**: In Montana, golden eagles eat primarily jackrabbits, ground squirrels, and carrion (dead animals). They occasionally prey on deer and antelope (mostly fawns), waterfowl, grouse, weasels, skunks, and other animals. Golden eagles rarely prey on livestock, and the heaviest losses usually occur in areas where migrating eagles congregate. Golden eagles can carry no more than about seven pounds while flying. **STATUS**: The golden eagle is listed as a species of special concern in Montana. They are common in some parts of the state.



Bald eagle
(sea eagle, American eagle)
(Haliaeetus leucocephalus)

FIELD MARKS: Adults are easily identified by their white heads and tails. Immatures vary greatly in plumage. First-year birds are dark brown with white only in a thin band along the underside of the wing. Birds 2-4 years old have varying amounts of white on various parts of their bodies. Some resemble ospreys with a whitish belly and head and a dark eye stripe. Others are mottled with whitish patches on their wings, tail, belly, and back. They attain the pure white head and tail when about 5 years old. Bald eagles usually soar with wings held flat. Their head is proportionally larger than a golden eagle's, and their legs are only feathered part way to the feet. **SIZE**: Bald eagles range in length from 34-43 inches, and have a wingspan of 6 to 7-1/2 feet. **SIMILAR SPECIES**: Immature golden eagles have white only at the base of the tail and as a round patch on the upper and lower sides of the wings. They have feathers all the way down their legs. Golden eagles have a golden-tinged head and neck. Turkey vultures soar with their wings held slightly upturned in a "V." Ospreys, with their dark backs and light heads, resemble bald eagles at a distance, but they soar with their wings bent at a slight angle instead of straight. Ospreys have longer, narrower wings, and are mostly white underneath. **HABITAT**: Bald eagles nest in large trees, usually within one mile of a large lake or river. In winter they can be easily observed along ice-free stretches of major rivers. **LIFE HISTORY**: One to three eggs are laid in March or April and incubated for about 35 days. The eaglets leave the nest in June or July, when about 9 to 10 weeks old. Bald eagles migrate as far south as Nevada for the winter. Many eagles that nest in Canada pass through Glacier National Park in the fall, stopping to feed on spawning kokanee salmon. As many as 600 have been counted in one day along McDonald Creek near West Glacier. **FOOD HABITS**: The majority of their diet is comprised of fish. They also prey on waterfowl, especially in winter. They also eat carrion and a variety of other mammals and birds. **STATUS**: Bald eagles are listed as an endangered species in most of North America, including Montana. The population appears to be rebounding after reaching lows in the 1970s due to DDT contamination. About 60 pairs currently nest in Montana, primarily in the western half of the state.

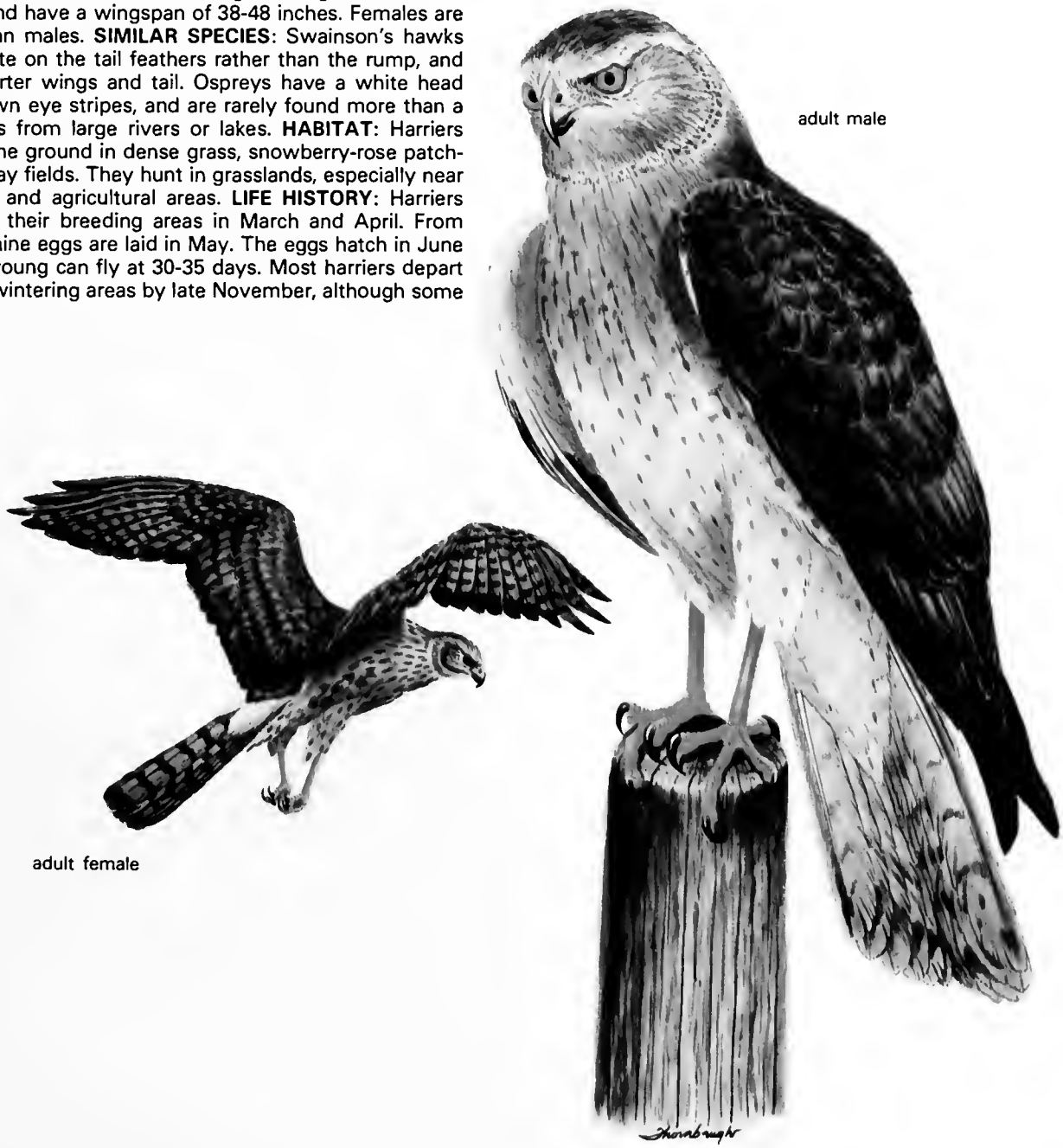


HARRIERS

Harriers are usually seen soaring about six feet above the ground in grasslands, as they search for mice. They have long wings and tails.

Northern harrier (marsh hawk, hen harrier) *(Circus cyaneus)*

FIELD MARKS: Males are gray above and white below, with black wing tips. Females are brown above and speckled white and brown below. Juveniles resemble females, but are buff below. All show a distinctive white rump patch at the base of the tail, and have long, narrow wings and tail. **SIZE:** Harriers range in length from 17-23 inches, and have a wingspan of 38-48 inches. Females are larger than males. **SIMILAR SPECIES:** Swainson's hawks have white on the tail feathers rather than the rump, and have shorter wings and tail. Ospreys have a white head with brown eye stripes, and are rarely found more than a few miles from large rivers or lakes. **HABITAT:** Harriers nest on the ground in dense grass, snowberry-rose patches, and hay fields. They hunt in grasslands, especially near wetlands and agricultural areas. **LIFE HISTORY:** Harriers arrive on their breeding areas in March and April. From three to nine eggs are laid in May. The eggs hatch in June and the young can fly at 30-35 days. Most harriers depart for their wintering areas by late November, although some winter in Montana. **FOOD HABITS:** Small mammals, especially voles (meadow mice), form the majority of their diet. They also eat birds, amphibians, reptiles, and insects. Harriers are the only hawks to use sound to locate prey, much like owls. Their hearing is much more acute than other hawks, although not as acute as owls. **STATUS:** Harriers are one of the most abundant raptors in Montana, but their populations are declining in some parts of the United States due to habitat loss from cultivation and draining or filling of wetlands.



adult male

adult female

OSPREYS

The osprey is a fish-eating raptor found throughout the world near oceans, lakes, and rivers. Ospreys have long wings and often hover or soar over water searching for fish.

Osprey (fish hawk) *(Pandion haliaetus)*

FIELD MARKS: Ospreys are dark brown above and white below, with a barred tail. The head is white with a prominent brown eye stripe extending from the eye to the shoulders. Females and immature birds have brown streaking on the breast. Immatures also have light feather edges on the tops of their wings, giving them a speckled look. Ospreys have long, narrow wings, which are bent at the wrist when soaring. The underside of the wing often appears two-toned, with white along the leading edge of it (except for dark wrist patches), and brown-barred flight feathers. They have a loud whistled call. **SIZE:** Ospreys range in length from 21-24 inches, and have a wingspan of 54-72 inches. **SIMILAR SPECIES:** Bald eagles are much larger and hold their wings straight out when soaring. Eagles have dark brown bellies and wings, in contrast to the white belly and barred wings of the osprey. **HABITAT:** Ospreys nest mainly near large lakes, reservoirs, and rivers in Montana. **LIFE HISTORY:** Ospreys build their large nests on trees, power poles, docks, and other man-made structures. Ospreys prefer to build their nest at the top of dead, broken-topped trees, unlike eagles, which usually build nests in live trees below the tree canopy. Ospreys often build "frustration" nests if their first nest fails, although they rarely lay eggs a second time. Ospreys arrive in Montana in March and April, and lay one to four eggs in April or May. The young leave the nest in July and August, when about 2 months old. Ospreys depart by October for wintering areas in Central and South America. **FOOD HABITS:** Nearly all of their diet consists of fish, primarily rough fish such as suckers. **STATUS:** Ospreys are listed as a species of special concern in Montana. Populations are expanding after being greatly reduced by DDT contamination. Ospreys are fairly common in the western half of the state near large bodies of water. Creation of large reservoirs in the eastern half of Montana has allowed ospreys to nest in areas not historically used.

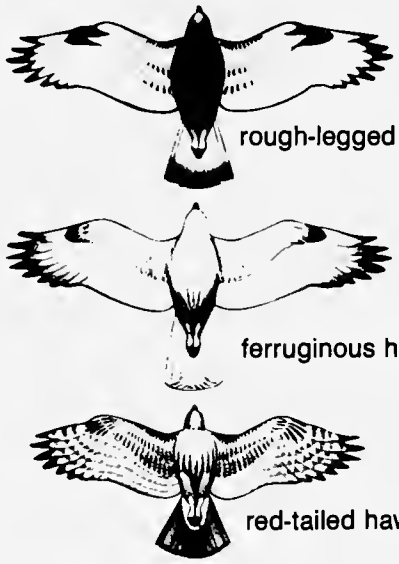
VULTURES

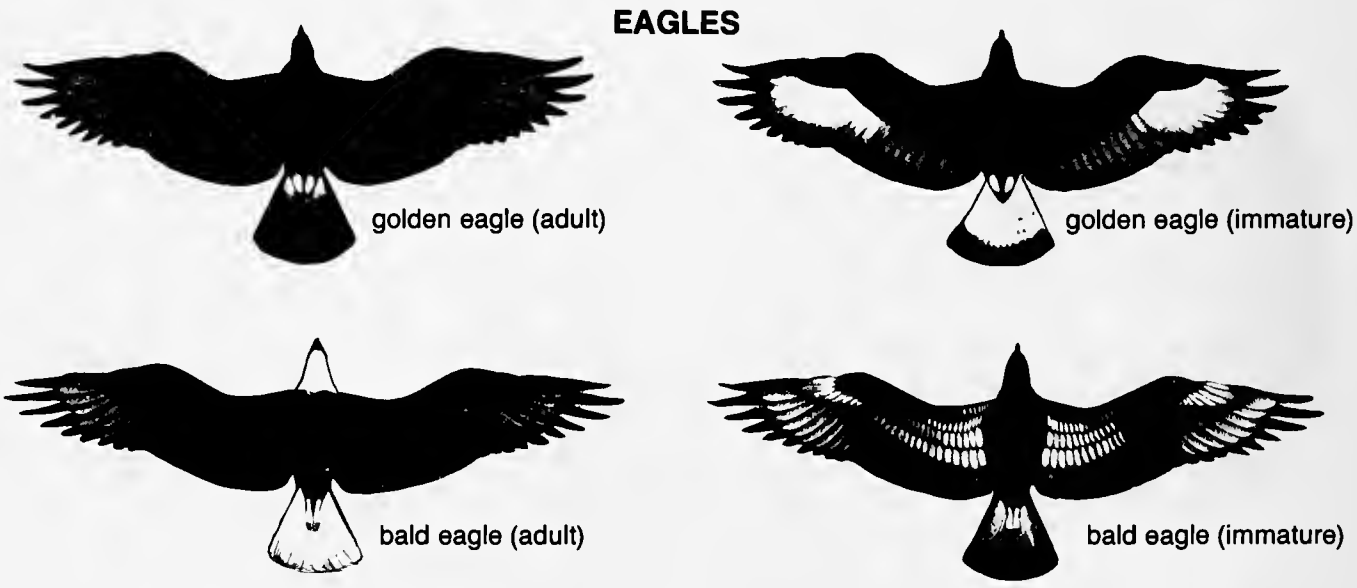
Vultures are large birds of prey that eat primarily carrion. They often gather in large groups for roosting and feeding. Turkey vultures use both sight and smell to locate food. They often sway or tip from side to side as they soar. Their exceptional soaring abilities allow them to cover large areas in search of food without expending large amounts of energy.

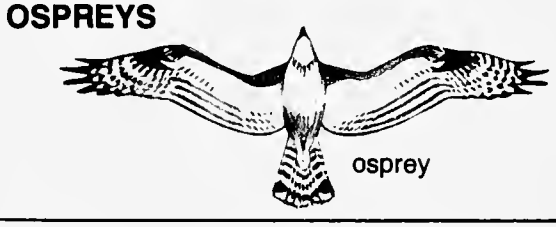
Turkey vulture (buzzard) *(Cathartes aura)*

FIELD MARKS: Vultures are large, black birds. When soaring overhead, the wings have a two-toned gray and black appearance. Turkey vultures often hold their wings in a shallow "V" and rock from side to side when soaring. The head usually appears small in relation to the body. The red color of the head in adults is often hard to see on flying birds. Young birds have blackish-gray heads. **SIZE:** Turkey vultures range in length from 26-32 inches and have a wingspan of 68-72 inches. **SIMILAR SPECIES:** Adult golden eagles and immature bald eagles are slightly larger, usually soar with wings held flat instead of in a "V," and have wings that appear all one shade instead of two-toned. Common ravens are much smaller and have a wedge-shaped tail. **HABITAT:** Turkey vultures forage in a variety of habitats, including grasslands, badlands, open woodlands, and farmlands. **LIFE HISTORY:** Turkey vultures nest in caves, large hollow trees, abandoned buildings, and, rarely, on the ground or in trees. They do not construct nests, but simply lay their eggs on whatever material is available. Two or, rarely, three eggs are laid in April or May. Incubation lasts 38 to 41 days. The young, fed by regurgitation, remain in the nest about eight to 10 weeks. Turkey vultures often congregate in large roosting and feeding flocks. They migrate to the southern United States and Central America for the winter. **FOOD HABITS:** Carrion is the primary food, but they sometimes prey on small mammals. **STATUS:** Turkey vultures are common over most of Montana, but their distribution is often spotty, depending on the availability of carrion.

OVERHEAD FLIGHT SILHOUETTES







In Montana, the gyrfalcon is a rare winter resident and migrant, so its overhead flight silhouette is not included here. All birds drawn to same scale.

(courtesy of the National Audubon Society, Chuck Ripper, artist. raprinted with permission)

READERS RESPOND

Wooden Posts Save Hummers

I, too, would be upset if I found seven dead hummingbirds along my electric fence. However, I use wooden posts so that won't happen.

For a hummer to get electrocuted, it would have to touch the hot wire and the metal post at the same time—to complete the electric circuit. One can purchase black insulators instead of red, but that really doesn't take care of the problem. The only solution I've found is to use wooden posts instead of metal.—*John L. Delano; Helena, Mont.*

* * * * *

I am taking advantage of your invitation for readers of *Montana Outdoors* to comment on the problem of hummingbirds being electrocuted when they mistake red insulators on electric fences for bright flowers. The problem was first reported in 1983 by James W. Wilson, an ornithologist with the Missouri Department of Conservation (MDOC). At the time, Mr. Wilson reported that, "Almost all the fences we checked with red insulators on them had dead hummingbirds underneath them last fall." Mr. Wilson's inquiries to other game departments produced reports of similar incidents from biologists in three states.

According to Mr. Wilson, the problem is associated particularly with the "Red Snap'r" insulator manufactured by North Central Plastics of Ellendale, Minn. There was no evidence that red insulators manufactured by other companies pose a hazard to hummingbirds.

The Wildlife Division of the MDOC has taken the lead in publicizing the danger to hummingbirds and trying to find a solution. For up-to-date information on the status of this effort, your readers could phone them at 314/751-4115.

The Humane Society of the United States (HSUS) has cooperated with the MDOC in trying to protect hummingbirds from electrocution. We would be pleased to join with the Department of Fish, Wildlife and Parks in alerting Montana residents to this threat to hummingbirds. For example, if you publish an article or develop a poster on this topic, I would be happy to route copies to local humane societies and animal control agencies in Montana.

I hope the information provided by the HSUS will assist your readers in investigating this danger to hummingbirds.—*Guy R. Hodge, director, Data and Information Services, The Humane Society of the United States; Washington, D.C.*

Cedar Remembered

I subscribe to *Montana Outdoors* and I was surprised when I saw the painting by Shirley Johnson of my pet wolf, Cedar, on the back cover of your Sept./Oct. issue.

I lived in Alberton, Mont., during the 1970s and early '80s. I got Cedar about 1978 when he was 6 months old, from a man who found him incorrigible. I thought I could train him to be a guard "dog" for the saloon I owned at the time. I learned, as he advanced in age, that wolves are better left to the wild. After trying unsuccessfully to give him to several zoos in the "lower 48," I gave him to a man who purportedly took him to a ranch in Canada.

I now live in Alaska and work as a commercial fisherman. I live and work around a lot of wildlife and occasionally see wolves and think of Cedar. He was a pretty animal, and Mrs. Johnson did a beautiful job of immortalizing him when she did the painting. Thanks for publishing it—it made my day!—*Joe Harlan; Kodiak, Alaska*

The Wolf At My Door

by Rand Robbin

It was a new canvas, heavy and starched, smelling direct from the box, smelling a lot like the cab of Dad's new pickup. The date was March 3, 1942. The tarp was right off the shelf and barely covered the black wolf stretched dead stiff in the rear of the green Chevy half-ton.

It must have provided strange winter theater as my father drove to Kalispell in the snow, propped the wolf up for sidewalk display on Main Street, then hauled the body to Woodland Park in the company of his brother George, and two friends, Victor Sundelius and Curtis Lindsay, a game warden. They bound the rear feet with rope, heel-strung the huge animal from a cottonwood as if he were a member of the Plummer gang, and got out the Kodak. In turn, the men posed, pointed, and smiled for the camera, then cut the beast down and spread him across the hood for more. This was a final act of the drama that had begun the day before.

To some viewers, the photos would become little more than conversation pieces reproduced as post cards advertising Bigfork, a little spot in northwestern Montana on the east shore of Flathead Lake. In me, however, the pictures trigger vivid memories, jolt my consciousness, and demonstrate how quickly time consumes us. My father is gone now, as are his three companions—all dead, dead as the wolf. The snapshots illustrate the death of a majestic predator that some saw as a victory over Nature, but that others see as a travesty against Nature.

The photos do something more: They confirm my suspicion that Bigfork and other small towns which grow and change quickly were special places in which to be a boy. Such villages and their unsettled zest provided a Tom Sawyer existence impossible to resurrect.

My involvement with the wolf began the morning of March 2, a day my child's mind turned into one brimming with peril and risk.

The front entrance to Robbin General Store was one of those big, heavy, larch doors, plated almost solidly with glass from top to bottom. When you shut it, the thing emitted a real thud, followed by the faint rattle of glass. When it opened, it had its own sound, too—sort of a clicking noise with a squeak.

My memory of the wolf began with the opening of that door, followed by my father's labored rush to roll the thundering old platform scale from the back room and park it at the store's mouth. At that instant, my throat tightened—his daily pattern had changed, something important was about to happen, he knew something I didn't. Four years old and three feet tall, I stood midway down the south wall in familiar territory, behind the candy counter. The case was lined with old-fashioned jars of Tootsie Rolls and horehound. There were Black Cow suckers and lemon drops, taffy kisses, and wrapped caramels, light and dark. Unable to see over the top, it was like peering through four windows at once. From the front, my eyes must have looked like those of a giant staring through a magnifier.

"Dad, what are you doing?" I asked.

"We're going to bring a big wolf in here," he replied.

I knew well the tale of Little Red Riding Hood, the reputation of wolves, and their hunger for children. I was thunderstruck. I didn't knew whether to flee or stick around and be eaten alive. It was one of those moments that come to us all, when we first become aware of jeopardy to our very existence, our vulnerability, our fragile grip on life. It was my first panic attack, and I can still feel the pounding of my heart and the throb of blood coursing through veins too small to allow it to travel wherever it was going as fast as it wanted to get there. At that point, my father vanished out the door, and, although I didn't run (if indeed I could have made my feet move), I retreated to a safer distance and prepared for my confrontation with the wolf.

It wasn't long until my father and two other men appeared carrying a huge animal with profuse, dark, shaggy hair. A crowd was gathering, and as the wolf was flopped onto the platform of the scale, I remember it rolling out in all directions with the legs pointed north, toward O'Brien's Hotel. Too large for this new bed, it looked grotesque as it lay there, silent and unmoving, yet unwilling to relinquish its menace even in death.

As the crowd began to speak in alternating rushes of chatter and silence, I slowly moved in and gave the thing a couple of tentative pokes with the tip of my shoe. My fear gave way to conquest, as those nearby began speculating about the critter's heritage. One man called it a police dog-wolf cross. Another thought it was part wolverine, and someone claimed to know the progeny of a bear-wolf combination when he saw it. Given the drama of the moment, there is little wonder such fantasies would surface. Let it be said the animal had been dead for a while before its discovery by two men near Weed's

Point at Swan Lake, and Nature and her accomplice, time, had performed distortions on the body by the time it got to Bigfork.

Recognizing the significance of the wolf's enormous size, my father set about getting the entire body onto the licensed scale and taking a witnessed and accurate weight and measurement. Thirty-nine inches at the shoulder, the beast weighed 131 pounds and measured 82 inches from tip to tip. These statistics were given official seal and signature by Eugene Wright, notary, and did not take into account the shrinkage of the carcass over the previous several days.

The Smithsonian Institution in Washington, D.C., claimed the wolf was a record, exceeding the statistics of the previous world record animal taken near Three Forks, Mont., which measured 33 inches at the shoulder, 72 inches from tip to tip, and weighed 106 pounds.

Although the identity of the two men who discovered the dead wolf amidst the snowy landscape at Swan Lake is unknown, it was delivered to Bigfork by my father's friend, Ben Weed. Weed had the mail contract over the narrow, winding, timbered Swan road. Had it not been for his presence of mind to load it up, the creature may have remained in the grasp of Nature forever, its existence unrecorded. My father went to great effort to give Ben Weed credit for his part in the story and paid him for his effort.

The tourist trade in Bigfork at the time was much as it is today—a frenzy of activity which started about the same time as the horse and mule strings were trailed up the east shore of Flathead Lake, over the powerhouse bridge, down main street, and either east into the Swan Valley or west into the Forest Service corrals.

With dreams of becoming a cowboy and rancher one day, my excitement began when I heard the bell mare and the horseshoes hit the bridge planks.

GEORGE ROBBIN

The 131-pound wolf nearly covers the hood of Walter Robbin's 1941 Chevrolet pickup. Robbin displayed the wolf at Robbin General Store in Bigfork, Mont. The wolf can still be seen in 1987—at Flathead Bank of Bigfork.

VICTOR SUNDELIUS

The Robbin wolf was distinguished by its large head and teeth.

They came right down the street, hard and fast, and there were 100 head or more at times. If it was wet, the cowboys wore yellow slickers and rode the best horses. The sight and sound of it played havoc with my imagination. When the scene played in reverse in late fall, my heart sank as the last rider went over the bridge, the clatter diffusing like the chime of a dying clock, fading as the flock of tourists always did.

Realizing that a mounted wolf would be a conversation topic and a unique drawing card to their store, my parents, Walter and Nita Robbin, chose to have the animal mounted. Unfortunately, when the newly prepared wolf was returned, complete with bared fangs and snarl, it was not as full, nor as large, nor as lifelike as before. It proved to be of enormous interest despite its diminished stature, and visitors, letters, comments, and news articles proliferated.

In their quest to see the famous wolf, entrants to the store discovered a complete inventory. It was a general store in the true sense, providing sporting goods, groceries, meat, drugs, hardware, dry goods, and plumbing. In the warehouse, my parents merchandised grain, hay, and building materials.

The firm was open seven days per week, 10 hours per day. It served a large community and a varied clientele, ranging from those living at the posh estates at Swan Lake to farmers, loggers, and transients. The store was patronized by the famous—Red Skelton, Con Kelly, and Gen. Matthew Ridgway—and it was patronized by the infamous, such as Bugsy Siegel's gun moll, Virginia Hill, and the silent burglars who entered and cracked the safe one dark night.

From its lofty position above the tackle counter and through its glass eyes, the black timber wolf glared down on all who passed beneath. It does the same today, relocated to a new stand above the tellers' cages in the Flathead Bank of Bigfork.

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM
WASHINGTON, D. C.

March 20, 1942

Mr. Walter C. Robbin,

Bigfork, Montana.

Dear Mr. Robbin:

Receipt is acknowledged of your letter of March 13 in which you tell of the killing of a large black wolf in Montana.

The wolves from your region are probably the largest in North America. They are technically known as Canis lupus irremotus. The black and gray wolves are simply color phases of the same species. Both may occur in the same litter. The largest wolf in the United States National Museum was taken near Three Forks, Montana. It was about 6 feet from tip to tip, 33 inches high at the shoulder, and weighed 106 pounds. This is probably the largest wolf on record at the present time. The measurements you give exceed these to a considerable extent; the animal you mention must be an especially large individual.

Could you tell us any of the details about the specimen, such as exactly where it was taken and by whom, and where it now is? We would greatly appreciate any further information you might give us.

The postage stamp enclosed in your letter is being returned, as we are sending this letter under Government frank.

Very truly yours,

C. Watmore

A. Watmore,
Assistant Secretary.

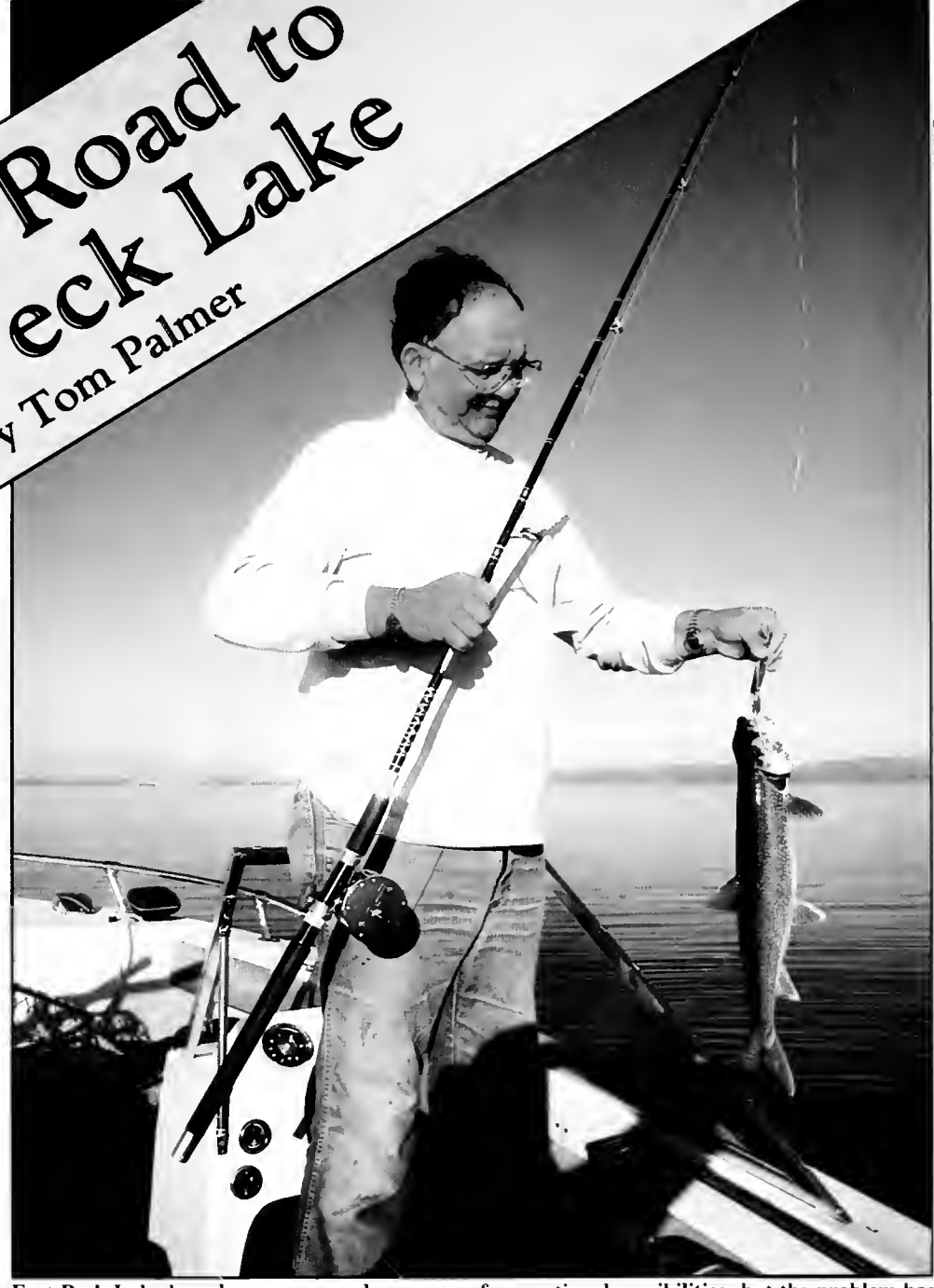
DHJ:rj

Although timber wolves were nearly as rare in 1942 as they are now, attitudes toward them still remain divided. Some would deride mounting a wolf to show it to tourists, and others would maintain that the only good wolf is a dead wolf—mounted, stuffed for posterity, or whatever.

At daybreak, I would like to see the hair on the Robbin wolf turn shiny black and slick again, for his nostrils to spurt hot jets of vapor into the morning air, for his glass eyes to melt into flesh and draw new life, for him then to breach the long meadow on my ranch at full stride, fading like a ghost into buckbrush. ■

On the Road to Fort Peck Lake

by Tom Palmer



JIM LIEBELT

Fort Peck Lake has always possessed an ocean of recreational possibilities, but the problem has been getting people to its shores. A new road-building project promises to solve that dilemma.

Fort Peck Lake has been called the greatest of the Missouri River's "great lakes" for good reason. It holds enough water to deep-six all of South Carolina within a shoreline equal to California's coast.

On the Montana highway map, Fort Peck Lake looks like a wild ink blot shot from the pen of a suddenly bored cartographer. It is eastern Montana's most dominant geological feature, yet Fort Peck has long been a virtual high plains mirage. It sprawls across five counties, but it is so remote it can't be seen from either of the two major east-west travel corridors that bracket the lake's north and south rims like far-off parentheses. If there is any place in Montana where the "you-can't-get-there-from-here" conundrum applies, for 50 years it has been Fort Peck Lake.

"What do we have in eastern Montana that is hardly used because people can't get to it," asks Don Hyyppa rhetorically. He supplies the answer: "Fort Peck Lake."

Hyyppa, administrator of the department's Parks Division, would like nothing more than to put that perception to rest by helping to make the reservoir one of Montana's premier public recreation facilities. He is not alone. The Department of Fish, Wildlife and Parks (DFWP) Fisheries Division; Phillips, Garfield, Petroleum, Valley, and McCone counties; the U.S. Army Corps of Engineers; the Bureau of Land Management (BLM); the U.S. Fish and Wildlife Service (USFWS); and a handful of private organizations, in an unusual display of common-cause cooperation, are participating in a series of

projects designed to get people to the shores of Fort Peck Lake.

The key is access, or more to the point, **all-weather** access; hundreds of miles of dusty trails fan from main roads, over the vacant plains, through the Missouri Breaks, and across the Charles M. Russell National Wildlife Refuge to the lake. The trouble is, the roads to the lake are scratched from a peculiar geological formation known as Bearpaw shale. Just add water and hope the relatives have notified the county search and rescue team. The alchemy of rainwater transforms the soft, yet nearly impermeable, clay soil of Bearpaw shale into a formidable formation of clinging, greasy glop affectionately known on the northern plains as "gumbo." Nothing moves in

U.S. ARMY CORPS OF ENGINEERS

The area surrounding Fort Peck Lake is remote, and many of the roads turn into a clinging, greasy glop called "gumbo" at the smallest addition of moisture. That will soon change, with construction of several all-weather access roads.

gumbo. Not fat-wheeled 4x4s, not spunky dirt bikes, not turn-of-the-century wagon wheels. When it's gumbo, Fort Peck Lake might as well be limbo. You wait. And you wait.

"People have been reluctant to spend much time in there," Hyyppa says, "because if you go in on Friday and it rains on Saturday, you might not get back to work until Wednesday."

There is a singular solution to this gumbo-jumbo. Build gravel roads suitable for station wagons. Easy enough, or so it must have seemed just a decade ago when Fort Peck Forward, an association formed to promote Fort Peck Lake recreation, successfully lobbied for easier access to Montana's largest body of water. Its effort garnered a $1 million federal windfall.

MORE THAN 50 YEARS AGO, back when the dam itself was a mere gleam in the eye of the Army Corps of Engineers, the mayor of Glasgow, Leo B. Coleman, was told that the dam would be 250 feet high, 21,000 feet wide, and would hold 18,900,000 acre-feet of water. "Hell," an incredulous Coleman said, "a dam like that might cost a million dollars."

The dam actually cost $156 million and, in the late 1970s, members of Fort Peck Forward, like Mayor Coleman, must have felt that $1 million was a colossal sum. Yet, although welcome, the one-time infusion of federal funds could only bankroll limited access projects for boat launching facilities at, and road improvements to, Nelson and Crooked creeks.

Jim Liebelt, the department's information officer in Glasgow, remembers feeling at the time that in the midst of state and federal budget rollbacks, the prospect of acquiring more funds for the two access projects appeared dim. In fact, the prospect of acquiring money to expand recreational access at Fort Peck wasn't even a consideration until the winter of 1986, when the intricacies of a new federal funding program began to trickle down to the states.

Two years earlier, Sen. Malcolm Wallop, R-Wyo., and Sen. John B. Breaux, D-La., sponsored legislation that amended the Sport Fishing Restoration Act of 1951, better known as the Dingell-Johnson Act, or simply "D-J." Much of the money for sportfishing restoration programs implemented by state fishery divisions comes from this D-J excise tax on fishing equipment. This year, about $140 million will be shared by states for sportfishing restoration, habitat protection and enhancement, fishery research, and stream and lake inventories.

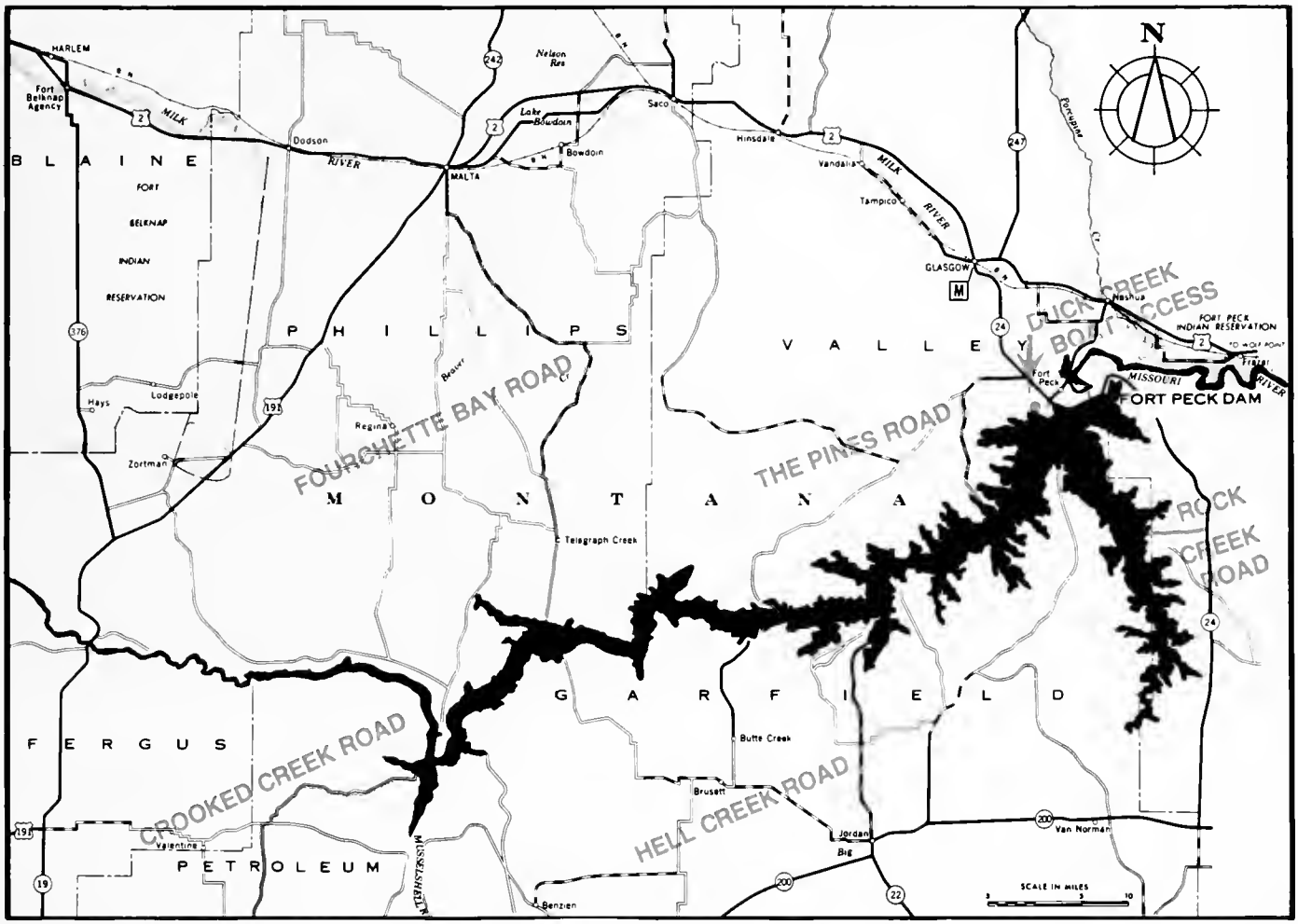
The Wallop-Breaux amendment expanded the sportfishing restoration funding sources under the D-J act by tapping a share of motorboat fuel taxes and by establishing an excise tax on previously untaxed fishing equipment and on imported yachts. The amendment provides an expanded source of funds for state resource and conservation agencies. There is, however, a hook on that funding bait.

UNDER THE WALLOP-BREAUX AMENDMENT, states receiving sportfishing restoration funds must obligate at least 10% of their annual allotment to develop or maintain areas that provide access for motorboaters.

In Montana, that works out to be about $248,000 a year and most of the initial allotments will be spent in eastern Montana. For decades, eastern Montanans have been trying to develop recreation amenities as counterpoints to those that have naturally emerged around the mountains and rivers of western Montana. The development of flat-water recreation opportunities in eastern Montana has been a logical alternative, and a little bit of everything has been done—from acquiring public access to privately owned stock ponds to actually building dams.

It is true that Fort Peck Lake's recreation potential has been largely and reluctantly ignored because of the problems with access. Nevertheless, it was never perceived as a recreation facility. As a Depression-era symbol of American progress, Fort Peck was a Herculean public works project designed by the Army Corps of Engineers to control and maintain river flows to improve river navigation from Sioux City, Iowa, to the mouth of the Missouri some 760 miles downstream. Fort Peck Dam, the largest hydraulic earth-filled dam in the world, is essentially a Mississippi River floodgate. Its builders said the dam could also help to supply water for power generation and irrigation, but back in 1934, a time when the nation was looking for work, recreation never made the secondary-uses roster.

Yet, needs, wants, and expectations change, and now Fort Peck Lake is known to possess an ocean of recreational possibilities—thanks in part to establishment of the Charles M.



All-weather roads and other improvements, highlighted in blue, mean badly needed access and other features will now be provided at Fort Peck Lake.

Russell Wildlife Refuge that literally surrounds the impoundment, and to DFWP plans to establish a thriving warmwater fishery in the lake.

DFWP Fisheries Division officials and the Army Corps of Engineers have been meeting regularly since 1965 to determine the best way to serve downstream users yet still allow for development of a sport fishery. A hardy population of forage fish—cisco and spottail shiner—are becoming firmly established in the lake as walleye and northern pike food staples. And with Fort Peck Lake expected to be the major beneficiary of the DFWP's $4.9 million renovation of the Miles City Warmwater Fish Hatchery, the only thing lacking is a way to get to the lake there from here.

Ed Swanson, a Valley County commissioner, offered a Fort Peck tautology. "If you get the fish, people are going to come to Fort Peck," he said. "We're getting the fish, so now we need to get the people to the lake."

Hyyppa had discussed ways to use the expansion funds available under the Wallop-Breaux amendment with other DFWP officials for nearly a year and found a need to disperse funds on several projects instead of sinking all the money into a single project. By March 1986, after discussions with Ron Wallem, U.S. Army Corps of Engineers project manager at Fort Peck, Hyyppa thought he had a workable idea that could provide access to the 135-mile-long lake from all points on the compass, in addition to accomplishing work on other projects throughout the state.

In anticipation of using the expansion money at Fort Peck Lake, Hyyppa, with the help of Wallem, attempted to organize an informal meeting among state, federal, and county officials to discuss the possibility of using the new funds as "seed money" for county road work projects to the lake.

Word of the meeting leaked, and the informal gathering turned into a full-blown event with media coverage and a wide assortment of special interests—from Walleyes Unlimited to boat club members—crowding the floor in unanimous support of any project that would provide all-weather access to Fort Peck Lake.

"I DIDN'T KNOW WHAT TO EXPECT," Hyyppa recalls. "But at that meeting there was such an overpowering interest in getting access to the lake that ironically I felt I had to hold back the process people wanted to get started. They were afraid of losing yet another opportunity. I was afraid of raising everyone's expectations prematurely. I kept looking for the fatal flaw in the unusual plan, but, fortunately, it never surfaced."

By April of 1987, the paperwork for the first segment of the

U.S. ARMY CORPS OF ENGINEERS

Fort Peck Lake is eastern Montana's most dominant geological feature; with the addition of access roads and other facilities, the reservoir will be well on its way toward becoming one of Montana's premier public recreation facilities.

$946,000 plan was complete and approved by the USFWS, the federal agency that administers the D-J program. Work on three Fort Peck Lake access roads began this summer.

Under its agreements with the DFWP, each county's contribution to the project is actual construction labor performed by county road crews, administration of the project, and cash payments for materials such as gravel. In addition, each county is obligated to maintain the access road under its jurisdiction for the next 25 years.

The Crooked Creek Road, which will provide access to the reservoir at the mouth of the Musselshell River, is the most controversial of the projects due to siltation that sometimes limits use of the boat ramp. But the $250,000 project is also thought to be particularly vital, because it will open an access route for use from Billings, Great Falls, and Lewistown, all major population centers.

In Garfield County, the Hell Creek project will extend 26 miles north of Jordan and provide a dependable access route to one of the most developed destination points on Fort Peck Lake.

Valley County's Pines Road will provide access to the lake from northeastern Montana and, like all of the projects, the road will receive further upgrading and gravel to make it suitable for all-weather travel.

The Hell Creek and Pines roads are each three-year projects scheduled for completion in 1989. Total costs for improving the Hell Creek and Pines roads will be $277,000 and $138,000 respectively. In addition to these projects, the Fourchette Bay Road, extending south from Malta in Phillips County, is scheduled for improvements in 1989 and 1990 at a cost of $156,000. The road will provide access to one of the most remote points on the lake. Like several of the other road projects, the county road work to Fourchette Bay will be supplemented by the Army Corps of Engineers, the USFWS, and the BLM.

"We're all really excited about these projects," said Valley County Commissioner Swanson. "Everyone has just made this project work because we couldn't have ever bid projects like these without the Wallop-Breaux money. We have all this shoreline and very little access to it. Now, were going to have a couple more access points on the lake and that has everybody up here talking."

The all-weather access projects, combined with the DFWP fisheries program now under way, are expected to increase fishing at Fort Peck from the current 40,000 angling days per year to 100,000 angling days by the year 2000. The access road and boat ramps together are expected to provide an additional 40,280 boat-fishing days by 2000.

In the meantime, the DFWP is preparing applications for 1988 road projects to the Rock Creek Recreation Area in McCone County at a cost of $50,000 and to the Duck Creek site at a cost of $75,000. At Duck Creek, construction will include roads, parking areas, a boat ramp, and support facilities.

Although each construction project is designed with motorboat recreation and fishing access in mind, the all-weather roads will also benefit landowners who now use the unimproved roads. The roads, too, will provide better access for sportsmen who wish to travel by boat into remote areas they intend to hunt in the rugged Missouri Breaks.

"I feel good about the whole project," Hyyppa says. "There has been a need for these roads for decades and there have been several attempts to meet those needs that just never really worked. It's been a long time coming."■

CONTRIBUTORS

• The Clark Fork River in western Montana is a troubled stream. The article by **Liter Spence** probably isn't the first you've read containing that news. But his is a complete story—it meshes the story of the river with those of the miners and ranchers who worked along its banks. It also presents a bit of hope for the river's future: the water reservations process authorized by the 1973 Water Use Act. Spence is water resources supervisor for the Department of Fish, Wildlife and Parks. He was involved in the Yellowstone River water reservations proceedings, the first of their kind under the 1973 water law; the Clark Fork is the second water reservation compiled by the DFWP. He wishes to express thanks to Mary C. Horstman of Missoula on whose historical research he drew. Horstman is an historical researcher for a Missoula consulting firm and is completing her master's degree in history from the University of Montana, where she was a Hammond Fellow. She has taught history, Latin, and English at Powell County High School in Deer Lodge. Turn to "Clark Fork R_x—Prescription for Renewal?" on page 2.

* * * * *

• Montana's birds of prey are splendid creatures—rising on air currents to gain altitude, hovering, darting, diving, soaring free. Our full-color, 20-page guide, "Identification of Montana's Birds of Prey," will help you distinguish the diurnal (active during the day) hawks, falcons, eagles, and vultures. Text for the guide was prepared by **Kristi DuBois**, Great Falls, and **Dale Becker**, Pablo. DuBois is a computer tutor for a YWCA program. She holds a bachelor's degree in wildlife ecology and a master's degree in fish and wildlife management and worked as a fish and wildlife biologist for the DFWP from 1979-86. She was involved in a three-year study of birds of prey along the Rocky Mountain Front. She also worked as a naturalist at The Nature Conservancy's Pine Butte Swamp Preserve in summer 1986. Becker is a wildlife research biologist with the U.S. Bureau of Indian Affairs (BIA), Flathead Agency. He holds bachelor's and master's degrees in wildlife biology and is a member of the Raptor Research Foundation. He is conducting research on bald eagle and osprey populations on Flathead Lake and in the lower Flathead River drainage as part of the Kerr Dam wildlife studies being conducted by the BIA.

Art for the guide and for our front cover was prepared by Victor artist **Joe Thornbrugh**. He wishes to express thanks to Dale Becker for technical guidance in preparing the paintings, and to Duane Williams of UM for his help in obtaining specimens of the birds of prey. Thornbrugh's flock of Canada geese flying over a mountain landscape won the "First of State" Montana waterfowl stamp contest. He has observed, sketched, and painted Montana's wild things during his entire life. Birds are his most frequent subject, and his ability to capture their often subtle coloration and the intricate patterns of their plumage is nowhere more evident than in this guide. Some of his paintings were recently exhibited at the home of Gov. Ted Schwinden. His work has also been seen at the Smithsonian; at museums in Los Angeles and Seattle; at the National Wildlife Federation headquarters in Vienna, Va.; and at the 1979 and 1980 Bird Art Exhibition at the Leigh Yawkey Woodson Art Museum in Wausau, Wis. Collectors all over the country are discovering Thornbrugh; turn to page 11 and follow their example.

* * * * *

• It's the first time *MO* readers have seen the **Rand Robbin** byline, but we suspect it won't be the last. Born in Bigfork, he operates a grain and cattle ranch near Creston. In addition to writing occasional free-lance pieces, he operates a printmaking studio, specializing in etchings and engravings. He holds B.A. and M.A. degrees from UM and an M.F.A. in printmaking from the University of Wisconsin. He taught for 13 years at a college in Washington. "The Wolf at My Door" is a 4-year-old's recollection of a familiar door opening to allow entrance of a dark, shaggy wolf. Robbin was the child—and the door marked the entrance to the general store owned by his parents in Bigfork. Turn to his thought-provoking reminiscence on page 32. Robbin wishes to thank Marc Wilson of the Bigfork Eagle for his encouragement in expanding this article, which appeared in the Eagle in an earlier, abbreviated form.

* * * * *

• *MO* continues its "Perspectives" series on page 40 with "Old and Young" by **Don Laubach** and **Mark Henckel**. It's a chapter from their book, "Elk Talk" (reviewed on page 7). And it's a chapter with something to think about, especially during hunting season. It points out that many discussions of elk hunting ignore the youngsters, those "teen-agers who are just getting their feet wet in the elk hunting world." And that most discussions fail to address "our older hunters, the pioneers at the game, who may have hit their prime some years ago but still look to their days in the mountains each fall with a great deal of anticipation." As the writers note, the young hunter has much to learn; the older hunter has much to share. They know whereof they speak: Laubach is an expert bowhunter—12 elk in the last 12 years. He invented a cow call which has become very popular, and also designed a new bugle call that is easy to master. Henckel is outdoor editor of the Billings Gazette. He, too, is wild about elk hunting, both in archery and rifle seasons. His words have won kudos from the Outdoor Writers Association of America and other groups, and he is the author of "A Hunter's Guide to Montana."

Illustration for "Old and Young" was prepared especially by Hamilton artist **Robert Neaves**. His work won "Best of Show" at the North American Wildlife Show in Cheyenne; he also won first place in the shorebirds category of that same show. The Rocky Mountain Elk Foundation named him "Artist of the Quarter" for fall 1987. He has opened a new studio in Hamilton, Robert Neaves Studio (109 South Fourth Street; Hamilton, MT 59840; 406/363-3292). He is a full-time wildlife artist whose work has often been featured in our pages.

• *MO* wishes to thank the following photographers for their contributions to this issue: **Jim Liebelt**, Glasgow; **Jerry Manley**, Butte; **Rodney Schlect**, Great Falls; **Bill Thomas** and **Jack Tuholske**, Missoula; and **Mark Van Donsel**, De Pere, Wis.

"Old and Young"

by Don Laubach and Mark Henckel
illustrated by Robert Neaves

• *The following is excerpted from "Elk Talk," a book by Don Laubach and Mark Henckel. It comes from a chapter called "Old and Young"; it is reprinted here with the authors' permission. The book is reviewed elsewhere in this issue and is available from E.L.K., Inc., Box 85, Gardiner, MT 59030 (406/848-7655). Cost is $12.95 for paperback or $19.95 for a hard cover edition; please add $1.50 postage for one book and $2.50 for two or more books.*—Ed.

* * * * *

So far, we've pretty much taken for granted that we're talking about your average elk hunter. He's a person who is in good enough shape to hike the mountains day after day. He's skilled enough in woodcraft that he can get himself out of any trouble that might befall him. In short, he's an experienced hunter in the prime of his life, whose skills and physical ability are well-tuned to life in the mountains.

The problem with that assumption is that it really doesn't encompass a wide enough range of individuals. Not every elk hunter is put together that way. It totally ignores the youngsters, those teen-agers who are just getting their feet wet in the elk hunting world. And it also fails to address our older hunters, the pioneers at the game, who may have hit their prime some years ago but still look to their days in the mountains each fall with a great deal of anticipation.

Each group deserves its due. And each also deserves the respect, courtesy, and unselfish assistance of every other hunter in the mountains, whether we're talking about deer hunting, duck hunting, or elk hunting.

For the young, the time we spend with them in the mountains, and the things we teach them there, will establish patterns that they follow for the rest of their lives. The love and respect for elk that we impart to the young are at least as important as the ways and means to hunt them. In the process, we also have to teach them how to survive in what can be a harsh world in the mountains.

To do your best with the young, you have to prepare them for the worst as well as the best of hunting situations. That aspect of hunting life was hammered home hard when my eldest boy reached an age when he was old enough to begin going after elk. He had been taught about life in the mountains and what to do when things went sour. And all that paid off one evening during archery season.

It was in his freshman year of high school, and we had walked into the mountains in the dark that morning. We kept to the high ground all day, working the likely elk spots. And when evening arrived, it was time to hike back out. Our plans were to split up and work our way down a ridge and meet at the bottom. By the time we got down off the mountain, there would be just enough light left to get to our vehicle for the ride home.

But somewhere along that ridge, my boy got off into some timber and hit the wrong ridge. He wandered off into another drainage, then got caught in a deadfall jungle as darkness settled into the mountains.

He had his fanny pack along with him, which included the basic necessities of flashlight, toilet paper, rope, some candy bars, matches, and other miscellaneous items in case he got lost. And he followed my directions explicitly about what to do when you get lost and darkness settles in. He found himself a spot to spend the night, built himself a fire, cut some pine boughs for a bed, and planned to wait until daylight. By having him stay in one spot, it prevented an injury that could easily take place by stumbling through the mountains in the dark. And it also put him in one spot for the search party, rather than having the searchers trying to track down a moving target.

For my part, I waited at the vehicle for him until 10 p.m. before heading back to town and rounding up some friends for a search party. It was almost midnight when we made it back to the mountains and fanned out in pairs to look for him.

I started up the drainage looking for him, and eventually found him at about 3 a.m. on a little bench about 200 yards above the creek. His first comments were predictable, repeated often by someone who's lost and then found, "What took you so long?"

It was a valuable lesson for him, and for my other children who were to join me in elk country in the years that followed. And it underscored the importance of preparing the young well for their hunting trips before you set foot in the mountains. It's not enough to simply tell them how to hunt. You have to teach them how to survive as well. And you have to give them the tools of survival and instruct them in how to use them before the hunt begins.

With older hunters, the problems often take a different form. These hunters possess the knowledge of the mountains. They have the years of experience behind them. But all too often, they lack the compassion of their peers when it comes to heading out on what may be the final elk hunts of their lives.

Where's the glory, for example, in racing past a pair of older hunters on the trail to beat them to a prime hunting area? How much would be lost if you passed up a morning of hunting to help someone a little older in years pack their bull out of the mountains? And what about all the grandfathers, fathers, uncles, and friends who you never think

to ask whether they'd like to come along on this year's hunting trip?

My favorite story about helping an older hunter took place far away from elk country and involved a deer hunting situation. An older hunter had knocked down a whitetail and hung his tag on the animal about the time a school bus was passing by, taking kids to school in a nearby town. The bus driver pulled over, climbed the hill, helped the man drag the deer to the road, and got it situated on his vehicle before climbing back into the bus and continuing his journey. Had the kids gotten to school late, the time still couldn't have been better spent.

Not every older hunter needs that kind of help, of course. In one recent elk season, I had the pleasure of hunting with Glenn Saunders of Columbus on opening day in the Snowcrest Range. Saunders was 70 years old at the time and we climbed a brutally steep slope in the early morning darkness to reach our stands. But at least, he had the decency to wait for me to catch my breath many times during that climb. And his tales of elk and deer hunts of decades gone by made the trip one I'll always treasure.

Too often, in our rush to hunt and hunt hard, we forget the others who are out there doing the same thing. It becomes almost a competitive undertaking to see who can get a bull, who can get the biggest bull, and who will be the winner.

Hunting was never meant to be that way. It's a time for kindness and caring, both to the people we meet while hunting and to the elk themselves. And no one deserves it more than the old and young hunters among us. They are our future and our past, a living legacy of our times in elk country. ■