High Country News

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Colorado Division of Wildlife photo

WINGS SPREAD, heads lowered, tails up, two sharptailed grouse engage in their elaborate springtime mating dance.

Wildlife and livestock face off in refuge battle

by Geoffrey O'Gara

Clay and Karen Taylor, a young couple in their 20s, took a big jump and bought a ranch in northeastern Montana early this year. They had never ranched before.

Their new spread was located along the Big Dry Arm, a chunk of land surrounding the southern fork of the Fort Peck Reservoir, across the water from Maguire Creek, not far from ranches owned by relatives. In their first year, they planned to run their cattle over an area that covered almost 10,000 acres. That included their ranchland and grazing rights on acreage managed by the U.S. Bureau of Land Management and the Fish and Wildlife Service. Those grazing rights had been held by the previous owners of the ranch.

But the FWS had other ideas. Ralph Fries, manager of the Charles M. Russell National Wildlife Refuge, views the arrival of new owners as a good opportunity to cut back livestock grazing on the refuge, parts of which FWS experts say have been seriously damaged by over-grazing. "Rather than let a new operator come in and gear up," said Fries, "we see it as a good chance to make a cut."

The Taylors learned last spring that their grazing allotment on the refuge, known to locals as CMR, would be cut in half. It was a shock, they say — the Taylors had expected, from their neighbors' experiences, a cut of maybe 10 percent. Each percentage point of the cutback cost the Taylors grazing room for about one cow, Karen Taylor figures. They signed the new FWS grazing permit, protesting the cuts in it, and made it through this year with some additional grazing on BLM land. They say now they have about 50 head of cattle with nowhere to graze during the coming year.

"If they go ahead and pull this (half the grazing allotment), that's the worst thing they could do," said Karen Taylor. "We're already $200,000 in the hole on this ranch."

Added Jerry Coldwell, an area rancher and a member of the Fort Peck Game Range Committee, a ranchers' group:

"Taylor got the money from a Farmers Home Administration loan, so he's got no running capital to feed those cows when he loses grazing...These are not rich communities around CMR. You take a big chunk of grazing away, and the load's got to go somewhere."

FWS officials are sympathetic but unyielding. One official said the Taylors should have known from FWS advertisements that the cuts were coming. Another said the "naive" young couple is being "used" by other ranchers opposed to FWS management policies.

OTHER CONCERNS

Cattle are not the only creatures that wander near the reservoir along the Big Dry Arm and along the Missouri River on the 1 million acres that comprise the refuge. There are elk, mule deer, prairie dogs, water fowl and bighorn sheep, to name a few of the hundreds of bird and animal species.

The habitats for many of them have not fared well under the pressure of heavy grazing and recreational use in recent years. Those creatures needing grass and low shrubbery have been particularly hard hit.

"If I had to pick one out that's in trouble," said James Wambaugh, a wildlife biologist working with an FWS study team now formulating a management plan for CMR, "it would be the sharptailed grouse."

The sharptailed grouse, a bird which closely resembles the prairie chicken, makes its home throughout the refuge, often among stands of buffalo berry bushes. They never move far from their dancing ground, where every spring the booming calls of the males draw the flock, and the birds let loose in wild mating dances. With a noise that one naturalist

(continued on page 4)

In the News

Opinion

Tailings regs must be tough

At recent hearings on a Nuclear Regulatory Commission plan for regulating uranium tailings, several industry representatives complained that it would be difficult and very expensive to comply with the proposed regulations, which would require, among other things, disposal in remote locations and covering the tailings with 10 feet of soil (see story on page 12).

While various experts will disagree about how much this would cost — NRC officials give much lower estimates than industry experts — we'll start off by admitting that it will be costly.

However, the alternative — inadequate control of radiation — is also very expensive, as some of the companies testifying at the hearing should know.

A prime example is the Churchrock tailings dam spill last July in New Mexico, in which 100 million gallons of radioactive water spilled into the Rio Puerco. The expense for United Nuclear Corp. has been enormous — the company's mill was shut down for three and a half months, losing $150,000 of business a day. While working with state officials to clean up the area, the company has had to supply alternative water for people and livestock up and down the river.

But the company has not been able to keep up with the demands of 3,000 head of livestock and 450 Navajo people, so some residents have been forced to go to a neighboring city to buy water. It's still unclear how long the local water will be off limits. People who are unable to sell or eat their cattle or sheep because of fears that the livestock may be contaminated have requested, unsuccessfully, food stamps. There has been talk of buying all the livestock, using either company or government funds. In addition, the state has spent more than a quarter million dollars on the investigation of the spill.

Other examples are numerous:

— a bill now before Congress would compensate uranium miners and their families for exposures to radiation in the 1950s, when the U.S. government was the sole customer for uranium. The bill would provide a clinic and research center with initial funding of $2 million and an undetermined amount of compensation for the families of miners who have already died.

— more than 20 sites have been discovered in Colorado alone where tailings, disposed of years ago, are now overlain by buildings that might have to be torn down to avoid radiation exposure to people who work in them.

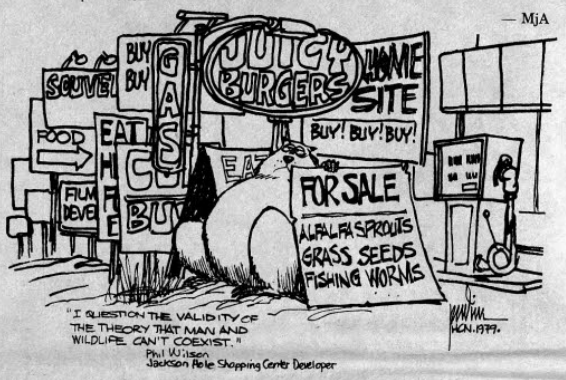
— a federal court has ordered Kerr-McGee Corp. to pay $10.5 million to the children of one of its plutonium plant workers, Karen Silkwood. The decision, which is being appealed, was heralded as the first time the nuclear industry was made fully responsible for injury or property damage caused by the radioactive materials it handles.

While not all these examples relate directly to uranium tailings, they do illustrate the potential costs of improperly using radioactive materials.

Radiation control is an inexact science at best — the authors of the generic environmental statement that prompted the NRC's proposed tailings regulations admit that there is a lot they don't know. At the same time, they casually discuss how many premature cancer deaths can be prevented by one method of tailings disposal as opposed to another.

Controlling radiation from tailings for thousands of years is expensive, that much is certain. Electricity rates will go up, as industry officials warn. But the cost of nuclear energy must reflect the full costs of protection, not just the immediate cost of production.

— MjA



POPULAR REALITIES

In Defense of Celebrities

It seems that every newspaper and magazine in the country is running the mandatory Jane Fonda story these days. Not to be outdone, **High Country News** is going to comment on Jane and others of her ilk.

To make it as brief as possible, we think that Jane has a pretty good ilk. This author must confess to being not completely unbiased in this matter, having had more than platonic emotions about Ms. Fonda since the year she came out in her Barbarella disguise. However, many commentators, apparently offended that Barbarella has an opinion about war and nuclear power, choose to view Fonda as a worm of the worst sort.

The emergence of celebrities — if that's the right word — on to the political scene is a relatively recent development. Ronald Reagan, may God rest his current campaign, started it, and now Jane Fonda, Robert Redford and John Denver, to name a very different few, have found themselves the center of considerable controversy. For their trouble, these people have been called communists, hedonists, obstructionists, ingrates and countless other names that would be inappropriate in a family newspaper. Most of the time, they are victims of this abuse not because of what they are saying but because of who they are. Critics apparently feel that by lending their glamour to controversial issues, these people give the issues a credibility that they don't deserve.

Jane Fonda is currently the chief target of the epithets. By lending her name, her money, her talent, her husband and considerable intellectual gifts to a controversial cause, she has brought the issue of nuclear safety to the forefront of the media and the minds of countless Barbarella fans who might never have learned about the dangers of nuclear power without the "China Syndrome."

Robert Redford, who has never received enough thanks from anybody for his help to both the environmental movement and this newspaper, has publicized important issues in the West. Burning in effigy in Kanab, Utah, and hearing himself castigated in his home state have not diverted his efforts.

And poor John Denver. The guy just can't seem to please anybody. He is castigated by environmentalists on the one hand for storing gasoline for his own use and by the developers on the other for raising money to help environmentalists fight them. When asked for a definition of the Rocky Mountain West, a friend of mine always says, "Draw a line down the Continental Divide. Then, proceed east and west from the line. When you have gone far enough that the people you meet will admit to being John Denver fans, you have reached the end of the Rocky Mountain West." This, I say, is unfair. Denver seems to be least appreciated by those he has most tried to help.

When John Wayne made movies extolling the virtues of the Vietnam War, even critics who disliked the movie did not call him a barbarian. Rooster Cogburn a baby-killer? Come on, he was just a Great American.

I once attended a National Coal Association convention at which The Duke was a guest speaker. Executives of multi-million dollar corporations were standing in line to shine the Duke's shoes as he stressed the importance of excavating as much coal as quickly as possible, no matter what the pinko environmentalists said. Wayne's understanding of the mining and use of coal is tenuous at best, but nobody commented on the "inappropriateness" of his remarks or urged him to return to the business he knew.

Fonda, Redford, Denver and others are making considerable contributions to the understanding of important social and political issues of the day. Even if they turn out to be wrong in their opinions, the debate they have inspired on these issues serves to educate and enlighten the great unwashed masses. They don't deserve to be castigated by the news media simply because they were famous before they discovered the hazards of nuclear power and the Kaiparowits power plant.

— DSW

Solarfries

Ronald McDonald and Amory Lovins haven't held a joint press conference yet, but it appears that alternative energy enthusiasts have made inroads in the fast food industry.

TRW Corporation has recently begun an ad campaign announcing the invention of the "Solar Fry" — a process whereby deep frying machines are heated by solar-generated steam. According to the ad, the solar fryers can cook 20,000 pounds of fries an hour or 260,000 pounds a day — which accounts for just about every fry consumed in America.

In addition, McDonald's and other fast-food chains have begun experimenting with solar-heated stores. No precise figures are available on what the innovation is saving the corporation in heating bills. But the new outlets are featured in McDonald's promotional materials, so the cost of the solar panels can be written off as an advertising expense.

—wm

Dear Friends,

A significant week for us here at **High Country News**: a visit from our patriarch and mentor, Tom Bell; and the birth of our newest "staff member," Katherine.

Technically, the baby was born to Joan Nice, former managing editor of **HCN**, and her husband, Bruce Hamilton, a former **HCN** news editor and now Northern Plains representative of the Sierra Club. But to see the excitement here last Tuesday, you would have thought we all had a part in the parenting — phones dropping, frequent pedestrian accidents within the office, gleeful stuttering and cigars.

For those of you interested in the red-haired details: Katie was born at 10:20 a.m. on Oct. 23 and weighed in at a hefty 8 pounds, 9 ounces. Her size was due, no doubt, to the oxygen coursing through her prenatal veins: Joan kept bicycling into town 10 miles, dancing and playing tennis up to the last moment.

We'll be seeing a lot more of her when Joan and she come back to work part-time in a few weeks.

From the other end of **HCN**'s family tree, Tom Bell, who started **HCN** 10 years ago, arrived with his family in Lander just in time to meet Katie. He was full of stories of his efforts to save remnants of the Oregon Trail, fight fences in the Red Desert and testify for wilderness areas, as well as tales of a bountiful harvest at his Oregon farm. Just seeing his continuing interest — and outrage — concerning issues we cover is enough to re-ignite any lagging enthusiasm. While the paper has changed somewhat since he turned it over to us five years ago, he doesn't hesitate to express his personal support for what we're doing.

HCN INTERN MAKES GOOD

Good news came through the mail, too, last week when we learned that a former **HCN** intern, Heather McGregor, was honored by the Associated Press Managing Editors Association for her outstanding contributions to the Associated Press news report.

Heather recognized a good story when she learned a local woman in Montrose, Colo., had given birth to a baby that had developed outside the womb. Splashing the story across the front of the **Montrose Daily Press** newspaper with huge, "second-coming" headlines, she also released the story of the "miracle baby" to the Associated Press. As a result of her marathon efforts to put the story and photographs together, the miracle baby was soon hitting the pages of newspapers across the country.

— the staff

Photo by Sara Hunter-Wiles

KATHERINE NICE HAMILTON, expected shortly to take up a high-level position at HCN, is presently chief executive in the household of Bruce Hamilton and Joan Nice.

SMART TO MOVE

Dear **HCN**,

I made a copy (of the subscription form) because this request for renewal was on the reverse side of Page 1, which carried the sad but predictable story of the death of a nice little city — Sheridan, Wyo. — from which I moved five years ago. I visited it this summer ("Expanding energy town narrows life for elderly" 10-5-79). It's a gone-mad boomtown. No longer safe to go out at night. Vandalism and crime rampant. Another stink hole for Wyo. I want to save this story to prove to friends how smart I was to move when the mining trash moved in. I'm retired on a very limited income.

Hazel Landeen
St. Paul, Minn.

OUTLAW THREATS?

Dear **HCN**,

In the early days of the labor movement, it was a frequent practice of businesses to attempt to discourage unionization by threatening to close a factory if employees joined a union. Although the threat may have been justifiable on occasion, the announcement of impending closure was so often issued as idle propaganda that Congress in the 1935 National Labor Relations Act outlawed the practice.

Perhaps we need a National **Environmental** Relations Act with a comparable provision.

Gordon Rodda
Gainesville, Fla.

(Ed. note: Rodda is referring to an article in the 10-5-79 **HCN** about U.S. Steel urging its employees to lobby against the Environmental Protection Agency's air pollution control regulations.)

COMMITMENTS

To the editor:

Thanks to Lorena Darby (**HCN** 10-5-79, letters) for balancing out a few of the statements in my review of John Nichols' **If Mountains Die**. I agree that Nichols is a perceptive and important writer, and has in fact personally proved her point that recent immigrants to the West can become solid conservationists, that old-timers aren't all we need.

My original point was that old-timers **and** newcomers like Nichols both are effective in discouraging disruptive social and environmental change when they feel more than a few years' **stake** in a place — i.e., they aren't the kind that say to hell with it and move on. Longer term **commitments** to a land community are needed; the battle to save Taos or other communities won't happen just once. Anyway, I appreciate your comments on the quality of work done by both Nichols and Davis.

Gary Nabhan
Tucson, Ariz.

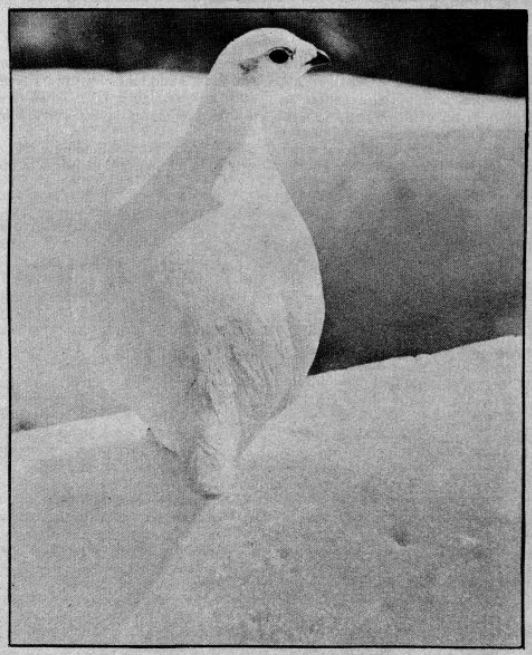


Photo by Kent and Donna Dannen

PTARMIGAN ALCHEMY happens again in the mountains as the birds assume winter camouflage.

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Publisher	Thomas A. Bell	Correspondent	Philip White
Managing Editor	Marjane Ambler	Business Manager	Jazmyn McDonald
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Contributing Editors	Dan Whipple	Photography	Sara Hunter-Wiles
	Peter Wild	Circulation	Will Murphy

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Charles M. Russell Refuge...

(continued from page 1)

describes as a "bubbling crow," the leading bird raises and spreads his tail, lowers his head, and charges across the ground, stamping his feet. With as much noise and display as they can muster, the flock joins in. These feathered hoedowns continue all spring.

Wambaugh said the FWS wildlife studies earmark the sharptail — which number about 5-10 per square mile in the refuge — as one of CMR's "most uncomfortable" species. "Those cows go up and down the coolies and beat down the shrubs," said Wambaugh, and the sharptails, which feed on rosehips, buffalo berries, and snowberry, as well as insects, are "running out of habitat." Wambaugh said they had found a "fairly strong correlation" between damaged sharptail habitat and livestock grazing.

Dan Hinckley, leader of the FWS planning team, said the grouse gets hurt twice by the grazing: The shrubs the bird eats are trampled by livestock; and the birds' nesting cover, the grasses, is eaten by cattle. Hinckley said his team's studies indicated that eradicating the problems besetting the sharptailed grouse would also solve about 95 percent of other wildlife problems in the refuge.

FWS officials have no figures to indicate an actual decline in wildlife on the refuge; they are relying on their knowledge of necessary habitats to draw conclusions. Critics like Coldwell fault them for this, saying: "As yet, they haven't proven that cuts are needed."

But wildlife groups, and particularly Hank Fischer of Defenders of Wildlife, are working equally hard to make sure the FWS does not forget its primary mission: preserving wildlife.

CMR HISTORY

Much of the land in the refuge is torn and riven by wind and water — it would be a difficult face to shave, centuries old, stubbled and pockmarked. It follows the Missouri River, over 100 miles up from Fort Peck Dam, through varied country that includes backed-up reservoir water; flowing river; barren, rough-hewn Missouri breaks; grassy plains, and some forest.

The dam has changed the river's topography since the days when Lewis and Clark trekked along the riverbed, but it remains an area of stark natural wonders seen by few.

The CMR first attained special status when President Franklin D. Roosevelt set it aside as a game refuge in 1936. It became a national wildlife refuge 27 years later.

As far as ranchers are concerned, a more significant change took place in 1976, when environmentalists successfully lobbied Congress to give the FWS sole jurisdiction over CMR, an authority the agency had been sharing with the Bureau of Land Management for over a decade.

"These are not rich communities around CMR. You take a big chunk of grazing away, and the load's got to go somewhere."
— Jerry Coldwell, Fort Peck Game Range Committee

The same legislation that put CMR in the FWS' hands required that the agency devise a management plan and write an environmental impact statement for it. The draft of that plan is due out in December, and ranchers clearly think they will be the losers.

The Fish and Wildlife Service is not an agency that looks for toes to step on. One can sense the discomfort felt by FWS officials in Washington, D.C., when faced with the growing controversy surrounding CMR.

"We haven't been able to convince the grazing people in northern Montana that we're not all that hard to live with," said Mark Nelson, refuge director at the FWS.

The ranchers are the most vocal and litigious, but they are not the only ones pressuring the FWS. Hunters and environmentalists also want a say in what happens to the refuge. And there are Washington politicians, some of them with special bills to weaken the FWS' control over CMR, and leaders at the state level who disagree sharply over CMR management.

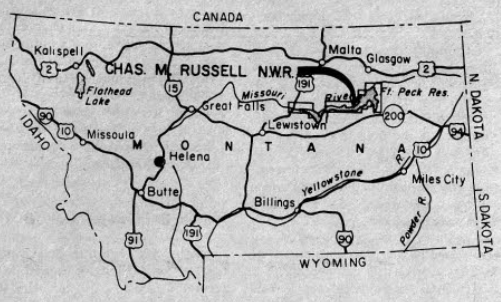
Rep. Ron Marlenee (R-Mont.) helped stir things up with a letter that ran in several Montana papers, which read in part: "The bureaucrats have some pretty grandiose plans for the lands they control in Montana, and the least of these plans are (sic) to require that you get permission from your handy-dandy local bureaucrat to do the things you have been doing for years without anyone's permission."

Marlenee urged ranchers to turn out in force at FWS hearings on a new management plan for CMR. They did, in Glasgow and Lewistown, two ranching towns in the vicinity of the refuge, where Hinckley, head of the FWS planning team, faced crowds that were "out of control about half the time," according to one observer.

The ranchers have come to view themselves as victims of faraway bureaucrats and environmentalists, who never stay long enough in the area to learn the local history and understand the ranching-based economy. They dramatize their case with droll humor. A Glasgow lawyer representing one rancher said to **HCN**: "Put us on your endangered species list."

For Clay and Karen Taylor, CMR is an important part of their new livelihood, and they join the other ranchers in demanding management for livestock productivity. The ranchers do not accept FWS' arguments that game on the refuge will decline if present conditions continue. While they might in some cases agree that animals like the sharptailed grouse need a sanctuary from the ever-encroaching footprints of civilization, they do not readily accept that the sharptail's needs conflict with the Taylors'.

Some ranchers, tempers frayed by their struggle with the FWS, have grazed their cattle with apparently contemptuous disregard for the FWS regulations.



Map courtesy of the Fish and Wildlife Service

THE CHARLES M. RUSSELL Wildlife Refuge, located along the Missouri River in eastern Montana, was set aside by President Franklin D. Roosevelt in 1936.

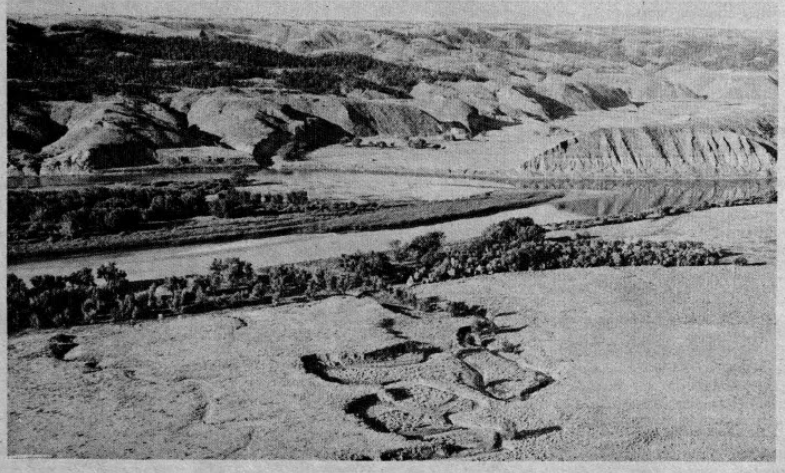


Photo by Hank Fischer

VARIED TERRAIN at the western end of the CMR, where the Missouri River winds through the gnarled Missouri Breaks.

NICKELS BROTHERS

According to Robert Nagel, East Unit manager for the FWS at Fort Peck, Lester and Russell Nickel, two Glasgow ranchers, had repeatedly grazed more cattle for longer periods within the refuge than their CMR grazing allotment allowed. After several warnings, Nagel told the Glasgow newspaper, he issued a trespassing citation when over 50 head of the Nickels' cattle were found on the refuge a week after their grazing period ended.

The Nickels brothers no longer talk to the press, but Wayne Putz, Sr., a Glasgow consultant to the Fort Peck Game Range Committee, wrote the local paper a long letter defending their actions. The Nickels, he said, were third generation ranchers in the area who "are more concerned with the condition of the range than any of the federal bureaus, as this is their livelihood." Putz then recounted myriad instances of what he called FWS incompetence and harassment of ranchers.

"The barbed wire entanglement has already begun," said Putz, referring to a 9-mile fence the FWS erected to keep the Nickels' cattle off the refuge. "Roads are already barricaded. Next on the list will be

the Berlin Wall and probably armed guards."

Nagel responded to the emotional attack with a long list of Nickels' violations, dating back to 1977, when FWS officials found the Nickels were running three times the number of cattle allowed on the refuge. With a permit to run 12 cows in 1978, the Nickels had up to 115 cows and 30 yearlings that summer, Nagel said. Violations continued this year, leading to the trespass citation.

THE CMR PLAN

The CMR study team is not planning to build a wall around the refuge, but there will be some major management changes under their draft proposal. Some fences will be erected to preserve ponds and allow limited rest-rotation grazing. And there will be cutbacks in grazing allotments — 25 to 35 percent, according to team members, and some FWS officials say it could be higher. Some ranchers will lose, but some will actually gain slightly larger allotments.

Environmental activists like Fischer say the change is long overdue. And despite the conciliatory statements by upper-level FWS officials, franker members of the agency acknowledge that the bottom line is to be wildlife protection. The sharptailed grouse, the mule deer, the elk herd and the small population of bighorn sheep will board the CMR ark ahead of cattle.

"The misconceptions that are running around out there are hard to believe," said Art Wemmerus, an FWS biologist in Washington, D.C. "Cattlemen fail to recognize that (managing) grazing for wildlife habitat and (managing) grazing for maximum livestock production are not the same thing...Grazing (on the refuge) is a privilege, not a right."

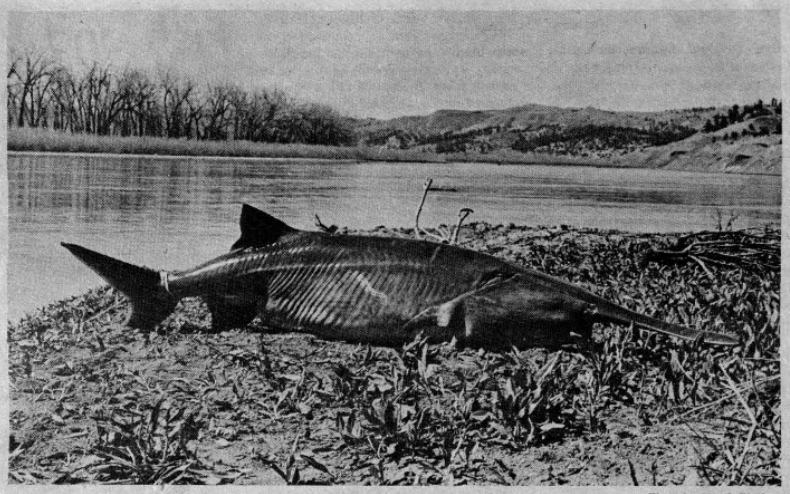
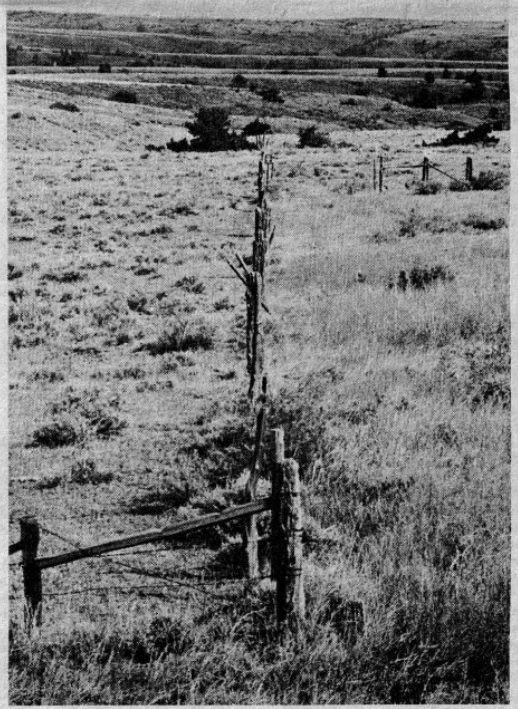


Photo by Hank Fischer

PADDLEFISH are increasingly popular as game fish at CMR, according to an FWS official.



Defenders of Wildlife photo

FENCING ON CMR by the FWS has angered ranchers, who once were free to graze their cattle on the refuge without restrictions.

At public meetings in September, planning director Hinckley mentioned several wildlife projects under consideration for the plan, such as trying to bring back the black-footed ferret, the swift fox, and the peregrine falcon, a few of the several species, some of them endangered, that once roamed the Missouri Breaks.

The FWS aims to rebuild residual ground cover to 8 to 10 inches where possible in the refuge — a move that their studies indicate should improve the now-depleted world of the sharptailed grouse — and expand shrub growth and streamside vegetation, both of which have been hard hit by livestock grazing.

But Hinckley assured listeners that hunting, fishing, and livestock would still be allowed on the refuge. He expects road improvements in the plan to make campsites more accessible and to limit damge to the soil and vegetation by off-road vehicles.

To stabilize the local ranching economy, ranchers were reassured that holders of allotments would have a right to renew, without the threat of competitive bidding or sudden shifts in allotment assignments.

SUITS AND BILLS

The Nickels brothers and another rancher whose allotment was cut back have filed a suit in the federal district court in Billings charging the FWS with mismanagement of the refuge that has "destabilized the economic base of ranching operations." But an FWS official laughed off the suit, noting it contains 45 allegations: "a shotgun pattern, where they hit everything. They're firing for effect."

Nor do many take seriously the legislation introduced by Sen. John Melcher (D-Mont.), which would force the FWS to manage CMR in the BLM style, without its usual priority for wildlife. Melcher himself admitted it was "hard to get others interested" in such parochial legislation and could not say whether he expected any action on Capitol Hill.

Ranchers are clearly bitter over what they see as the likely outcome at CMR.

"I know there's room for everybody on these ranges," said Sven Holland, a Montana rancher in the area. "I went to the original grazing meetings in 1934. I've lived in the area all my life. It's in so much better condition than it was before they passed federal grazing laws (in the 1930s)...It's been overhunted. If we'd been overgrazing all these years, there wouldn't be any grass now."

"Cattlemen fail to *realize that* managing for wildlife habitat and managing for maximum livestock production are not the same thing." — Art Wemmerus, Biologist with FWS

Holland thinks a management plan that included fencing would allow the refuge grasses to recover and thrive.

And rancher Wayne Putz expressed hope that the hubbub over CMR would help the ranchers' cause. "We need all the publicity we can get," said Putz, "and maybe we can turn this thing. But I have my doubts."

Perhaps his doubts are well taken, because environmentalists think that publicity outside the area would remind the public that the relatively-unknown CMR is a national wildlife refuge, supported by tax dollars from all across the nation.

Hinckley said he had received about 30 letters from outside Montana urging the FWS to assert its wildlife priority — and several urging a ban on grazing altogether.

Travel expenses for research for this article were paid in part by donations to the HCN Research Fund.

Fish and Wildlife Service: growth and contradiction

by Bernard Shanks

The U.S. Fish and Wildlife Service is charged with protecting and managing birds, beasts, and fish — but it also supervises the destruction of wildlife.

Though the agency monitors the effects of pesticides on the environment, the FWS itself applied 423 tons to wildlife refuge lands during one recent year. And though it is helping to bring the whooping crane back from the abyss of extinction, it wipes out huge flocks of other birds annually.

The FWS is staffed with thoroughly professional wildlife managers, yet it has had serious internal problems. And while the National Refuge System it manages is the world's finest, refuges are subordinate to lesser-known programs of the agency.

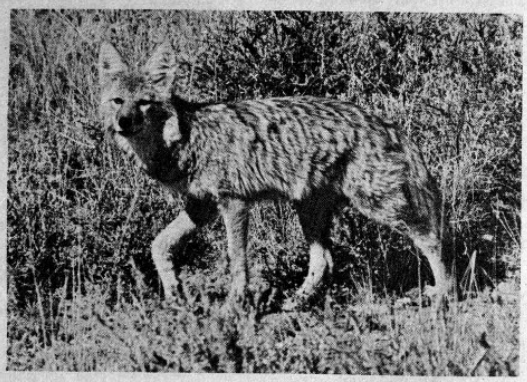
Still, an employee of the agency can say, "The Fish and Wildlife Service, more than any other federal agency, mirrors the accomplishments and aspirations of the environmental movement." While it does seem to be the most environmentally-minded land management agency, it has grown slower and capitalized less on the environmental militancy of recent years than other agencies.

GENESIS

Early attempts at wildlife conservation were made by private individuals and organizations. One such was the American Ornithologists Union, which began a study of bird migration in 1885, and, overwhelmed by itinerant birds, asked Congress to establish a Bureau of Economic Ornithology. The resulting precursor of FWS, the Department of Agriculture's Bureau of Biological Survey, was concerned with the connection between birds and farming. Although the agency was transferred to the Interior Department in 1939 and its name has changed, it remains focused on the impacts of wildlife on domestic crop and animal production.

In 1903 President Teddy Roosevelt started the federal wildlife refuge system with Pelican Island, a small spit off the coast of Florida. It was a modest beginning — only a three-acre refuge. Still, Pelican Island, set aside to save egrets and pelicans from plume hunters, was an important precedent. A few bullied congressmen grumbled about useless bird havens, but the designation held. Most refuges since then have been established by presidential order or, starting in 1947, by the secretary of Interior.

From a few modest refuges, the agency grew. Its first responsibility concerned migratory wildlife refuges and research, funded by an excise tax on hunting equipment. Today, the Fish and Wildlife Service is the dominant federal wildlife agency, and, despite its problems and contradictions, it is undergoing its greatest period of expansion. The 410 areas in the National Wildlife Refuge System total over 33.2 million acres — an area about the size of Arkansas, equal to the acreage managed by the National Park Service. Last December President Carter added 12 million acres in Alaska to the System — Becharof and Yukon Flats national monuments. If the Udall-Anderson Alaska National Interest Lands Bill that passed the House this year clears the Senate, a total of 79.5 million Alaskan acres will have been added to the refuge system.



Defenders of Wildlife photo

THE COYOTE, considered by many ranchers a threat to livestock, has been the subject of heated controversy in the debate over the FWS' role in predator control.

U.S. Fish and Wildlife Service photo

GEESE GET BANDED by naturalists in Maryland, part of a research project managed by the FWS.

Despite the size of the refuge system, it remains unknown to the general public. Most people are aware of Florida's Everglades National Park but not of that state's Loxahatchee National Wildlife Refuge. Westerners may know of Montana's Charles M. Russell refuge but not of War Horse or Lamesteer. Arizona's million-acre Cabeza Prieta refuge remains a uniquely isolated and wild area visited mostly by illegal aliens, border patrolmen and federal narcotics agents in pursuit of contraband. Yet some who know it insist it would make an outstanding national park.

Refuges attract bird watchers and sportsmen — but a total of less than 40 million annually. National parks are visited by five times as many people.

MISSING MISSION

Contradictions in the Fish and Wildlife Service are hardly surprising since the agency lacks a clear statutory mission. Congress has passed "organic acts" to guide the Forest Service, the Park Service and the Bureau of Land Management. But it has yet to define the Fish and Wildlife Service.

The division of wildlife responsibility between the federal government and states also muddies refuge policy. Historically, the states manage resident wildlife and set hunting regulations. The federal government has responsibility for habitat management on public lands, migratory wildlife and, more recently, endangered species. A number of wildlife refuges for resident species have been established to protect endangered species or because of an absence of state protection. In recent years, state-federal territorial conflicts on most of the large refuges have emerged. The most notable dispute is over the massive Arctic Range in Alaska, but agencies have battled over Arizona's Kofa and Cabeza Prieta, Nevada's Sheldon and Desert game ranges, and Wyoming's National Elk Refuge. All are reserved for resident species. The state-federal conflicts have led to confusion, controversy and a lack of a strong direction for some refuges.

Early in the century, the federal wildlife refuge function was even less clear-cut. The transfer of many refuges to other agencies, particularly the The Park Service, resulted in varied refuge uses. Refuges have been transferred to the Defense Department, the National Space and Aeronautics Administration, and other agencies. Wyoming's Buffalo Bill Reservoir, a Bureau of Reclamation project, flooded the Shoshone National Wildlife Refuge. Portions of wildlife refuges have been used for highways, pipelines, transmission lines and other uses.

During the Eisenhower administration, Secretary of Interior Douglas McKay set out to close some refuges. Eleven FWS areas were to be abolished and the large Desert Game Range in Nevada was to be transferred to the Nevada Fish and Game Department, under McKay's plan. Aroused conservationists nicknamed the secretary "Give-it-Away" McKay and defeated his plans.

Federal conflicts over wildlife refuges were never sharper than during the recent take-over of three Western game ranges by the Bureau of Land Management. After nearly 40 years of difficult shared management by the FWS and BLM, intense interagency competition climaxed on February 5, 1975, when Secretary of Interior Rogers C.B. Morton transferred Arizona's Kofa Game Range, Nevada's Sheldon and Montana's Charles Russell to the BLM, to be managed by the BLM as wildlife refuges.

Conservationists saw the move as a threat to the entire refuge system as well as to the planned expansion of national parks and refuges in Alaska. They simply did not trust BLM with the management of wildlife refuges. By mounting a dramatic national campaign, the conservationists stopped the transfer, first in the courts, then a year later by congressional action. Most important, they abolished the In-

terior Secretary's authority to transfer wildlife refuges without congressional approval.

ROLES AND RESPONSIBILITIES

Today the refuge system has slightly over 1,000 employees in the field, not even 100 more than a decade ago even though over 100 new refuges have been added to the system. But only about one FWS employee out of five works on a wildlife refuge. The remainder serve other federal agencies, conduct research or provide administrative support. The refuge land management programs have become a low priority of the agency and Congress. Indeed, only about half the refuges have year-round live-in personnel.

More than any other public land agency, the FWS is torn by conflicting programs. Farming and ranching continue on many refuges. Over 100 refuges raise crops, partly to feed wildlife but also for cooperating farmers. On some refuges, timber is harvested. On others, oil and gas are leased.

Over 180 refuges are open to hunting; almost as many are open to fishing. Over 234 refuges are protected as natural areas. Parts of 52 areas are designated wilderness, a total of 700,000 acres, and seven and a half million acres have been recommended by the agency for future wilderness designation.

The agency itself cannot be blamed for all the conflict. The Endangered Species Act, the Marine Mammal Protection Act, the Fish and Wildlife Coordination Act and numerous congressionally-mandated cooperative agreements have turned the agency from primarily a land management agency to a service organization for other agencies. The oldest and one of the most controversial of these services is the predator control program.

PREDATOR CONTROL

Congress first appropriated funds for predator control in 1915. In 1931, Congress transferred the predatory animal and rodent control program to the FWS's forerunner, the Biological Survey. The agency began widespread killing of predators on federal lands, including for a time national parks and monuments as well as refuges.

Nevertheless, predator control remains a source of conflict and contradiction for the Fish and Wildlife Service, despite a series of studies on the problem since 1963. From 1970 to 1977 the FWS reported killing 35,834 bobcats, 1,473 bears and 460 mountain lions in the 15 Western states. But it is the program's impact on coyotes that remains the major concern of most animal protection organizations. Some 602,981 coyotes were trapped, shot, poisoned and drowned during the eight-year period. "District field assistants," as the predator control employees are called, continue to nurture not wildlife, but domestic livestock.

Despite the controversy, the animal control budget has grown significantly. From 1968 to 1979 it rose over 100 percent, from $5 million to $10.5 million. In 1979 it climbed to $11.6 million.

During the 1980 fiscal year appropriation hearings, the FWS proposed a $4.2 million reduction in the predator control budget. Rep. Gunn McKay (D-Utah) was quick to question the proposed cuts, and it appears likely that he and other Western livestock-oriented congressmen will increase the predator control budget again.

One of the agency's most dramatic programs involves the roost kills of blackbirds. During cold and rainy weather the FWS sprays flocks with a detergent called PA-14 that removes the oil from the birds' feathers. The birds die from hypothermia, the lowering of their body temperature. One night a year ago, FWS personnel killed 875,000 birds in one roost. Another application in Tennessee killed 2.8 million birds out of 4.2 million in one roost.

A less controversial agency responsibility is the National Fish Hatcheries. Nearly 100 FWS hatcheries provide game fish for other federal land agencies and state fish and game departments. The hatcheries are also used for the production of threatened or endangered fish species. Last year the agency stocked 48 different fish species on state, federal and Indian waters — some 175 million fish.

Other responsibilities of the agency include: enforcement of the bald and golden eagle protection laws, environmental education and interpretation, technical assistance to some 60 Department of Defense installations, protection of migratory waterfowl, and regulating the import of certain endangered animals and their products.

The Endangered Species Act of 1973 gave the FWS the key coordination role in the protection and conservation of certain plant and animal species. As a result the agency is expected to comment on nearly 40,000 programs of the Army Corps of Engineers, the Coast Guard, the Environmental Protection Agency, the Bureau of Land Management, the Forest Service and other agencies.

The FWS conducts research through a system of cooperative units operated out of 30 land-grant universities. Last year 446 research projects were authorized on predator control, endangered species, fisheries production, migratory birds and many other subjects. Only the large Forest Service research staff compares to the ability and reputation of the FWS in the area of natural resources research.

PROBLEMS

The FWS appears to be seriously underfunded. It is perhaps ironic that the development-oriented BLM has rapidly increased its budget to a billion dollars annually, while the proposed 1980 FWS budget is only $407 million, down $30 million from 1979.

Former President Gerald Ford's Bicentennial Land Heritage Program gave the agency its last big funding boost. In a widely publicized media event at Yellowstone's Old Faithful, Ford proposed large increases in the funding of both FWS and the Park Service over the next 10 years. This has been "a big shot in the arm," according to an Idaho FWS employee. Extra funds have been used to rehabilitate water structures, dikes and other projects on the refuge system — solving some of the agency's most pressing construction problems. However, the proposed reductions this year would reduce the Bicentennial Program funding for 1980. And a Defenders of Wildlife report stated that the Bicentennial program treats "only the symptoms of the refuge programs while the real causes remain unaddressed."

In the words of one former refuge manager, the biggest problem of the agency is the "lack of strong, progressive leadership in Washington." Other problems perceived by some are a lack of administrative skills and the lack of fundamental guidelines. Some feel that administrative training of the agency's personnel is seriously deficient. Others say that the agency has failed to publicize and capitalize on the inherent support and interest the American public has in wildlife.

Nevertheless the National Wildlife Refuge System remains a popular concept for conservationists, despite its problems. Conservationists have organized and fought for refuge protection, continuation and expansion. Undoubtedly they will again.

U.S. Fish and Wildlife Service photo

BISON, seen here on the National Bison Range in Morese, Mont., are among the animals looked after by the FWS.

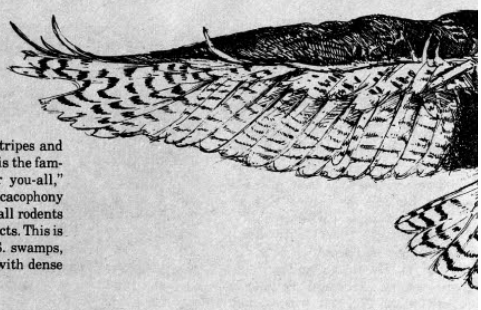
Monte Vista Journal photo

MALLARDS TAKE FLIGHT at the Monte Vista National Wildlife Refuge in Colorado, one of 410 areas in the National Refuge System.

Bernard Shanks is an associate professor in the department of forestry and outdoor recreation at Utah State University.

Barred owl

Barred owls get their name from the stripes and bars on their chests and wings. Their call is the famous "Who cooks for you, who cooks for you-all," though sometimes they break into a great cacophony of hoots and cackles. They eat mainly small rodents but will also take birds, fish, frogs and insects. This is the common owl of the Southeastern U.S. swamps, and in the West it is usually associated with dense river-bottom forests.



Spotted owl (not pictured)

These owls are very similar in coloration and habits to their slightly larger Eastern counterpart, the barred owl. Spotted owls can be identified by the horizontal barring on their chests and by their dark brown eyes. They eat small mammals, insects and some small birds (including pygmy owls). Sedentary and intolerant of heat, the spotted owls are almost totally nocturnal and quite docile and tame.

OWLS of the ROCKY MOUNTAIN STATES

Research by David H. Johnson

Drawings by Hannah Hinchman

Barn owl

A heart-shaped face and dark brown eyes characterize this medium-sized, tuftless owl. It nests in any rubbish or debris that is handy in a cavity or corner and makes almost no attempt at nest building. It might choose cavities in clay banks, natural hollows in trees, old barns, silos, water towers, abandoned mine shafts or church steeples for its nests. Perhaps the world's best mousers, barn owls fly at night and rarely make a sound — except during the mating season when they may hiss, scream, grunt and snap their beaks.

Great horned owl

One of the more common and well-known owls, the great horned owl's familiar voice is a five syllabled "hoo-hohoo-hoo-hoo." It takes the largest variety of prey, including snakes, salamanders, giant water bugs, skunks, rabbits and waterfowl. It nests in winter; listen for hooting conversations between males and females in November and December (the female's voice is slightly lower in pitch).

Distribution

Barn Owl — can be found but is uncommon in Colorado, Utah, Wyoming, Montana and Idaho.

Barred Owl — can be found in Montana, Idaho and rarely in Colorado. One sighting in Wyoming (1939).

Boreal Owl — winter visitor in Montana, Idaho and Wyoming.

Burrowing Owl — can be found in Colorado, Utah, Wyoming, Montana and Idaho.

Great Grey Owl — can be found in Montana, Idaho and Wyoming.

Great Horned Owl — perhaps the most common owl, found in Colorado, Utah, Wyoming, Montana and Idaho.

Long-Eared Owl — found in Colorado, Utah, Montana and Idaho.

Pygmy Owl — are rare, but are found in Colorado, Utah, Wyoming, Montana and Idaho.

Saw-Whet Owl — found in Colorado, Utah, Wyoming, Montana and Idaho.

Screech Owl — found in Colorado, Utah, Wyoming, Montana and Idaho.

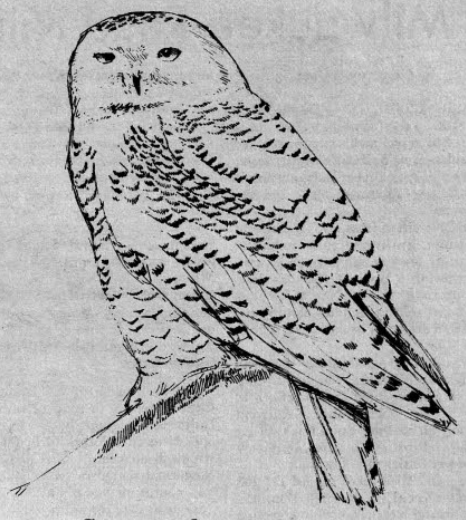
Short-Eared Owl — found in Idaho, Montana, Wyoming, Northern Utah and Northeast Colorado.

Snowy Owl — winter visitor in Montana, Idaho and Wyoming.

Spotted Owl — found in Colorado, Utah and rarely in Idaho.

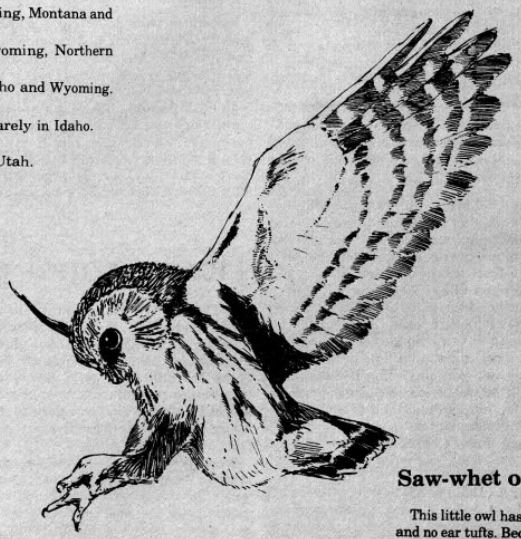
Flammulated Owl — found in Colorado, Idaho and Utah.

(more owls on page 14)



Snowy owl

Every fourth or fifth year, the beautiful snowy owl travels down from its home on the arctic tundra to the United States, driven by the cyclical ups and downs of its main prey, the lemming. Look for it on the ground, in open country. Trophy hunters and others prevent many of these migrating birds from returning north to their breeding grounds. They are the largest North American owl, with a wingspan of 1320-1820 millimeters. The male is almost pure white, the female white with black barring.



Saw-whet owl

This little owl has soft fluffy feathers, yellow eyes and no ear tufts. Because of its small size and secretive, nocturnal habits, the saw-whet owl is rarely seen and so regarded as less common than it actually might be. It is extremely tame when confronted, to the point of being picked up by hand. It is usually silent, but in spring it will utter a sound like the distant sharpening of a saw blade (or like a gremlin whispering, "hey!" from the underbrush). It also has other whistles and soft cooing calls, and, like other owls, is a good ventriloquist.

Boreal owl

Like other small owls the Boreal is a cavity nester. Identifying marks of the Boreal are its spotted forehead and crown and broadly striped chest, which distinguish it from the saw-whet owl, which has a striped forehead and crown and a buff-colored chest.

ENERGY

Milwaukee Road rail reprieve likely...for now

by Geoffrey O'Gara

WASHINGTON, D.C. — Despite losses of $500,000 a day, some form of service is expected to continue this month along the Milwaukee Road Railroad's Western lines, which carry coal, timber and grain across North Dakota, Montana, Idaho and the Northwest.

As **HCN** went to press, an odd alliance of politicians, grain and coal producers, community leaders and labor spokesmen were nearing a resolution in their last-ditch attempt to keep the Milwaukee freight cars rolling, despite efforts by the company's directors to shut down service in the West.

The stakes in a Milwaukee shutdown are high for Northern Tier states: hundreds of jobs; reduced freight service to many small towns; and a railroad monopoly on coal and grain transport for Burlington Northern Railroad, a company with many critics in the region.

Last year, Milwaukee carried 111,253 carloads of coal produced in Montana, Wyoming and North Dakota — a fraction of B-N's annual cargo. Milwaukee also carried 15 percent of the grain shipped from the Northern Great Plains.

Milwaukee Road is in bankruptcy, and the company has been desperately trying to convince a Chicago bankruptcy court and the Interstate Commerce Commission that if the railroad is not allowed to cut back soon, very soon, it will have to shut down completely.

The original bankruptcy petition was filed in 1977. In October, the company's bankruptcy trustee, former Illinois Gov. Richard Oglivie, convinced Chicago Judge Thomas R. McMillen to allow the railroad to close almost half of its 9,500 miles of track — most of it west of Miles City, Mont.

However, a flurry of last-minute activity has kept trains rolling. Three serious and coordinated moves to save the rail service were pending hours before the Nov. 1 shutdown ordered by McMillen:

— legislation, spearheaded by Sen. Warren Magnuson (D-Wash.) and Max Baucus (D-Mont.), neared approval by Congress that will keep the railroad running through December, fueled by federal loans.

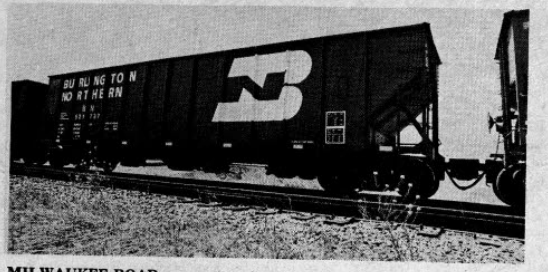
— an organization of shippers and railroad employees, armed with an optimistic study of potential growth for the Western Milwaukee Road lines, is mapping a takeover plan to pesent to the ICC and the bankruptcy court, under which the Western lines will operate as an independent corporation, tentatively called New Milwaukee Lines.

—if all else fails, the ICC is considering directed service to require seven other railroads to temporarily take over freight operations on the track Milwaukee Road wants to abandon. Under such an arrangement, the federal government would pay operating losses on the line and guarantee a six percent profit.

Oglivie has met with Magnuson and Baucus and indicated a willingness to work with them on their plan, according to a Baucus aide. Now the White House and Transportation Department, which had previously backed shutting down Milwaukee's Western routes, are rethinking their position.

But the outcome remains uncertain. Supporters of the New Milwaukee Lines are up against Midwestern shippers and politicians from Minnesota and Wisconsin, who say that every day Milwaukee Road continues to serve the West drains quality from the service the beleaguered railroad gives their states.

Oddly, the crisis comes at a time when Milwaukee Road (full name: Chicago, Milwaukee, St. Paul, and Pacific Railroad) is experiencing heavy demand for its services. Northwest lumber companies want more cars to take their timber to the Midwest. Montana, Wyoming, and North Dakota coal producers are expanding production to fill more hoppers carrying coal east. And grain has been piling up along the lines for shipping to Pacific ports for export.



MILWAUKEE ROAD supporters fear that if the railroad shuts down its service to Northern Tier states, Burlington Northern will have a monopoly on hauling coal and grain in the region.

But railroad officials argue that union featherbedding and ICC-restricted rate levels have prevented them from taking advantage of enlarging markets. Furthermore, track conditions have slowed train service considerably; the company says it could not afford to improve the lines.

Studies by the Federal Railroad Administration seem to support the railroad's contention that the Western haul is dragging the whole operation towards extinction.

But critics see it differently. A spokesman for the Northwest Rail Improvement Committee, Michael Sol, told a Montana ICC hearing in October that poor management was the cause of Milwaukee's ills. Sol said Milwaukee wasted $30 million converting its electricity-run trains to diesel in 1973, hoping in vain to merge with Burlington-Northern's non-electric operations. In addition, Sol argued that Milwaukee officials let it be known several years ago that they intended to drop the Western routes, leading shippers to seek service elsewhere, which created a false impression of a declining market.

A study prepared in October by Policy and Management Associates, a Boston consulting firm, for the New Milwaukee Lines group disagreed sharply with previous investigations projecting continued losses for the Western routes. The firm projected revenues in 1985 almost double what earlier studies had predicted.

The pressure to keep the line alive is fueled by regional fears of allowing Burlington-Northern a monopoly in the Northwest. "Even now, B-N can be almost whimsical with surcharges," said an aide to one Montana congressman. "If we give them a monopoly in Montana, they'll spend money for improvements elsewhere, where they have competition. And we know the service is already trashy here."

Even more important is the impact the Milwaukee Road shut-down would have on the economy in Northern Tier states. State officials fear timber, grain and coal production would be curtailed by limited rail service. And James W. Murray, executive secretary of the Montana State AFL-CIO, told the ICC that the cutback would axe the jobs of 820 Montana railroad employees. Labor leaders in other states expect similar, but less severe, losses.

Hot Line

Across the nation and around the world

SYN-GAS BREATHES LAST. An Indiana proposal to build a large synthetic natural gas plant was withdrawn this summer after strong opposition from environmentalists, petrochemical interests and farmers. The plant would have required large amounts of naphtha, a feedstock that farmers depend upon. Environmentalists have been fighting the proposal since it first came up in 1977, claiming it would produce natural gas at prices three times the present market rate. Indiana Gas Co., apparently feeling that foot-dragging Energy Department officials were listening to their opponents, withdrew the proposal.

WINTER GAS CRUNCH PREDICTED. An industry analyst predicts that the nation may draw a blank at the gas pump this winter, starting right now. Dan Lundberg, whose predictions of gasoline shortages last March proved prophetic, said that gas supplies could fall five percent short of demand this month, a shortfall that could continue all winter. Lundberg based his prophecy of doom on Department of Energy policies this summer that encouraged oil companies to concentrate on stockpiling heating oil and diesel fuel.

THREE-MILE AFTERMATH. Six months after the nuclear plant mishap at Middletown, Pa., reports of problems like radioactive water continue to trickle out of the Three Mile Island nuclear plant. Mop up crews will work on that, but there is another kind of leftover contamination more difficult to erase: fear. "People reported experiencing stomach upsets, ulcerations, shortness of breath, and sleeplessness," a Pennsylvania health official told the Associated Press. The illnesses, he said, were psychosomatic. But some residents disagree. "We're guinea pigs," said one woman. "Who knows what will turn up in our health later on?"

BPA LIKES WIND POWER. Bonneville Power Administration researchers say that wind power is the most promising alternative energy source in Washington, Oregon, Idaho and western Montana. Nick Butler, director of BPA's wind program, says that wind power "has the equivalency of at least one large thermal plant" in those states. Most of BPA's current power comes from hydroelectric facilities, which produce electricity very cheaply. Wind power will cost 10 times as much as hydro-power, BPA's studies say, but windmills can effectively help during peak demand periods.

House panel gives slurry boost

The U.S. House Interior Committee has approved legislation that would allow the secretary of Interior to grant coal slurry pipelines rights-of-way across private lands. The bill, which would give slurry lines the power of eminent domain to cross railroad rights-of-way, now goes to the House Public Works Committee, where it faces an uncertain future.

Western legislators won what they consider an important victory on the issue of water for the slurry pipelines, with an amendment that would prohibit the federal government from taking water for pipeline use in violation of state water laws. This gives Western states the final authority to say how much water may be taken and under what conditions it may be used.

Another "regional" amendment was adopted at the urging of Rep. John Seiberling (D-Ohio). This will require the Interior secretary to determine whether a pipeline would "contribute to the disruption" of the coal industry at the receiving end of the pipeline before any approval can be given. The amendment is a nod to Eastern interests who fear that cheaper Western coal will make inroads into Eastern markets when slurry transportation becomes available.

The eventual passage of the legislation remains uncertain, however. Though publicly much of the opposition to slurry lines comes from railroads and water-conscious Westerners, the votes in Congress have hinged upon the attitudes of Eastern coal state congressmen. One slurry pipeline analyst said that last year in the voting, Eastern legislators heavily opposed the measure. "Even a 50-50 split in the House among Eastern coal state congressmen would have assured passage of the bill," he said.

Recently, however, there has been serious discussion of a slurry line from Appalachian coal fields to Florida markets, a factor that may make such pipelines more attractive in the East. However, few congressmen are expected to change their minds based on this relatively recent development.

From the Source

The Rockies and Great Plains

COAL GAS PLANT ANNOUNCED. Texaco, Inc. and Texas Eastern Transmission Corp. have announced plans for a commercial coal gasification plant on Texaco's Lake DeSmet property near Buffalo, Wyo. The plant, which would be the country's first commercial operation, will cost about $1.5 billion and produce about 250 million cubic feet of gas daily. Production on that scale will require about 8,000 acre-feet of water anually and 12 million tons of coal per year. Texaco already has rights to about 240,000 acre-feet of water a year, and the Lake DeSmet property contains more than 2 billion tons of coal reserves. Plant construction could bring 3,000 to 5,000 workers to Buffalo, roughly doubling the current population. The plant could be producing synthetic natural gas within seven years, the company says.

PIPELINE'S PROGRESS. The controversial Northern Tier Pipeline project from Port Angeles, Wash., to Clearbrook, Minn. still has some barriers to pass, despite Interior Secretary Cecil Andrus' recommendation that President Jimmy Carter approve it. There is opposition from some state and local interests along the route and a conflicting recommendation from the Federal Trade Commission. The FTC, in a move designed to foster competition, urged Carter to approve more than one of the four competing proposals for the pipeline. By doing this, the FTC argues, Carter would allow the chosen projects to compete on an equal footing for private financial backing, rather than giving one company a monopoly.

CANADIAN MINE HALVED. The Cabin Creek mine, a proposed venture of Sage Creek Coal, Ltd., in British Columbia a few miles north of the Montana border, will be only half as large as planned. Production from the open pit mine is now scheduled at 1.5 million metric tons of coking coal annually instead of the three million tons of coking coal originally planned. Cabin Creek, on which the mine will be located, eventually flows across the border into Montana's Flathead Valley. Residents of the area fear that the mine will affect water quantity and quality in the valley.

MONTANA URANIUM MINES PROPOSED. Two uranium mines, one using solutions or "in situ" processing, the other a deep mine, are being planned for southwestern Montana. These would be the first large commercial mines in the state's history. Standard Oil of Indiana is considering an in situ operation but has established no timetable for beginning work. Kerr-McGee Resources and Chevron Oil Co. are considering a joint venture in an underground mine. Tom Robbins of the Environmental Information Center in Helena says that EIC is worried particularly about the in situ proposal because of potential hazards to underground water. In situ mining involves pumping a chemical solvent into the uranium ore body. The solvent dissolves the uranium, and it is then pumped to the surface. The main environmental danger is uranium-bearing solvent entering groundwater.

HIGHEST COURT TO REVIEW SHALE CASE. The U.S. Supreme Court has agreed to review a federal case that could require the transfer of four to six million acres of federal oil shale lands in Colorado, Wyoming and Utah to private mining interests. The case involves about a dozen mineral claims to federal lands filed in the early 1960s by Shell Oil and D.A. Oil Shale. The claims were filed under the 1872 Mining Law, but the Interior Department refused to grant patents, claiming that the companies had failed to establish that these were "valuable mineral deposits" under the meaning of the law. In January, a federal court upheld the companies' claims to the lands, ordering the Interior Department to grant the patents.

Nuclear waste project shaky

by Dede Feldman

The Department of Energy's plan to dispose of the bulk of the nation's military nuclear wastes in salt formations near Carlsbad, N.M., has run into a congressional roadblock. The chairman of the House committee that authorizes funding for the project says the prospects for the Waste Isolation Pilot Project are bleak unless the state of New Mexico changes its position.

WIPP has been a source of controversy in both Washington, D.C. and New Mexico for over four years now.

Originally WIPP was designed for the burial of plutonium-contaminated wastes from the nation's weapons program and the experimental storage of fuel rods from commercial nuclear reactors. Earlier this summer, however, House Armed Services Committee members trimmed the project to include only military wastes and indicated that they did not favor requiring licensing of the project by the Nuclear Regulatory Commission. The committee refused to grant New Mexico a right to veto the project.

In late September, several hundred protestors, many of them Indian and Chicano, gathered at Florencia, a small town near the WIPP site, for a two day rally against the project.

In an October letter, House Armed Services Chairman Mel Price (D-Ill.) notified New Mexico Gov. Bruce King that it was unlikely the House Armed Services Committee would authorize funding to carry the project past March, when current funding runs out. Any House bill must go to conference with a Senate-passed version that gives the state some rights to "consult and concur" on WIPP. But the project will "fizzle," said Mike Olguin, a spokesman for Rep. Harold Runnels (D-N.M.), if the House members stand firm in the conference.

According to Price, the reason he and his committee oppose further funding for WIPP is King's "uncompromising" position that the project must be licensed by the NRC and subject to state "concurrence." Members of Price's committee fear setting a precedent of giving a state any kind of veto over a strictly military facility.

Former Energy Secretary James Schlesinger and Assistant Secretary John O'Leary had promised New Mexico officials that the state would have the right of consultation and concurrence on the DOE project. Schlesinger and O'Leary resigned this summer, and Congressional leaders and lawyers for the state of New Mexico have since stated that the DOE had no legal power to make such a promise.

Meanwhile, King and other New Mexico officials have become increasingly concerned with the transportation of nuclear materials through the state to the Carlsbad site, the emergency preparedness measures that the project will require and the socioeconomic impact of WIPP on the state.

The governor's WIPP task force has also expressed concern over the issue of state and federal liability should an accident take place.

In addition, the Bureau of Land Management and the NRC are worried that extensive deposits of oil, gas, and potash at the WIPP site may tempt future New Mexicans to drill into the site for valuable resources.

Plutonium-contaminated wastes to be buried at the WIPP site will remain radioactive for 250,000 years.

Full House bets on Dingell EMB bill

The House approved a bill Nov. 1 authorizing President Jimmy Carter's proposed Energy Mobilization Board, and House conferees will now meet with their Senate counterparts to hammer out differences in legislation passed by the two bodies.

The House bill that would have set the strictest limits on the EMB's power, known as the Udall-Wirth bill for sponsors Reps. Morris Udall (D-Ariz.) and Tim Wirth (D-Colo.), was defeated 192-215.

But a second bill, sponsored by Rep. John Dingell (D-Mich.), which would initially have granted the EMB extraordinary powers to override state and local laws, was substantially modified on the House floor. As finally approved, the Dingell bill would give the EMB the power to speed federal, state and local procedural regulations only with the approval of Congress and the President.

In addition, the bill included an amendment, sponsored by Rep. Richard Cheney (R-Wyo.), that would prevent the EMB from tampering with state water laws and rights. A special amendment suggested by Indian groups to prevent the EMB from interfering with Indian decisions on energy projects was never introduced.

The final vote on the Dingell bill was 299-107.

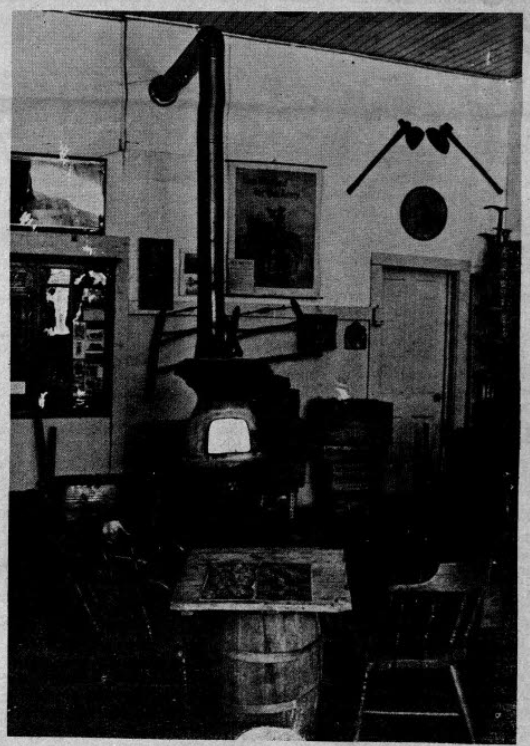


Photo by Mike McClure

WOOD WORKS. The U.S. Department of Agriculture is launching six New England states on a pilot wood fuel project to help reduce home heating costs this winter. The project will pay for all costs to woodlot owners to develop 10-year forest management programs, and for marking stands of timber for selective cutting. USDA will also pay 75 percent of the costs of access roads. The project has set a goal of cutting 259,100 cords of fuel wood and will cost about $1.4 million. The program could result in savings of $11.2 million to $14.5 million for New England residents.

NRC proposes major revision of tailings regs

by Jack Kutz

An analysis of present methods of disposing of uranium mill tailings has led the Nuclear Regulatory Commission to propose major regulation changes. At a hearing last month in Albuquerque, critics were split over whether the NRC had over- or under-rated the importance of radiation from tailings in its proposed regulations and environmental impact statement.

Since 90 percent of the radioactivity remains in uranium tailings after processing, the tailings present a greater danger of low-level radiation than any other part of the nuclear cycle. The tailings emit a radioactive gas, Radon-222, which can be transported long distances to expose large populations, according to NRC. Wyoming and New Mexico have the most uranium, but there are also deposits in most of the other Western states.

At the crowded public hearings, Al Topp, program manager of the radiation protection office of the state Environmental Improvement Division, told the NRC panel why such regulations are critical now. "There are 24 million tons of tailings in New Mexico, and the state now generates an additional 24 million tons every three and a third years. Show me one inactive tailings pile presently stabilized, and I'll show you 22 that are not," he said.

The NRC's evaluation of the potential health risks and impacts on land use and air and water quality led to its conclusion that major rule changes are needed. The NRC recommended that tailings areas be located at remote sites and at sites where disruption and dispersion by natural forces are reduced to the maximum extent. The "prime option" for tailings disposal is underground, and at least 3 meters of cover should be placed over the tailings to reduce radon exhalation, according to the proposed regulations.

Steps would be taken to reduce contamination of ground water and air. Companies would have to make financial arrangements to provide for decommissioning mills since the equipment and building itself remain radioactive. Mill operators would be expected to provide funds for long-term site surveillance since the tailings remain dangerous for thousands of years.

The new regulations were hotly contested by mining company representatives. Members of the American Mining Congress accused the NRC of "gross exaggeration of the radioactive risk" and stated that the cost of compliance would substantially increase consumer electric bills.

Rod Tregembo of Kerr-McGee Nuclear Corporation noted it would take a "major strip mining operation" to provide the soil needed for the 3 meter cover. Ten million cubic yards would be necessary at Kerr-McGee's Ambrosia Lake facility alone.

"Uranium tailings cover should not be a major government concern when tailings' risks are compared to other greater risks found acceptable by our society," said Harrison Rhodes of Union Carbide.

Other industry representatives presented cost estimates far in excess of those given in the NRC environmental statement. According to the American Mining Congress, the cost of covering, compacting and revegetating a tailings site would be $65 million rather than $9 million, and the decommission of a uranium mill could run close to $30 million, as opposed to the $1 million figure used by the NRC.

The proposed regulations drew fire from environmentalists and state health and environmental agencies for different reasons.

Ed Bailey of the Texas Department of Health said, "It is unconscionable that health effects on uranium miners are not addressed in the environmental statement." Bailey also deplored the fact that NRC still allows the use of tailings in the contruction of tailings dams.

"This greatly enhances the danger of seepage and dam failure and creates more windblown tailings," he said. "You're basically dealing with sand. How good will compaction be in five years?"

Paul Robinson of Southwest Research and Information Center, a private research group in Albuquerque, also discussed the dam failure at Church Rock, N.M., which was the nation's largest spill. It resulted because the dam was "built and operated differently than it was licensed to be built and operated," according to Robinson. He emphasized that monitoring of sites and advance plans for emergencies are imperative. He also stressed that even 3 meters of cover won't last in desert erosion situations.

The definition of the word "remote" was also questioned by many who testified since the regulations say tailings are to be located at remote sites. "What was remote in the 1950s is not remote today," said Jerry Stewart of the New Mexico EID. He urged strict zoning to prevent encroachment of housing developments on tailings areas.

In defense of the proposed regulations, Hubert J. Miller of the NRC said he personally believes the regulations are as strong as possible and practical.

"The NRC could not write a generic EIS that addressed all possible consequences of all proposed actions. The GEIS is no substitute for site-specific evaluation; it will be very important to have specific evaluations of each individual operation."

The final generic environmental statement will be released in May 1980.

Bulletin Board

LOONEY LIMERICKS
by Zane E. Cology

She left Tinseltown to explain
That nuclear power's on the wane
I don't know why she cares
About nuclear scares
'Cause Hollywood's far from St. Vrain.

ALTERNATIVE POSTER

The Citizens' Energy Project has released its new "Community Self-Reliance" poster — a four-color, 30 x 22 inch watercolor panorama of an appropriate technology community "basking under the sun." The poster illustrates various applications of alternative technologies. Single copies are $3.50, bulk rates are available. The poster is available from CEP, 1110 6th St., N.W., Washington, DC. 20001.

SOLAR LAW

The laws of man apparently apply to the sun and not vice versa. To prove it, the Solar Energy Research Institute has published the **Solar Energy Legal Bibliography**. The book contains abstracts of 160 publications dealing with solar energy development and the law. Topics range from antitrust through wind resources. Copies of the book may be obtained from SERI, 1536 Cole Blvd., Golden, Colo. 80401.

SOLAR EVENTS CALENDAR

The Solar Energy Research Institute has published a Solar Events Calendar which lists conferences, symposia, workshops and other formal meetings in the field of solar energy technology. Events are listed separately by date, location and subject. Current as of September, 1979, the calendar can be obtained from SERI, 1536 Cole Blvd., Goldern, Colo. 80401.

'FREE' HOT WATER

A booklet telling how to construct a solar-powered water heating system has been published by the Lancaster County, Penn., Community Action Program. Materials for the system, which has been installed in several low-income homes, cost about $500. The system is designed to be used in conjunction with a conventional water heater. The booklet is fully illustrated. To order, send $2 to Community Action Program of Lancaster County, Energy Conservation Center, 630 Rockland St., Lancaster, Penn. 17602.

ENVIRONMENTAL POSTER CONTEST

Entries for the Smokey Bear-Woodsey Owl environmental poster contest will be accepted until Jan. 5, 1980. Posters must have an environmental theme and may consist of either a slogan, a picture or both. Categories of competition are: kindergarten to second grade; third to fifth grades; sixth to eighth grades; ninth to twelfth grades; and above 12th grade. Copies of the rules are available from individual U.S. Forest Service offices. The contest is sponsored each year by the National Council of State Garden Clubs in cooperation with the Forest Service and State Forestors.

CITIZEN ACTION MANUALS

The Cooperative Extension Service of the U.S. Department of Agriculture has produced a catalogue listing eight manuals to assist citizen groups in accomplishing their goals. Areas covered include fund raising, community organizing, program planning and evaluation, citizen action training and other areas of interest. Manuals are $5.00 each. The catalogue or the manuals may be ordered from the Service, USDA, University of Massachusetts, Amherst, Mass. 01003.

THERMAL TECHNOLOGY CONFERENCE

The Solar Energy Research Institute in Golden, Colo., is hosting the Fourth Semi-Annual Advanced Solar Thermal Technology Program Conference on Dec. 11-13 in Adams Hotel, Phoenix, Ariz. The conference will present research and developments in advanced solar thermal technology, provide a forum for the exchange of technical ideas and provide an overview of the content and future plans of the federal solar thermal technology program. The program is sponsored by the U.S. Department of Energy. For further information concerning registration and fees, contact SERI, 1536 Cole Blvd., Golden, Colo. 80401.

WYOMING AIR PLAN

The Wyoming Environmental Quality Council will hold a public hearing on its proposed state air quality implementation plan on Thursday, Nov. 29, 1979 at the Natrona County Library from 9 a.m. to 5 p.m. in Casper, Wyo. The meeting is being held to take comments on the plan and to consider proposed changes. The Wyoming Outdoor Council is urging citizens to lobby for two amendments in the proposal. For further information about the amendments, contact WOC at P.O. Box 1184, Cheyenne, Wyo. 82001. For a copy of the implementation plan, contact the EQC, Hathaway Bldg., Cheyenne, Wyoming 82001.

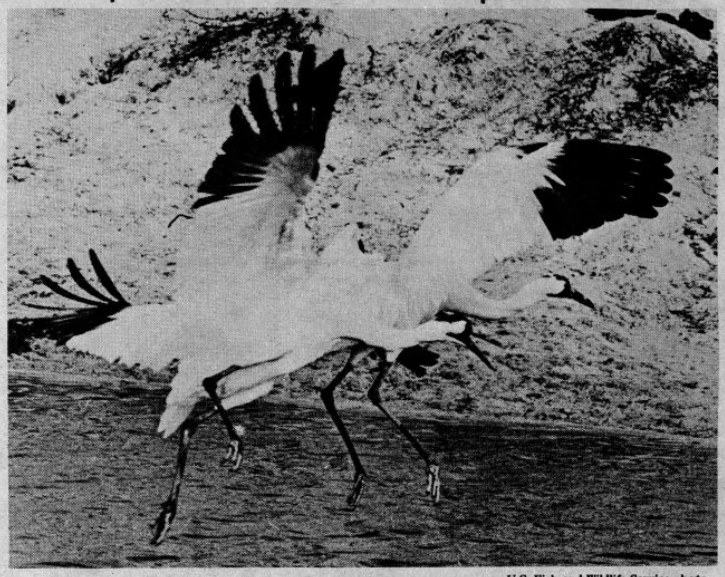
Western Roundup

Eagle swoops and scoops southbound whooper

A large, dark bird, believed by witnesses to be a golden eagle, attacked and killed a young whooping crane near Rangely, Colo. last month. The whooper was one of an experimental flock raised by sandhill cranes as foster parents, and had left its summer home at Grays Lake in Idaho two days before, en route to wintering grounds at Bosque del Apache, New Mexico.

The bird's carcass will be sent to a laboratory in Wisconsin for autopsy, but nine hunters witnessed the incident and there is little question as to the cause of death.

In spite of this setback, the attempt to create a second flock of whooping cranes by the U.S. Fish and Wildlife Service seems to be succeeding. Whoopers from the new flock started appearing at Bosque del Apache in mid-October, and researchers hope about 17 will complete the trip. It is not yet known whether or not the sandhill-raised whoopers will successfully breed.



U.S. Fish and Wildlife Service photo

WHOOPING CRANES, part of an experimental program in Idaho in which sandhill cranes serve as foster parents, fly south every winter to New Mexico. These two made it, but not all of them do.

Fishery fears delay dredge in valley

Plans for a dredge mining operation in Idaho's Bear Valley have been delayed because of a possible threat to salmon and steelhead fisheries seen by the state's Fish and Game Department.

Bear Valley Associates of Houston, Texas, is applying to several state agencies for permits to alter 22,300 feet of Bear Valley Creek and 6,500 feet of Casner Creek in their search for columbium, tantalum, and tritium, all metals used in high-strength alloys.

But Stephen Allred, director of Idaho's Water Resources Department, says it would be impossible to dredge mine the streams without harming the fisheries downstream in the upper Salmon River. A Fish and Game employee said it could conceivably wipe out the steelhead and salmon in the area.

A representative for the mining company protested to the Idaho Land Board, in an application for a mining permit, that it would cost his company $100,000 to conduct studies on the fisheries problem. The Board, however, with the support of Idaho's Governor John Evans, delayed granting of the permit until the threat to the fishery is determined.

Environmentalists oppose land transfer

After hours of debate, representatives of several environmental organizations agreed late in October to oppose two bills now before Congress that are part of the so-called "Sagebrush Rebellion."

The environmentalists attacked an amendment sponsored by Sen. James McClure (R-Idaho) that would limit the U.S. Bureau of Land Management's power to reduce grazing allotments on public lands.

They also opposed a bill sponsored by Sen. Orrin Hatch (R-Utah) that would transfer most federal lands to state ownership. People at the meeting said states could not afford to manage the lands on a multiple use basis. They said that the states would have to either sell much of the land or encourage intensive development to get enough revenue to manage it.

Staff members of many groups met in Denver Oct. 27-28. While all of them agreed on the two resolutions, several could not sign as representatives of their groups, according to Todd Bacon of the Public Lands Institute.

The groups that did sign the two resolutions include American Wilderness Alliance, Citizens for the Survival of the Red Desert, Colorado Open Space Council, Construction Workers for Wilderness, Defenders of Wildlife, Friends of the Earth, Izaak Walton League, Rocky Mountain office of the National Audubon Society, National Public Lands Task Force, Nevada Outdoor Recreation Association, the National Wildlife Federation, New Mexico Wilderness Study Committee, Public Lands Institute, Sierra Club, Utah Wilderness Association, The Wilderness Society, and Friends of the Nevada Wilderness.

Vanderhoof pushes Colo. water projects

Former Colo. Gov. John Vanderhoof has called for a joint effort by both Front Range and Western Slope communities to build water collection facilities in the Colorado mountains. Vanderhoof said that the water is needed to meet growing demand from increasing populations on both sides of the mountains and to supply water to energy concerns.

Vanderhoof's proposal was immediately blasted by the American Wilderness Alliance. Spokeswoman Sally Ranney called the coalition proposal, "An arrogant, open-invitation policy for energy development and growth at the expense of agriculture and a quality environment for which Colorado is nationally known." Ranney called the former governor "a tool of the energy industry."

The Alliance also charged that they were purposely excluded from a water conference held in Denver to discuss water development options.

Oregon litter law cleans up in study

A recent university study of the effect of litter laws in two northwestern states concluded that Oregon is way ahead in stopping beverage-type litter.

The two neighboring states enacted legislation in 1972 designed to reduce the litter found beside their highways. Oregon's bottle bill required a minimum 5 cent deposit on all beer and soft drink containers, except for standardized containers which required only a 2 cent deposit. Washington's Model Litter Control Act called for litter control activities such as education programs, cleanup activities, and the carrying of litterbags in all motor vehicles. Five breweries in Washington also instituted "buy back" programs for their brands of beer.

The Institute for Environmental Studies at the University of Washington in Seattle found that the states were even in reducing non-beverage litter. But beverage litter — pop-top cans, bottles, and plastic cartons — was 74 percent less by item count and 70 percent less by volume in Oregon.

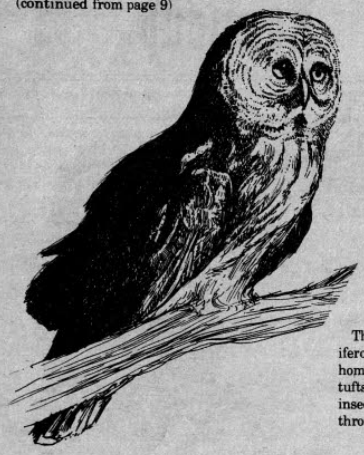
About a fourth of the beverage litter items found in Oregon were no-deposit containers brought in from out of state.

Bills to stop BLM 'harassment' moved

Two bills that would alter the Federal Land Policy and Management Act of 1976 and the Public Rangelands Improvement Act of 1978 have been introduced to the Senate by Sen. Pete Dominici (R-N.M.) The first bill would allow ranchers whose range permits have been cancelled by the Bureau of Land Management to continue using rangelands until all appeals have been exhausted. The second would transfer range improvement programs from the BLM to the Department of Agriculture.

According to Sen. Orrin Hatch (R-Utah), co-sponsor of the bills, "harassment" of ranchers by the BLM will be substantially decreased by the two bills. "These bills are a manifestation of the same spirit that started the Sagebrush Rebellion," according to Hatch.

(continued from page 9)



Flammulated owl

The flammulated owl is rarely seen, hiding in coniferous mountain forests, nesting in old woodpecker homes or tree cavities. A nocturnal owl with short ear tufts, the only small owl with dark eyes, it feasts on insects, with an occasional small mammal or bird thrown in.

Burrowing owl

This long-legged owl is essentially a ground-dwelling bird and usually can be seen in or near a prairie dog town, perched atop a mound of dirt or another low vantage point. It lays its eggs in the abandoned burrow of a prairie dog, fox or badger. In winter it migrates southward and is found as far away as Chile or Argentina.

Great gray owl

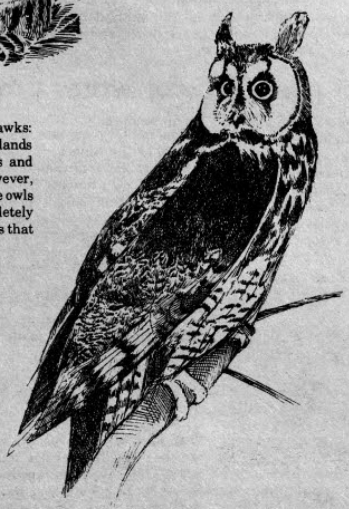
A great gray owl, a bird with blue-gray plumage and a huge, circular head, looms in the seclusion of the deep woods. Nesting or mating, it makes a rumbling or pumping noise, varying in volume. It nests in abandoned hawk and raven nests, occasionally adding fresh green sprigs or pine needles for lining.

Pygmy owl

The tiny pygmy owls are picky eaters and will carefully defur or defeather their meals before eating. Their varied diet includes moles, bats, young rabbits, small snakes, lizards, toads and insects. The pygmy will sit on top of conifers or dead trees, occasionally twitching or flicking its tail and wings, looking for prey in the daylight hours. Pygmy voices can be mimicked by humans; they have a low-pitched trill, a wood-knocking sound and a few odd whistlings and squeaks.

Short-eared owl

Short-eared owls share a niche with marsh hawks: Both birds cruise grasslands, meadows and wetlands hunting for small mammals as well as birds and insects. Ground-nesting short-eared owls, however, lack the marsh hawk's white rump patch. These owls will remain in an area until the grass is completely covered with snow; then they migrate in groups that can number as many as 20 birds.



Long-eared owl

These relatively uncommon owls can be found in dense groves of conifers in mountainous regions or in tree belts along prairie streams. They seem to prefer dense patches of trees where they can conceal themselves and their nests. The long-eared owl roosts in a peculiarly upright position near the trunk of a tree and looks more like a branch stub than a bird. It has a number of whistles, whines, shrieks and cat-like meows.

Screech owl

Screech owls are fiercely protective of their nests and will attack intruders with determination. Nocturnal owls with yellow eyes and conspicuous ear tufts, they frequent wooded areas along stream bottoms and cropland below 7000 feet. The screech owl's call is not really a screech but a tremulous wail that drops in pitch. They apparently don't migrate and may remain in the same area for years.

SERVICE DIRECTORY

CLASSIFIEDS

FOR SALE: Two adjacent 10 acre lots, Driggs, Idaho. Sensational view of the Tetons. $1,500-acre. Easy terms. 307-332-2871 or write Griffin, 965 Cliff, Lander, Wyo., 82520.

RAT RACE got you? Home repairs contracting franchise. We provide complete O.J.T., tools, supplies, work backlog: you supply basic work skills and small investment. The Service Company is a business founded on the idea that one's job should not interfere with one's life; that economic servitude is incompatible with financial security; that one's work time can be organized and managed in such a way as to provide lotsa non-work time. For independent self-starters only. Details, send $1.00. The Service Company, 7612 Brockway, Boulder, Colo. 80303.

WANTED: Experienced journalist to join staff at High Country News, a bi-weekly paper based in Lander, Wyoming, covering natural resources issues in the Rocky Mountains and Great Plains. Full-time position involves reporting, editing, and some travel. Salary $500 a month plus full health insurance. Deadline for applications: Nov. 30. Position open soon. Send resume and writing samples to HCN, Box K, Lander, Wyoming 82520.

CUSTOM SOLAR DATA (as low as $5.60) direct-diffuse, hour-by hour, any day, any weather. Write Solar Clime Designs, Box 9955, Stanford, Ca. 94305

WANTED. Internship information for Environmental Resource Management majors at Penn State. Paid positions preferable but I'm also interested in unpaid positions. Contact Dr. John R. Daugherty, 201 Ferguson Building, University Park, PA, 16802, 814-865-6942.

WANTED: To Save You Money — Send in your renewal check for $12 by Nov. 30th and beat the rate raise (up to $15), which is effective Dec. 1st. Please mail a copy of your address label with your check to: HCN, Box K, Lander WY 82520.

A CACHE OF CHRISTMAS GIFT IDEAS

The Wilderness Books of Harvey Broome

Photo by Hugh F. Hoss, 1942

HARVEY BROOME recorded the highlights of backpacking excursions across the country.

Harvey Broome: Earth Man, by Harvey Broome, The Greenbrier Press, Knoxville, Tenn., 1970. $4.00, cloth, 127 pages.

Faces of the Wilderness, by Harvey Broome, Mountain Press Publishing Company, Missoula, Mont., 1972. $7.95, cloth, 271 pages.

Out Under the Sky of the Great Smokies, by Harvey Broome, The Greenbrier Press, Knoxville, Tenn., 1975. $6.96, paper, 285 pages.

Reviews by Peter Wild

Harvey Broome was a gentle Knoxville lawyer, a hiker who developed into an early wilderness advocate. His three books appeared posthumously from two small quality presses. Admired over the years by a coterie of back-country lovers, the volumes deserve a wider audience, for they offer unusual rewards.

A founder of The Wilderness Society in 1935, its president from 1957 until his death in 1968, Broome recorded the highlights of the Society's gatherings and backpacking excursions across the country.

Drawn from his journals, the books present offstage, often humorous, glimpses of the wilderness movement's patriarchs. Here we find activist Robert Marshall fussing like any ordinary camper over his sagging tent. On a more serious note, Broome catches explorer and naturalist Olaus Murie lost at sunset and doggedly leading his group of hikers down a cliff. The insights are priceless, available perhaps nowhere else.

There is also much tenderness, sometimes remorse. The Broomes — Harvey a part-time woodworker, his wife Anne, a weaver — stayed close to each other and the earth. At times the closeness brought pain: "Our retreat at Cobbles Hollow, to which we have resorted for a decade — a log cabin with open fireplace, kerosene lamps, our own spring, and our own private view down a ravine to Mount LeConte — is now surveyed for a parkway — and probably obliteration. Anne still makes her monthly caretaker trips. We both savored its surroundings for a night in the sharpness and sweet fragrance of late October. But our hearts were not in it. The cloud of the motor age has thrown its shadow equally over our national preserves and our own sequestered valley." — **Harvey Broome: Earth Man.**

Some of the writing is discursive, too loosely structured, though for the most part it makes relaxed, enjoyable reading. Added to that, Broome had outstanding talents — talents he himself probably didn't recognize — that set him apart, such as a painter's eye:

"Fog had frozen onto trees and limbs and branches in slender needles of white. The air was sharply cold, biting at face and neck and hands. There was whiteness everywhere, relieved only by the darkened stream channels at the bottom of each hollow....Across this world of white we saw black shapes moving — wild turkeys at home in their wild."

Out Under the Sky

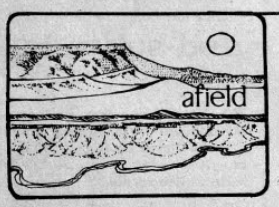
Broome also had the novelist's gift for creating the intense vignette. In the cliff incident mentioned earlier, as darkness closes in Olaus Murie stumbles across a narrow bighorn sheep trail. It looks risky, but the hikers have no alternative. As they creep down, nerves and muscles taut, they knock boulders into the gloom below:

"We would stagger, and reach out to the cliffs to steady ourselves and rip our hands on knife-edged surfaces. It was getting late, and the cliffs stretched far ahead of us. Once I glanced back. The Tetons stood out against the fiery glare of the setting sun. I called to the others, and their nerves were as edged as those sand-honed rocks: "What does he want?" they said sharply."

Faces of the Wilderness.

Harvey Broome: Earth Man is a collection of miscellaneous essays and anecdotes. **Out Under the Sky** recreates intimate adventures in the Great Smokies during the days when the hiker encountered more native woodsmen than fellow backpackers. **Faces of the Wilderness** recounts trips to Georgia's Okefenokee Swamp and Wyoming's Cloud Peaks, to Mt. McKinley in Alaska and Arizona's little-known Blue Range. It is here that Broome refines his talents, expertly writing straight-forward prose that builds toward such esthetic surprises as the Tetons stark against the sunset.

Local libraries may not have these books, so a note on addresses is in order: The Greenbrier Press, 5115 Mountain Crest Drive, Knoxville, Tenn. 37918: Mountain Press Publishing Co., Box 2399, Missoula, Mont. 59806.



by Hannah Hinchman

LANDER, Wyo. Unsettled weather — transition. Hallowe'en clouds: the high jumbled sheets and whorls so characteristic of late autumn skies. Winter's stately approach. A series of frosts in the clear days between fronts. After a recent frost the morning was filled with the sounds of ash and cottonwood leaves letting go, raining straight down in the still air.

There have been a few introductory snows. The high Wind River peaks are white for the winter, though each time the clouds lift, the snowline has descended a little further.

Rough-legged hawks are back in the valley: the red-tailed hawks have gone to spend the winter in the southern half of the United States. You're likely to see rough-legs flying along near the ground or perched on fence posts — they are tundra birds, breeding in the boggy country of northern Canada and moving to the plains of the United States for the winter. Rough-legs eat road-kills, something red-tailed hawks rarely do.

John Emmerich, big game biologist for the Wyoming Game and Fish Commission, says that elk are coming down from the high country now, staying ahead of the deep snow, generally following the drainages or easy routes over the rugged terrain. Hunters waiting for moose can't expect such an orderly movement. Since moose aren't herd animals, they move when they please. Solitary bulls, especially, will stay up in the heavy timber until well into the winter, eating willows that stick out of the snow.

Dropping into the Popo Agie Valley from the north on a cold evening: the chimneys of Lander send up plumes of wood smoke and the air of the town is full of that wintry smell.