

PLEASE CHECK YOUR ADDRESS LABEL: The numbers after your name stand for the month and year your subscription expires. If it's nearly due, how about sending in \$12 today?

XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
NUM. 2008 11-78
XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXX

Coal's long-term effects

Power emissions may reduce ag productivity

by Marjane Ambler

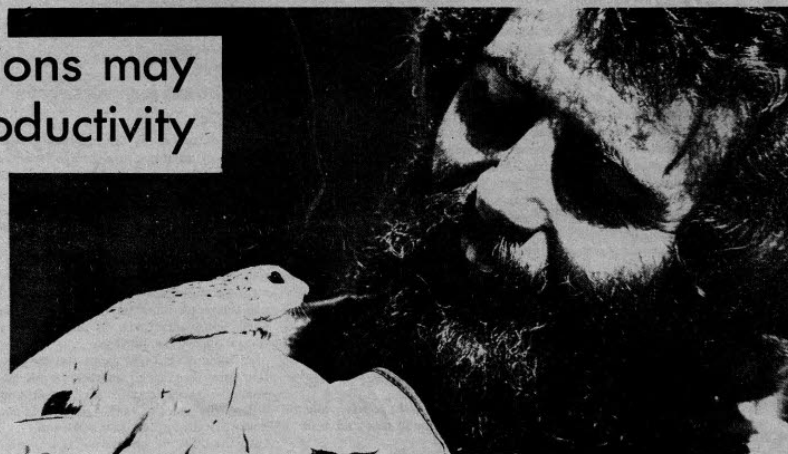
The photograph shows cattle grazing in the foreground, noses deep in Montana grasses. In the background, two towers rise from the Colstrip coal-fired power plant. The picture conveys a feeling of wholeness and compatibility, but it may be misleading.

Preliminary indications from studies under way at Colstrip are that, beneath the peaceful surface, subtle changes may be occurring as vegetation absorbs sulfur dioxide from coal-fired power plants. If these indications are confirmed, they could have dramatic ramifications for the long-term productivity of agricultural cropland and grazing land throughout the Northern Plains.

Furthermore, federal secondary clean air standards, which are theoretically designed to protect agriculture, may be too permissive to do so.

The Colstrip studies are being conducted by U.S. Environmental Protection Agency scientists and researchers from three state universities. The research is the first attempt to determine in the field the effects on vegetation of low levels of sulfur dioxide over the long term.

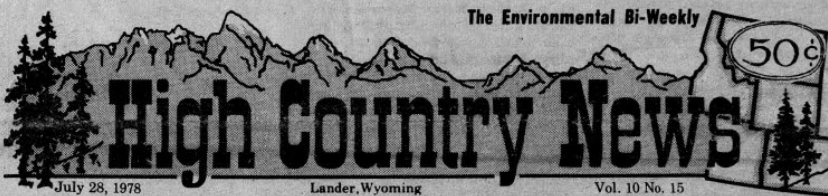
Sulfur dioxide, the principal chemical emission from coal-fired power plants, has long been recognized as dangerous in high concentrations. Damage from acute exposures is obvious. After temperature inversions or unusual wind conditions forced plumes from coal-fired power plants in the East to fumigate surrounding farmland, soybeans and other crops for miles around were discolored, had lesions on leaves and sometimes lost foliage. Many plants have



A CLOSE LOOK. This prairie vole is one of the rodents live-trapped near Colstrip, Mont., to study changes that may be caused by exposure to sulfur dioxide. Tom Gullett (pictured above) and other scientists are measuring

the size of small mammals, analyzing blood samples, monitoring breeding and watching for changes in internal organs.

Photo courtesy of EPA



been totally defoliated in a single season.

According to Dr. Clancy Gordon of the University of Montana, plant pathologists and air pollution specialists don't have much difficulty in such cases in saying sulfur dioxide caused the damage. However,

the effects of continuous low-level exposures are different. Gordon says these can occur slowly over several decades. This damage "is something that people (including trained air pollution specialists) can let go unnoticed and adapt to without even

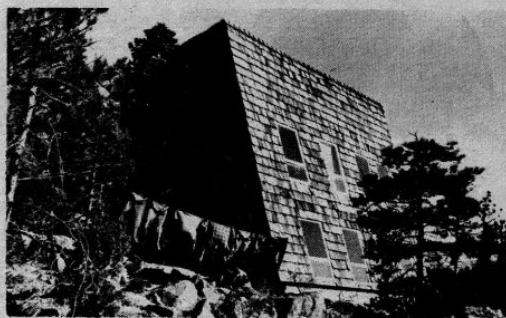
realizing the ecosystem has been impacted and drastically changed."

One effect of long-term release of sulfur dioxide is acid rain. Acid rain is formed

(continued on page 6)

Passive heating and cooling, a solar Cinderella?

by Joan Nice



PASSIVE SOLAR HOME HEATING is centuries old but has just started to gain attention in the solar boom of the 1970s. This home in the mountains near Gold Hill, Colo., uses south-facing windows to collect sunlight.

To dry clothes with solar power you can place on your roof a collector that warms air and pumps it into a metal box, which twirls the clothes with electricity and blows hot air over them.

Or you can hang the clothes on the clothesline.

A similar choice is involved in heating a house with solar energy. You can pump the sun into your house through an indirect system of collectors and fans or pumps. Or you can let the sun heat the air in your house directly, through south-facing windows.

So far most of the approximately 10,000 people in the U.S. with solar homes have opted for the collectors, fans and pumps—"active systems." Only a few hundred have chosen to build "passive" solar homes—which use natural forces, not mechanical devices that consume energy.

The dominance of active systems also can be seen in the Department of Energy's

Goin' Fishing

The staff of High Country News is heading for the hills, so the newspaper will not be published August 11.

The paper will resume its normal publishing schedule on August 25 with Vol. 10 Number 16.

solar energy research and development budget. In fiscal 1978, the agency has about \$2 million budgeted for passive solar energy out of a total solar budget of over \$300 million.

At the state level, the emphasis also has been on active systems. Of 30 states that offer tax credits for solar equipment, only

(continued on page 4)

2-High Country News - July 28, 1978



HCN
Letters

CRACKPOT COLUMNIST

Sir or Ms. or Madam:

Bavarskis's stick (or was it a stone?) in HCN for June 30 likely will break no bones, but don't ever believe that words from what appears at first reading to be a specimen of that peculiar 20th century species (or is it a mutation?) known as Crackpottus Adolescents can't hurt.



by Myra Connell

Winter table fare sometimes became monotonous at the Wyoming homestead during the first quarter of the century. Our only "fresh" foods were home-grown root vegetables and cabbage. These were stored in the underground root cellar all winter and by spring had lost most of their appeal.

So it was with joy and excitement that we kids greeted the appearance of the slender blue-green leaves of the sego lilies (*Calochortus nuttallii*, also called



Mariposa lily, star tulip, butterfly tulip) that grew abundantly on the hills. At every opportunity during the spring months we were busy with pickaxes, grubbing hoes and shovels, enthusiastically digging to get the sweet bulbs, which we gobbled up raw on the spot.

We operated as a team — the older, stronger kids wielding the heavy tools while the little tots scouted the territory to locate the plants.

Dad often cautioned us to refill the holes we dug for the sake of the pasture land. Also he frequently warned us to take care we didn't get "poison segos" or death camas. I wondered how stupid he thought we were. I thought no one, even a small person, could possibly mistake one for the other.

Actually we were more likely to confuse the segos with "blue joint" grass. The single, occasionally twin, sego leaves are

Hurt the conservation-environmental movement, that is.

With all the enemies without that we face, must we insist on aiming our blows at friends within?

Later I noted the back page blurb about your new staff columnist and thought maybe I'd discovered the secret of his outrageous attack on an organization that, with its predecessor National Parks Association, has been fighting the lonely battles since long before your columnist was even a gleam in a to-be parental eye. He's only lived in Wyoming five years. That means he hasn't been there long enough to get over the marvelous change from the places he came from (Chicago, New York City, Detroit). I was that way once myself.

In your blurb you mentioned "standard environmental opinion fare." F'gossake, wha's 'at??? I think I read about as many

smooth and slippery to the touch, while the grass, though similar in size and color, is sharp and rough.

Death camas leaves, on the other hand, are bright dark green and grow in a symmetrical rosette of many leaves. Besides, the rank odor of death camas always gave me advance warning.

However, the Craigheads' and Davis' Field Guide to Rocky Mountain Wild Flowers states, "it is difficult to distinguish death camas from onions, sego lilies...when these edible plants are only a few inches high." The same source says that the Indians occasionally mistook death camas bulbs for the true camas, which formed a staple food for the Northwest tribes and for the Lewis and Clark Expedition.

There are nine species of sego lily in the Rocky Mountains. The white blossoms have a peculiar purple marking at the base of each of the three petals. The generic name, *Calochortus*, derives from the Greek "kalo," meaning beautiful, and "chortus," meaning grass. The name sego is of Shoshonean origin.

Indians used the nutritious bulbs. Mormon immigrants to Utah also used segos extensively, especially during their first year in the West, when starvation was a real threat. Bears and rodents eat them, too.

I suppose my parents inherited knowledge of the plant's edibility from our Mormon ancestors, and passed it on to us. We kids were unaware of the sego's illustrious history. We only knew that it tasted good.



journals, pamphlets, leaflets, folders — what have you — from about as many sources as anyone other than one who's tied to a major organization desk, and I've yet to see any so-called standardization. I've read some crap — including the initial "Sticks and Stones" thing — but it sure-as-hell is widely diversified, a long, long way from "standard."

William Voigt, Jr.
Blackshear, Ga.

GLADDENS ONLY POLLUTERS

Dear HCN,

I am disturbed by the increasing willingness of environmental groups to criticize each other in public. A depressing example appeared in the June 30 issue, where Justus Bavarskis blasted the National Parks and Conservation Assn. for its stand on the illegal immigrant question.

A few years ago, the anti-war movement was split into warring factions by a too-vigorous insistence on ideological purity, and the same thing may be happening to environmentalism now. Of course this is something we can ill afford.

Perhaps it's time for a national convention representing all interested environmental organizations. At such a meeting differences could be worked out, goals agreed upon and priorities established.

Meanwhile, we should settle our disputes in private; this public bickering gladdens only the polluters and the plunderers, and leads the people to question our motives and credibility.

Lonaie Renner
Grand Junction, Colo.

ANIMALS HAVE RIGHTS

Dear HCN,

In your July 14, 1978, edition you had an article about water rights, titled "High court says fish, wildlife are not part of national forest." I do not think that is fair. I would like to know whom to write to, and let them hear a few words from me! I love

animals and think they should have a few rights, too.

They would probably throw a fit if they could talk!!!

Elke Geiger (Age 11)
Huntington Beach, Calif.

Editors' note: Anyone wishing to protest the decision may write to:

The Hon. Warren Burger
Chief Justice of the United States
U.S. Supreme Court
Washington, D.C. 20543

Rep. Thomas S. Foley
Committee on Agriculture
Room 1301, Longworth House Office Bldg.
Washington, D.C. 20515

Sen. Herman E. Talmadge
Committee on Agriculture, Nutrition and Forestry
Room 332, Russell Bldg.
Washington, D.C. 20510

HCN — a good source of good

Information.

Need information about the developing Rocky Mountain West and Northern Great Plains? Subscribe to High Country News. The Rand Corporation does.

In a recent Rand report on Northern Great Plains coal development, 10% of the bibliography citations referred to HCN articles.

Subscribe today. HCN is a good source of information. Subscriptions are \$12 per year for twenty-five issues.

Enclosed is \$12; send HCN to:

name _____
address _____
city _____
state _____ zip _____

Send to: HCN, Box K, Lander, Wyo. 82520.
Still not convinced? Ask for a sample copy.

HCN T-SHIRTS
\$5.00 Silk-screened by hand to give a quality impression. T-shirts are 100% cotton. Order your exact size; shirts are a little large to allow for shrinkage. (Eagle motif is from an original drawing by Carol Snow.) When you buy an HCN T-shirt, you help out the paper financially and you'll help spread the word around too.

Frontal image is black. Shirt colors available white or light blue.

• PLEASE SEND ME SOME HCN T-SHIRTS •

Youth		Adult	
Quantity	Size	Quantity	Size
_____	small (24-28)	_____	small (34-36)
_____	medium (28-30)	_____	medium (36-40)
_____	large (32-34)	_____	large (42-44)
		_____	x-large (46-48)

(Shirts are Russell Athletic Shirts)

Shirt Colors (select blue or white). My first choice is _____. If that color is not available, hold my order until more shirts are in stock. _____

If the above color is not in stock, fill my order with the other color. _____

ENCLOSED is \$5.00 per shirt (including postage).
Wyo. residents add 3% sales tax.

Name: _____
Address: _____
City: _____ State: _____ Zip: _____

Send orders to:
HCN, box K,
Lander, Wyo.
82520

July 28, 1978 - High Country News-3

Jackson battles for public welfare; feds should fight for scenery

We worried about the Jackson Hole Scenic Area legislation when we heard about it last fall. Then, as some readers may recall from a December editorial, we feared that the federal government buying scenic easements from Jackson landowners might set a dangerous precedent of compensation to any landowners affected by land use planning. Such a precedent could bankrupt treasuries and squash planning efforts in other parts of the country.

We feared the bill's local orientation might bring windfall riches to landowners and, in some cases, little good to the public.

We also were skeptical about the price tag on the legislation — a maximum of \$200 million. We wondered if a sum that large couldn't be better spent elsewhere, perhaps to buy some land outright, rather than just a view, beautiful as it is.

Two things have changed — and so has our position on this bill. First, the authorization for Jackson Hole that passed the

House early this month as a part of the omnibus parks bill is \$5.25 million for a first year trial. The bill would set up a commission to design a scenic area plan within one year and would allow \$5 million for emergency acquisitions. We think the House should be commended for this conservative, step-at-a-time approach to the complex problem of deciding which lands in the area are of greatest public interest.

The second thing that has changed is our understanding of the situation in Jackson Hole. In December we asked, "Couldn't the residents of the area assume their own burdens of land use controls, without federal help?" We have since found out that they have done their best.

Probably because of the tremendous growth pressures they face, Teton County residents have been among the most aggressive in the state about seeking controls. They set up a planning commission in 1968, adopted a master plan in 1970, and adopted a subdivision ordinance in 1973 —

all before such actions were required by the state. Subsequently, they have adopted a land development resolution and an outdoor advertising resolution. When two large subdivisions threatened, a group called Friends of Jackson Hole sued the county commissioners and won, arguing that the developments conflicted with goals in the master plan. About three years ago, work began in the valley on an even stronger plan that went into effect the first of this year. The county spent over \$100,000 preparing the plan.

No compensation was offered to landowners affected by these local land planning efforts. So, the bill does not set the dangerous precedent we feared. It is not paying landowners for land use actions to protect public health, safety and welfare.

The bill seeks federal money to compensate landowners for land use regulations going beyond that — to protect the public's visual and recreational resource. This precedent has already been set — through

scenic easement programs elsewhere.

Teton County has done an admirable job. It has spent more money and more time on local land use planning than any other county in the state.

Yet growth and the subdivision of land in the county continues at an unmanageable rate, despite these efforts. The county's population has doubled since 1972. The amount of land subdivided from 1973 to 1977 — 1,800 acres out of about 75,000 acres of private land in the county — was almost as much as the total amount subdivided from 1911 to 1972. Just since the first of this year, about 650 acres more have been approved for subdivision and preliminary plats have been filed on 850 acres, which are likely to be approved, according to Teton County Assistant Planner Story Clark.

We feel local citizens are justified in asking the federal government for money because with nearly four million tourists a year wandering through Jackson Hole, the area is clearly of national interest.

Local citizens began the battle years ago. We owe them support for the scenic area bill, a bill which will give them the federal support to complete the job. We urge that you write your senators and ask them to give prompt attention to the Jackson Hole bill. In the form passed by the House, the bill represents an innovative and sensible approach to protecting an area in danger of being loved to death by the American public. — JN

'It's a Cherokee fish — and I am its brother'

by Jimmie Durham

(Ed. Note: The following statement was presented June 20 to the U.S. House of Representatives' Merchant Marine and Fisheries Committee hearings on the reauthorization of the Endangered Species Act. Durham is director of the International Indian Treaty Council.)

Tsi Yunwiyah. I am a Cherokee. In the language of my people, Ani Yunwiyah, or Cherokee as we are called, there is a word for land: Eloheh. This same word also means history, culture and religion. We cannot separate our place on the earth from our lives on the earth nor from our vision and our meaning as a people. We are taught from childhood that the animals and even the trees and plants are our brothers and sisters.

So, when we speak of land, we are not speaking of property, territory or even a piece of ground upon which our houses sit and our crops are grown. We are speaking of something truly sacred.

The Cherokee people lived for thousands of years in what is now Tennessee, Georgia and Carolina. President Jackson illegally drove us out of that land, from Echota, the center of our world. There is no Cherokee alive who does not remember that Trail of Tears, who does not remember and revere that sacred land and Echota.

Today the Tennessee Valley Authority plans to flood the sacred valley that held our two principal cities, Echota and Tenasi, after which the state is named. The Tellico Project would destroy an area of great religious importance, many settlement sites, cemeteries, rich farmlands, forests and the river itself. This is an unneeded dam which can, at the whimsy of TVA, wipe out thousands of years of history of a great and currently oppressed people. To do so will be an insult not only to the Cherokee but to all the people in the U.S. and to all humanity.

The flooding of our old valley has been stopped temporarily because of a little fish that lives there and nowhere else. I have seen Griffin Bell, *The New York Times* and a national television network make fun of this little fish and I would like to ask why it is considered so humorously insignificant. Because it is little or because it is a fish?

It is this incredible arrogance towards other life that has caused such destruction



Guest editorials do not necessarily reflect the opinions of the staff of High Country News.

in this country. Who is Griffin Bell or the U.S. government to play God and judge the life or death of an entire species of fellow-being which was put here by the same power that put us here? Who has the right to destroy a species of life, and what can assuming that right mean?

Let me be emotional: to me, that fish is not just an abstract "endangered species," although it is that. It is a Cherokee fish and I am its brother. Somehow, it has acted to save my holy land, so I have a strong gratitude for that fish.

The Cherokee people in Tennessee, Ok-

lahoma, the Carolinas, Georgia and wherever we might be, are of one voice and of one mind that this dam, this degradation, be stopped. We want our universe, our Eloheh with all of its fish and all of its life to continue. And, we are sure that this cannot be against the interests and wishes of the American people.



by Justus Bavarskis

Early in July, the Supreme Court ruled that fish and wildlife are not legal parts of a national forest. The Organic Administration Act of 1897 intended that, "National forests were not to be reserved for aesthetic, environmental, recreational or wildlife preservation purposes," said Justice William Rehnquist, who wrote the majority opinion. Only timber production justifies the existence of a national forest, said the court.

That decision cleared the way for lower courts to settle a number of cases they had held in abeyance while awaiting guidance. Here are some of the most significant of those lower court decisions:

People may not enter a national forest for any purpose other than to harvest timber, says the U.S. Circuit Court of Appeals in Utah. "Congress mandated that the purpose of a national forest was timber production, and the introduction of any species other than harvestable timber and timber harvesters into a national forest flies contrary to congressional intent," wrote Judge Everett Hapworth for the 7-2 majority.

The case, U.S. Forest Service vs. Calhoun, began in 1973 when a ranger charged Rory Calhoun with disturbing the peace by whistling "Blue Moon of Kentucky" as he hiked through the Uinta National Forest. The ranger, Clyde Doakes, said he had been trying for two weeks to get the tune out of his head and hadn't thought of it for half-an-hour when Calhoun came whistling down the trail.

"I disagree," Justice Egbert Bede wrote for the minority. "My dog once ran away in a national forest but he came back when I whistled." Bede hinted that hikers could

circumvent the ruling by carrying professional-size chain saws and hard hats and "whacking down a few trees every now and again," as they walked through a national forest.

Jane Harker, justice of the peace in Hudson, Wyo., cleared truck driver (Fast) Eddie Fauntleroy of any wrongdoing when his 18-wheeler plowed through a class of third-graders on a school crossing as Fauntleroy dozed at the wheel. "Highways are for vehicles, not children," Harker said. "If Congress had wanted children to cross busy highways, it would have said so when it established the Highway Trust Fund."

George Pinch, Hudson's only policeman, had charged Fauntleroy with speeding, reckless driving and manslaughter, then had given him a dime to call his lawyer. Fauntleroy instead called the Union Bar and ordered a pizza. Harker reprimanded Pinch for harassing Fauntleroy "while he was engaged in the proper pursuit of his livelihood," and ordered the officer to pay for the pizza.

In Colorado, the state Court of Divine Intervention ruled unanimously that, if Denver's residents don't like the city's brown cloud, "they can always leave." Shouting to make himself heard above the coughing in the crowded courtroom, Judge Hank Ford said Denver's founding fathers had every intention of making the city a center of commerce and industry when they incorporated it. "Thus, while the city has a legal obligation to further the purposes for which it was founded, the residents have no legal obligation to stay there," Ford said. "If they accept the benefits that the pursuit of commerce and industry brings, they must also accept the discomforts."

Arnold Culpepper had sued the city and state, claiming that their failure to reduce air pollution had caused irreparable damage to his health. "Plaintiff appears to be a remarkably well-preserved specimen of a man in his mid-60s," Ford said. "I'm 23," Culpepper replied.

High Country News

Published biweekly at 331 Main, Lander, Wyo. 82520. Telephone 307-332-4577. Second class postage paid at Lander.

Publisher: Thomas A. Bell
Managing Editor: Joan Niece
Associate Editor: Marjane Ambler
Office Manager: Jammy McDonald
Advertising: August Daitler
Contributing Editors: Dan Whipple, Peter Wild, Philip White, Hannah Hinchman, Sarah Doll, Jacques Shaw

Correspondent: Philip White
Staff Artist: Hannah Hinchman
Editorial Assistant: Sarah Doll
Circulation Manager: Jacques Shaw

Subscription rate \$12.00
 Single copy rate 50 cents

Copyright High Country News 1978. Call for permission to reprint any articles or illustrations. Contributions (manuscripts, photos, art work) will be welcomed with the understanding that the editors cannot be held responsible for loss or damage. Articles and letters will be published and edited at the discretion of the editors. To get a sample copy sent to a friend, send us his or her address.

Write Box K, Lander, Wyoming 82520.

4-High Country News - July 28, 1978

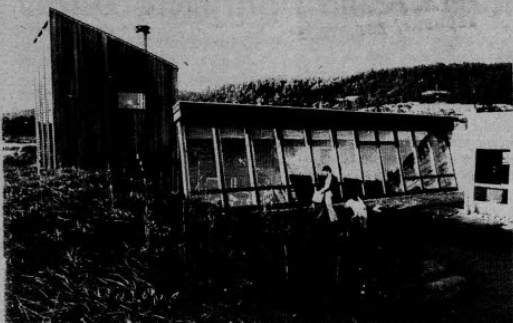
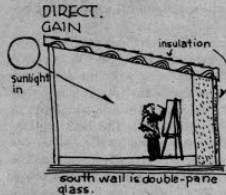


Photo courtesy of David Wright

ARCHITECT David Wright's second passive solar house at the Sea Ranch in California.

Passive solar...



(continued from page 1)

California and New Mexico do so for passive solar systems.

Nevertheless, recent research indicates that passive systems are cheaper and more effective than active systems.

"It's hard for the country to shift gears," says David Wright, a California architect who lives in a passive solar house and who has built over 25 others. But he thinks the country is shifting. Wright's passive solar architectural firm is booming. "We're booked up 1½ years ahead," he says.

The American Institute of Architects is among the institutions pushing passive solar energy. "It's the commonsensical way to go," says Joe Demkin, AIA's energy program director. In May, AIA President Elmer E. Botsai wrote to President Carter, suggesting that part of the \$100 million addition to the solar energy budget go toward expanding passive energy programs.

A DOE official predicts the agency is about to follow the AIA's advice. "We have been assured that the passive solar energy program will expand significantly next year," says Mike Maybaum, who heads DOE's solar research and development planning program. "Little attention has been paid to passive in the past because it wasn't understood. Now it looks

Douglas Balcomb at Los Alamos Scientific Laboratory, with funds from DOE. Experiments begun in 1976 in 14 test rooms at Los Alamos and 10 buildings nearby have led Balcomb to conclude that well-designed passive systems can perform as well as or better than active systems of the same glass area.

Based on Balcomb's data, it is possible to predict the cost of a Btu produced by a passive solar system in areas where good weather data is available, says Larry Palmiter, a solar engineer at the National Center for Appropriate Technology (NCAT) in Butte, Mont. Solar weather data is a very significant problem, however, Palmiter says, because it is only available from 26 stations around the country and "we don't know how good it is."

Test rooms at NCAT, modeled after those at Los Alamos, indicate that properly designed passive systems also work well in a severe climate, Palmiter says. NCAT hopes eventually to come up with simple rules to help people modify standard passive designs according to local climate.

Some limited, and therefore inconclusive, testing has been done at the Farallones Rural Center in Occidental, Calif. During a six-day period of both cloudy and sunny weather in March, three passive systems operated at an average 41 percent efficiency and an active system at 31 percent efficiency, according to an article in *Solar Age*.

A properly designed passive system can deliver more heat from available sunlight than an active system for two reasons:

— Passive systems don't have the heat transfer losses associated with active systems, which may move heat from collectors on the roof, to the room and to a basement storage area. In a passive system, heat is

from a point source, but from walls, floors and other parts of the building.

"Passive systems are infinitely complex. They defy computer analysis," Wright says. "You move one brick and the system responds differently."

Passive systems' economic benefits are somewhat easier to measure, but also are controversial. While an active system may add \$5,000 to \$25,000 to the cost of a house, Wright says he can build a passive house for about the same cost as a well-insulated conventional house.

Lof disagrees. "Mass (the concrete, adobe, masonry, or water used to store heat in passive homes) means money," he says. "I think passive systems mean a substantial increase in the cost of a home."

"An active solar heating setup is doing very well if it can supply 100,000 Btu per square foot of collector per year," says Bruce Anderson in an interview in the July-August issue of *Mother Earth News*. "That's roughly the equivalent of a gallon of fuel oil... And a gallon of fuel oil costs what? Maybe 50 cents or so? O.K., 50 cents per year is what a square foot of solar collector can save you in today's market, at today's fuel oil prices."

Anderson, an architect who founded *Solar Age* magazine, says active systems sell for "anywhere from \$30 to \$50" per installed square foot of collector space. "It's hard to justify spending \$30 for something that's only going to pay itself back at the rate of 50 cents a year," he says, unless the product is subsidized.

On the other hand, "Energy conservation and passive solar heating—at least in my mind—don't need any kind of subsidies from anybody to be cost-effective," Anderson says. "It doesn't cost anything extra to build a house facing south instead of west and to give it a lot of windows on the sunny side."

Palmiter says that cost-effectiveness depends upon the alternatives. "The price of natural gas is so cheap that no type of solar is cost-effective," he says. "That's a dismal conclusion, because more than 70 percent of homes in the U.S. are heated by natural gas."

But, on the basis of how much energy each system uses—to manufacture it, maintain it, and back it up on cold, cloudy days—passive systems in Santa Fe, N.M., come out way ahead of active systems, according to a scientific paper by Larry Sherwood published in the June, 1978, issue of the *New Mexico Solar Energy Association* newsletter. Over a 20-year period, a passive system would use 71-91 percent less energy than an active system. According to the paper, flat plate collectors would produce as much energy as they use on a well-insulated 1,680-square-foot house in Albuquerque, N.M., after 14.7 years, while a passive solar system would have reached the break-even point in 1.8 to 3.9 years.

David Wright's first passive solar house, "Sunscoop" in New Mexico, is a good example of a "direct gain" passive system. The 1,100-square-foot, \$13,000 house is built like a solar collector. Its south face is covered with double-paned glass. The sun in

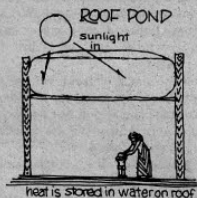
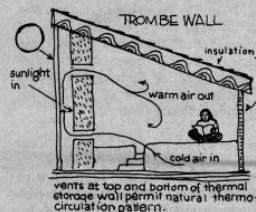
winter warms three adobe walls and a bench of water-filled barrels just inside the window, which keep the home warm at night. The north wall is insulated on the outside to retain heat.

The sun provides 90 percent of the home's heat and a Franklin stove provides the rest.

In general, what passive homes lack in mechanical devices, they make up for in mass. Mass, in the form of a brick floor, a stone fireplace, a concrete or adobe wall or containers filled with water performs the tasks of collecting and storing heat from the sun during the day and very slowly distributing it to the house at night. If a room is overheating during the day, mass can be added to lower the temperature or windows can be shaded to block the sun.

A storage wall is another way to passively heat a house. The sun heats a masonry, concrete or water-filled wall behind two or three layers of glass on the south side of a home. In one variation of the storage wall (sometimes called a "Trombe" wall), a vent or vents in the bottom of the wall let in cold air, which rises as it is heated by the sun on the wall. A vent at the top of the wall lets the warm air into the room.

A third passive solar heating technique—and one of the easiest to use on existing



homes—is the solar greenhouse. A greenhouse added to the south side of a house traps heat, which can be sent through a vent or a window into the house.

Another technique, particularly applicable to the Southwest, is the solar roof pond designed by Harold Hay. Hay's "Skytherm" system uses movable insulation and water in a plastic pillow on the roof to heat a home in winter and cool it in summer. On a winter day, the insulation is pulled back and the water is heated by the sun. At night, the insulation covers the top of the pond, which gradually gives off heat to the room. In summer the process is reversed for cooling.

This system is less effective in northern climates, however, where cooling isn't necessary and the winter sun is too low to be efficiently collected on a flat roof.

A fifth type of passive solar heating system is called the "convective loop." An example of such a system is a thermosiphon water heater, which heats water in a solar collector. As the water warms, it moves by convection to a storage tank above. The water is distributed by gravity and sent back to the collector. The same principles

"The price of natural gas is so cheap that no type of solar is cost-effective."

more cost-effective (more quickly able to pay for itself in heat produced) than an active system."

One well-known solar energy expert, George O. Lof, disputes this claim. "There is just not enough information on the performance of passive solar heating designs. No one can say what a million Btus cost by passive designs," he says. Lof is head of the solar engineering laboratory at Colorado State University and vice-president of Solaron, a Denver firm that manufactures active solar heating and cooling equipment.

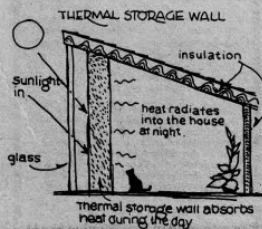
The most comprehensive passive solar system monitoring has been done by J.

generally collected, distributed and stored right in the living area.

— An active system won't send warm air into a house until the collectors are warmer than the air in the house. Passive systems can produce some heat from any light that enters the house, even on a very cloudy day—even in moonlight," Wright says.

On the other hand, passive systems also have more potential for heat loss when the sun isn't shining than active systems, because they usually have more glass area.

Measuring exactly how much heat a passive solar system is producing is difficult, since the heat is not coming into the house

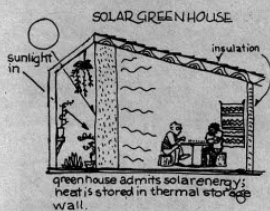


can be used to heat a house with an air collector.

COMFORT

But Americans are said to want comfort at the turn of a thermostat. What's it like to live with the temperature swing, the heat loss through large glass areas and the bother of insulation and the bright sunlight of some direct gain systems?

Fred McGee, a Cody, Wyo., contractor who built himself a passive solar house designed by David Wright, says it takes some



adjustment. His home's temperature ranges from 60 to 80 degrees. In mid-winter it's warmest in the afternoon and coolest in the early morning, he says. He puts up thermal curtains at night to minimize the heat loss from his south-facing windows. Never having to turn on his electric backup heating system makes it all worthwhile, he says. Last winter he says he used only the sun, two cords of wood and \$4 worth of coal to heat the 2,000-square-foot house.

David Wright says his passive solar house is "absolutely quiet. The only thing happening is the refrigerator going on and off."

He finds that opening and closing his shades to let in light in the morning and

retain heat in the evening becomes "an intuitive ritual — just like opening and closing the front door." For Wright, an added bonus is "you're not isolating yourself from nature."

Balcomb, who also lives in a passive solar home, disputes the idea that living in one entails any lifestyle changes.

"This misconception has come about because many of the people promoting passive systems were also promoting the idea that one should change his lifestyle," he said in an interview published in the October 1977 issue of *Solar Age*. "A lot of people simply will not accept that idea — and it's not a necessary marriage. Through the use of an auxiliary backup heating system, generally recommended in any solar house, active or passive, you fill in the gaps when there isn't any sun."

"One of the really nice features of the passive system is its reliability, and I think that's going to be especially telling in the residential market," Balcomb says. "The average active system is helpless without electric energy. I could close up my house, on the other hand, and leave it in winter and there's no way that the temperature would drop below 50 degrees...There's nothing to break down."

The problem of living with too much bright sunlight can be eliminated from direct gain systems by adding storage walls, architects say.

George Lof, who has lived in what he calls a combination active-passive solar house for 21 years, says that avoiding excessive temperature variation is "a very important problem" in passive systems. He also says it is hard to distribute passive heat to rooms not on the south side of a house.

He has large south-facing double-glazed windows with long overhangs, with some thermal mass in the building, "but it would



Los Alamos Scientific Lab photo
J. DOUGLAS BALCOMB: "One of the really nice features about a passive system is its reliability."

be more desirable to have more mass," he says.

"There are improvements needed," Lof says, "not only in my passive system, but in all the passive systems I know about."

Lof cautions people interested in passive systems in severe climates to see if double-glazed, south-facing windows will lose more heat than they gain.

"I wouldn't put a passive solar house in Alaska," he says.

He says that insulating windows at night can make south-facing windows net gainers, at least in all the lower 48 states.

Although passive systems have been in America since around 700 A.D., when cliff dwellers in Arizona built homes using the principles of passive solar heating and cooling, Americans looked first to active systems when faced with the fossil fuel crisis in the early 1970s. Some say it's because Americans are fascinated with machinery, or because active systems can be plugged into modern fossil fuel heating systems with few alterations. Passive systems, on the other hand, require a new approach to building houses — "a rebirth of good architectural principles," says Ron Judkoff, an architect in the federally funded Solar Energy Research Institute's passive division.

Another — and ironic — barrier to passive solar commercialization, according to David Holzman of the Citizen's Energy Project in Washington, D.C., is its lack of hardware. "No one can profit from it in a big way," While hundreds of companies sell hardware for active systems, the main ingredient in passive systems — mass — is not so profitable.

In addition, data suggesting that passive systems work as well as or better than active systems has appeared only recently.

"It takes seven to eight years for a new building technology to come into wide acceptance," Judkoff says. "We're not doing so badly."

While DOE is shaping policy, the Citizen's Energy Project (1413 K Street NW, 8th Floor, Washington, D.C. 20005) is working to get as much information as possible about passive systems and how well they work in various locations in the country.

ACTIVE NOT OBSOLETE

Not even the most avid passive solar advocate thinks that passive systems are going to render active systems obsolete.

Active systems are useful for:

— existing houses, particularly where the south side may be shaded, but sunlight is available on the roof.

— large buildings, in which passively collected heat can't penetrate to interior rooms. Large buildings can be heated passively through the use of clerestory windows—clear, vertical sections in a saw-toothed roof.

— domestic water, if a thermosyphon water heater can't move the water to the desired place.

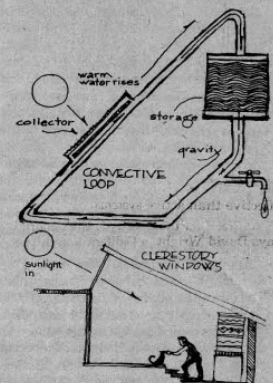
— buildings that require a narrow tem-

July 28, 1978 - High Country News-5

perature range — a hospital, for instance. — in combination with passive systems, providing the small increment of heat that would ordinarily be provided by some other backup system.

"It is possible right now...through passive solar heating and energy conservation alone to get energy consumption in a single family dwelling down to 20 or 25 percent of what it might be for a conventional building," Bruce Anderson says. "Someday the 25 percent figure isn't going to be good enough. In the year 2000, the passive solar homes that we think of today as being tremendously efficient are going to be seen as fantastically wasteful. And the solution to that — the only way to reduce that 20 or 25 percent figure down to zero — is active heating systems made up of collectors, heat storage facilities, fans or pumps, and so on."

Recent research indicates that passive systems are cheaper and more effective than active systems.



PASSIVE TIPS

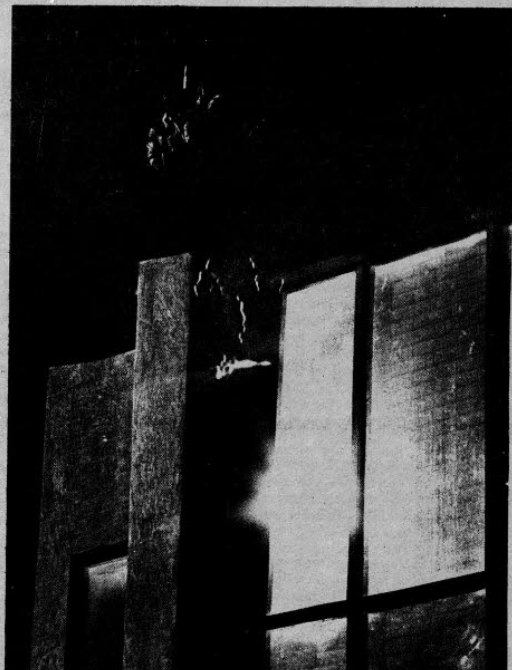
A workshop on how to design and build passive solar energy systems — direct gain, Trombe walls, water walls, roof ponds, solar greenhouses and convective loops — will be held in Denver, Colo., Nov. 7-8. Registration fee is \$295. The instructors are J. Douglas Balcomb, solar energy program manager at the Los Alamos Scientific Laboratory; Edward Mazria, an architect from Albuquerque, N.M.; and Susan and Wayne Nichols, who have designed and built a community of solar homes in Santa Fe, N.M. For more information write: Passive Solar Associates, P.O. Box 6023, Santa Fe, N.M. 87501.

CORRECTION

A story headlined "Further delay for uranium mine" on page 11 of the July 14 issue of *High Country News* incorrectly implied that the Wyoming Outdoor Council had prevailed in its objections to Minerals Exploration Co.'s uranium mine. Actually, the motion that the company should resubmit its application for the mine was made by the state, although the outdoor council supported the state's position.

HCN regrets the misleading implication.

— the editors



Los Alamos Scientific Lab photo
THIS PASSIVE SOLAR HEATED HOME is one of 10 in New Mexico monitored by the Los Alamos Scientific Laboratory.

6-High Country News - July 28, 1978

Emissions' impacts...

(continued from page 1)

when sulfur dioxide mixes with moisture in the atmosphere and forms a mild solution of sulfurous acid. The acidity level of rains in some areas of the East has been compared to that of tomato juice or, in extreme cases, lemon juice. While the pH of normal rainfall is between 5.5 and 5.7, pH levels of 3.98 and 3.91 have been recorded in Ithaca and Aurora, N.Y. (Lower pH levels indicate higher acidity.)

More than 15,000 lakes in the world are sterile because of acid rains, according to Dr. Wayne Williams, a plant pathologist in California now working as a consultant for the state of Montana.

A study by Dr. Gene E. Likens of Cornell University and Dr. F. Herbert Bormann of Yale University shows that the acidity of rain falling on the eastern United States and Europe has increased 100 to 1,000 times above normal levels because of the increasing number of sulfur dioxide pollution sources. Sulfur dioxide is emitted not only by coal-fired power plants but also by smelters and oil refineries.

Presently in the United States, acid rain is a problem only east of the Mississippi River, except for a few areas of the West, according to Dr. Eric Preston of EPA's Corvallis, Ore., Environmental Research Laboratory. However, as more and more coal-fired power plants are built in the West, it will likely become a problem in the Northern Plains, Preston says.

The major increase in acid rains is expected within a 40- to 60-mile radius of power plants, although such rains can occur 600 miles from sulfur dioxide sources, according to the environmental impact statement on Colstrip units 3 and 4.

Because of the presently low level of development in the Northern Plains, there have been few studies of the effects of acid rains or of more direct sulfur dioxide pollution on crops and grasses in this region. Of the 91 million acres in Montana, Wyoming, North Dakota and South Dakota, 24 million acres are cropland and 63 million are pastureland, according to the Northern Great Plains Resource Program report.

Thirty percent of the cropland is in wheat. Dr. Raymond G. Wilhour of the Corvallis Environmental Research Laboratory says in a preliminary report of a recent study that low level exposures to sulfur dioxide resulted in a 15% reduction in yield for wheat and barley.

OUT OF BUSINESS

"A 15% loss would put most farmers in this area out of business," says Bob Schneekloth, president of the Three Corners Boundary Association, a group of far-



Photo by Mike Jacobs
DON HASTINGS, veterinarian in Mandan, N.D., thinks power plant emissions may be to blame for the deaths of many calves.

mers in northeastern Montana. "We operate at a 10 percent to 15 percent margin of profit; if it were more than that, just about everyone in the world would be in the business," he says.

The boundary association is opposing coal-fired power development in the Poplar River Valley across the border in Saskatchewan. Wilhour used seeds and soils from the Poplar River area to determine the potential effects of the power plants. (Saskatchewan plans 1,200 megawatts of generating capacity, using no scrubbers to remove sulfur, and the prevailing winds would carry the pollution across the border to Schneekloth's and other farmers' lands.)

While this laboratory study indicates that low-level long-term exposures to sulfur dioxide might be much more destructive to cropland than previously thought, the Colstrip research will be the first to show what happens on the range.

EPA is spending between \$750,000 and \$1 million each year for the research, which began in 1974, one year before the first unit of the Colstrip power plant fired up and two years before the second unit started.

According to state, federal and private studies, the air in southeastern Montana near Colstrip was as clean as any in the contiguous United States before the two units began burning coal. Thus, for the first time, researchers will be able to monitor changes as they occur, making it possible to predict effects of future power plants on the environment of the region. Colstrip units 1 and 2 emit 1,550 pounds of sulfur dioxide per hour. The first two Saskatchewan Power units are the same size but will utilize no scrubbers for sulfur dioxide removal. Scrubbers remove at least half the sulfur dioxide.

In addition to monitoring the actual effects of emissions from Colstrip 1 and 2, the researchers also are monitoring effects

"How does an ecosystem die? How long does it take? The Colstrip studies will be the first to answer that."

on four one-acre plots that are being fumigated during the growing season. Each tract is criss-crossed with metal pipes that release carefully controlled concentrations of sulfur dioxide 24 hours a day. "These tests are relevant to the question of what happens when the West is developed with many sources rather than just one power plant," says Preston, who is project manager for the study.

LEAF BURN

Based on studies conducted near smelters in Anaconda, Mont., and Sudbury, Ontario, researchers expected to see severe damage to the foliage exposed to medium and high levels of sulfur dioxide on the fumigation plots. At Anaconda, some vegetation has died. That which has survived in the 15-mile area around Anaconda shows serious leaf burn.

However, the results on the test plots fumigated with low levels of sulfur dioxide were much more subtle. Finding no obvious damage, the scientists must scrutinize the chemical composition of grasses, seed production and timing of vegetative development as well as behavior and chemical content of insects and small mammals to detect small changes.

Preston says the scientists have detected some effects on the fumigation plots, al-

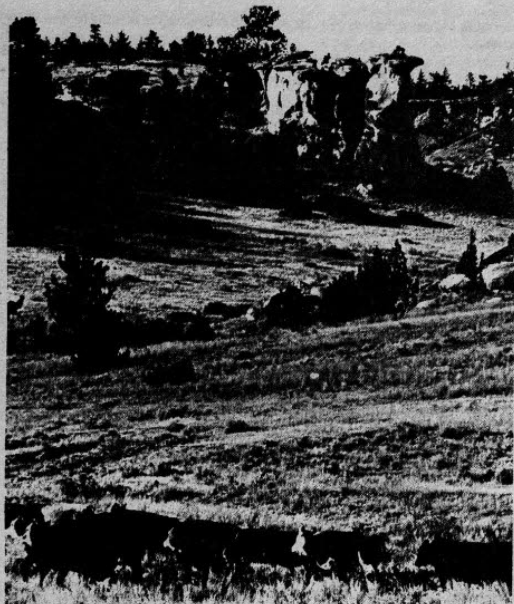


Photo courtesy of EPA
CATTLE CONTINUE TO GRAZE near Colstrip and other coal-fired power plants. However, if preliminary results of studies near Colstrip are proven true, the grass they're eating may have less protein content, and some of the varieties important to their diets may be dying off. Photo taken near Colstrip, Mont.

though most didn't appear until after the second year. "We don't understand yet what the ultimate consequences are," he says.

All the researchers are very careful to say their results are tentative and they're not sure what the study will prove. "We're being pushed to say whether we'll have a disaster or no disaster," Gordon says, refer-

more susceptible to pine bark beetle damage and have shed needles prematurely.

But there is no firm evidence yet that these changes are linked to emissions from the power plants.

So what? Who cares if there are fewer beetles or if the grass doesn't stay green quite so long? While many of these findings seem meaningless to lay people, to ecologists—and to ranchers—they're significant.

A rancher's livelihood is tied directly to the productivity of his grazing lands. Even a small reduction in protein in the grasses soon translates to fewer pounds on his cattle, which means less money when he takes them to market. It also means the ones that he winters have less reserve to use during snowy months when feed is hard to find.

Edwin Dahl, who ranches 25 miles from Colstrip on the Northern Cheyenne Indian Reservation, says that if the grasses green up one week later than usual in the spring, he'll have to keep feeding his cattle hay longer. For 100 cows, he would need a ton of hay each day. At \$70 or \$80 per ton, the delay would be costly. He says the cows also need the carotene in the grass as soon as possible after a long winter, and the grass helps clean out the afterbirth during calving.

Dahl estimates there are 22 edible species of vegetation on his ranch. If power plant emissions reduce that diversity over a period of years, his cattle will suffer, he says. Not only do cows need the variety in their diet, but different species serve different purposes, Dahl says. Some grasses grow best during wet seasons, some during dry. Some green up earlier. Some have stiffer stalks so they stick up through the snow and help the cattle get through a storm.

Realizing the importance of the continued vitality of the vegetation and other benefits from clean air, the Northern Cheyenne Tribal Council voted two years ago to ask EPA to redesignate the reservation for Class I air, which allows almost no degradation of air quality. A former coun-

(continued on page 7)

cil member himself, Dahl agreed wholeheartedly with the decision. As a result of the change to Class I air, EPA has turned down a proposal by five utilities to expand Colstrip to four units. The two additional units would have added about 120 tons of sulfur dioxide per day.

Scientists share the ranchers' concerns with the food value of the grasses. They also are concerned about many delicate interrelationships among organisms that may be disrupted by sulfur dioxide. "How does an ecosystem die? How long does it take? The Colstrip studies will be the first to answer that," Gordon says.

The nutrient cycle is an example of such delicate relationships. Beetles chew up dung and leaf litter, speeding up decomposition and adding nutrients to the soil. Some fungi, which also seem to be affected by sulfur dioxide, help make the nutrients available to the plants as well as warding off attacks from damaging fungi.

Sulfur dioxide may also affect a plant's ability to transport materials to its roots, thus depriving it of nutrients that will be needed during the winter. By reducing the plant's ability to expand its root system, sulfur dioxide may lead to erosion since the plants won't have enough roots to hold firm during wind or rain storms.

Many of these changes in native vegetation will also apply to vegetation planted to reclaim strip mines, says the environmental impact statement on the Colstrip 3 and 4 power plants. Eight of the 30 species used for reclamation are listed by EPA as being susceptible to sulfur dioxide damage. As a result, the impact statement says, "It is quite possible that successful reclamation may be impossible as defined by law."

EFFECTS ON CATTLE

Livestock that eat either the native or the exotic vegetation in the vicinity of coal-fired power plants may also be affected since the sulfur content of the vegetation rises when it is exposed to sulfur dioxide. In North Dakota a veterinarian has investigated several cases of calves

"It is quite possible that successful reclamation may be impossible as defined by law."

that were unable to get up after they were born and died soon after. The veterinarian, Don Hastings, found that other cows in the herd gave birth to healthy calves after they were injected with selenium, a trace element vital to proper muscle function.

But Hastings had checked samples of forage that the cows had been eating and found normal levels of selenium — as well as high levels of sulfur. All three ranches that he has worked with are near coal-fired power plants. Hastings believes the sulfur emitted by the power plants is absorbed by the vegetation and somehow limits the availability of selenium to the cattle.

He is now seeking a grant from the U.S. Department of Energy to investigate the situation further.

Scientists involved in the Colstrip studies are looking into some of the possible effects of sulfur on livestock, but they say there may be many other effects involving interactions between enzymes and coenzymes that haven't been studied yet.

Research is also needed on the effects of other pollutants from power plants. Nitrous oxides seem to cause lesions on leaves and a decreased photosynthetic rate, and the damage caused by nitrous oxides combined with sulfur dioxides seems to be worse than damage caused by the pollutants acting separately, according to Pre-

ston. Relatively little work has been done on nitrous oxides.

Power plants burning Northern Plains coal also emit arsenic, beryllium, cadmium, chlorine, fluorine, lead and mercury, according to a recent Rand Corp. report. The effects of these trace elements on vegetation and on livestock that eat the vegetation are largely unknown. Gordon reports that there already has been an increase of fluoride in plants and deer mice near Colstrip. In high levels, fluoride can cause disfigurement and structural bone damage in livestock.

The research at Colstrip may indicate EPA should change its standards. According to Preston, EPA reconsiders its standards every five years. The federal government has both primary standards, which are designed to protect human health, and secondary standards, which are supposed to protect agricultural production, livestock, wildlife, buildings, etc.

However, according to Gordon, the Colstrip studies and studies of vegetative damage near Anaconda prove that the secondary standards for sulfur dioxide are "nowhere near high enough to protect anything but people from acute exposures."

The federal secondary standard for sulfur dioxide is .5 parts per million. The effects on the fumigation plots are being caused by concentrations of sulfur dioxide from eight to 25 times lower than the federal secondary standard.

Previous studies documenting sulfur dioxide damage have used concentrations of sulfur dioxide that wouldn't be legal under secondary standards. Consequently, they have not provided evidence that the standards need to be changed.

Gordon's opinion of the inadequacy of the present standards is shared by Dr. Wayne Williams, consultant to the state of Montana. Montana is developing new standards and expects to have hearings early next year. A state may establish its own standards, provided they are at least as strict as federal standards.

CAPACITY TO PREDICT

The Colstrip studies will be complete in 1980. They are expected both to help evaluate standards and predict effects of coal development on agriculture in the Northern Plains. Presently, when an environmental impact statement discusses the effects of a power plant on agriculture, it includes the escalated cost of labor and land, the decrease in the availability of water and the increase in property taxes. Any decrease in agricultural production that might result from air pollution is usually mentioned only briefly in such statements, if at all. As EPA points out in its discussion of the Colstrip research project,

July 28, 1978 - High Country News-7



Photo courtesy of EPA
RECLAMATION OF COAL STRIP MINES near coal-fired power plants may be stymied by sulfur dioxide emissions' effects on vegetation. Pictured is the Western Energy mine near Colstrip units 1 and 2 in southeastern Montana.

"federal legislation requires the prediction of impact whether the capability (to predict it) exists or not."

According to Preston, project manager, and other researchers, "The principal short-term constraints on the utilization of coal reserves of the northcentral United States are the amount of environmental degradation that the American public is willing to sustain as the price for secure and abundant energy and the ability of scientists to forecast the amount and kinds of environmental impacts that will result from a given level of coal use."

By 1980, scientists will be a little closer to forecasting some of the impacts of coal-fired power plants on agriculture in the Northern Plains. Gordon says the major question of power plant siting comes down to one issue: "Do we want to protect our agricultural land? There is no data so far that shows power plant emissions are beneficial to agricultural lands."



Photo courtesy of EPA

VACUUMING ARTHROPODS. To analyze the results of sulfur dioxide fumigation, scientists collect soil surface arthropods (such as beetles, spiders and ticks). Later the collection is sorted and information on species abundance and diversity is analyzed to see how they respond to different levels of sulfur dioxide. Low concentrations of sulfur dioxide are applied through the pipes shown in the foreground which crisscross small plots.

Park bear policy ignites controversy

National Park Service bear policies are being attacked at the same time that the service is announcing their success. The president of the Wyoming Wildlife Federation says Yellowstone National Park should reinstate its practice of providing garbage dump feeding grounds for bears to avoid conflicts between bears and campers.

Meanwhile, from Washington, D.C. comes word that the new efforts to prevent maulings and deaths in all of the nation's parks have substantially reduced injury to campers by bears.

Wyoming Wildlife Federation president Al Conrad responded to a recent mauling involving a 21-year-old Grand Teton National Park employee by saying that Yellowstone National Park should not have

closed the dumps so abruptly several years ago. He says, "Bears were used to garbage can handouts and now, when they smell campers' cooking, it means food to the bears. I don't think the idea accomplished one thing." Anna Young, a park service employee from Jackson, Wyo., was recently mauled by a grizzly while trying to photograph the bear and her cub.

The National Park Service disagrees with Conrad's assessment. An agency biologist says the service's new efforts to prevent confrontations have resulted in a reduction of incidents. John Dennis says that black and grizzly bears injured 26 persons in 1977 throughout the park system, compared with 44 the previous year. He says, there were no fatalities in 1977, while there were two in 1976.

8-High Country News - July 28, 1978



THIS MASONRY and adobe structure, possibly a commancho settlement, is the most

Center for Anthropological Studies photo
noteworthy archeological find at Los Esteros.
The site will be flooded by the dam.

Artifacts of many cultures lie under shadow of Los Esteros

by Dede Feldman

For hundreds of years the deep canyons and sweeping plains of the Pecos river valley in eastern New Mexico were the scene of small Spanish settlements, Texas-style cattle ranching and, in Precolumbian times, trade between pueblo and plains Indians. But those days are over. The Pecos valley is now dotted with placid reservoirs, dams and irrigation systems that give protection from summer flooding and provide water to the parched fields of southern New Mexico.

The latest of these developments is the Los Esteros Dam, a \$27 million U.S. Army Corps of Engineers project originally estimated at \$5 million, now under construction seven miles north of Santa Rosa.

Los Esteros was designed to provide flood control, to retain sediment and to store irrigation water for arid farmlands downstream in Texas and New Mexico. As a side benefit, Los Esteros Dam could create a reservoir for boating, fishing and other water sports.

The dam will destroy up to 14 miles of scenic canyon; flood 15,000 acres of private riverfront land grazed by cattle and inhabited by wildlife including bald eagles, cliff swallows, mountain lions and rare reptiles; and inundate 250 important prehistoric and historic archaeological sites.

Environmental opposition to the project has been slight, however.

"This would never happen in Colorado or California, but New Mexico is a pushover for the dam builders," says Tom Mottl, a U.S. Geological Survey hydrologist and environmentalist.

There are several reasons why environmentalists have not been more involved.

The Pecos river valley near Santa Rosa is rarely used by hikers, river runners or backpackers. More important, the Pecos riverfront around Santa Rosa is private, not public, land.

"Before this project, the Pecos belonged to individuals. It was not accessible to the general public; it wasn't federal forest; it wasn't BLM (Bureau of Land Management) land. It was private," says Mottl. "But the irony is that the canyon could never be destroyed except by the federal government."

Environmental groups who did respond to the Corps' environmental impact statements called the project "shortsighted" and "ill-conceived." Dave Foreman of The Wilderness Society says the stretch of river at Los Esteros was a "prime candidate for the National Wild and Scenic River System." Frank Bond of the Sierra Club wonders whether siltation may "render the dam ineffective."

A supporter of the dam, Trippy Chavez, assistant to the mayor of Santa Rosa, says it will bring more dollars to Santa Rosa.

"The economic benefits will mainly be in the service areas—gasoline, groceries, etc. The lake won't provide permanent employment for local residents," he says.

The hitch with Chavez's reasoning, say environmentalists and officials of the New Mexico Department of Game and Fish, is that there will be no permanent lake.

DRY LAKE

The Corps itself admits the reservoir will be dry one-quarter to one-third of the time, particularly in summer. At other times, the level of the lake will fluctuate—leaving stinking mudflats and dying fish.

Another sore point is the 250 archaeological sites. Of these, 130 have been nomi-



DRIED MUD FLATS on the Pecos river—a foretaste of what the "lake" created by Los



A HONEYCOMB of cliff swallow nests along

"We're talking about an area where several cultures came together — Texan, plains Indian, Spanish and pueblo Indian."

nated to the National Registry of Historic Places.

The most noteworthy discovery, so far, is a large, multi-layered masonry and adobe structure on a horseshoe bend of the Pecos at the very heart of the area to be flooded. The structure appears to have been a trading post for the area's Spanish-speaking settlers, a storage site and perhaps a stage stop.

Other finds at Los Esteros include an archaic rock shelter — one of the few in existence anywhere — prehistoric quar-



Photo by John D'Anna

Esteros dam will look like between one-quarter and one-third of the time.



Photo by John D'Anna

ing the Pecos River.

ries, tipi rings, sheep corrals built in the late 1800s and numerous petroglyphs.

"What we're talking about is an area where several cultures came together — Texan, plains Indian, Spanish and pueblo Indian," said Don Scurlock, archaeologist with the Center for Anthropological Studies in Albuquerque.

The center is excavating and removing important artifacts from the area that will be flooded.

The Pecos was cursed by cowboy and Comanche alike for the violent diarrhea induced by its high salt content. The river rises in the southern Sangre de Cristo Mountains and flows 820 miles across New Mexico and Texas before entering the Rio Grande.

To the north, where the river flows out of the Rocky Mountains, the Pecos in the 1500s was the site of one of the largest and most powerful of New Mexico's pueblos — the now deserted Pecos pueblo at Glorieta. In the early 1800s the vast Anton Chico



Photo by John D'Anna

HABITAT FOR red-tailed hawks, such as these chicks provided with a gopher snake

and a cottontail rabbit, will be flooded by Los Esteros dam.



Photo by John D'Anna

THE PECOS RIVER, near Colonias, N.M. Opponents of Los Esteros dam fear the pro-

ject may increase the salinity of the river.

Spanish land grant flourished near the river.

In the middle reach of the river, Nineteenth Century gunfighters such as Pat Garrett and Billy the Kid rustled cattle and fought in the Lincoln County cattle wars. Further south, later in the 1800s, Texas cattlemen and immigrants from the East built one of the West's largest private irrigation works around Carlsbad, which opened the way for commercial agriculture and the railroad.

The Pecos valley was fertile territory for Comanche and Apache raiding parties, and in the 1860s the U.S. Cavalry ran a concentration camp there for Navajos and Mescaleros.

Today, grazing and farming in southern New Mexico are dependent on a system of dams and irrigation works conceived by the infamous Pat Garrett, built by cattle barons Charles Eddy and John James Hagerman and now operated by the Bureau of Reclamation. Until the 1950s the Corps of Engineers had nothing to do with the Pecos.

Congressional documents reveal that, at the urging of New Mexico's late Sen. Dennis Chavez, the Corps studied flood control on the river after two floods on tributaries of the southern Pecos in 1937 and 1941. The proposed Corps remedy was to build another dam in the northern reach of the river for flood control and storage of irrigation water for the Carlsbad Irrigation District.

Ironically, the project was initially opposed by the very people it was designed to benefit.

Irrigators near Carlsbad feared water losses from evaporation and transportation over hundreds of miles, and impoundment by communities upstream.

The next challenge came from the Fort Sumner Irrigation District upstream. It

opposed the transfer of water from the Fort Sumner reservoir to Los Esteros. The case went as far as the state Supreme Court, where Fort Sumner was defeated.

The Corps began construction of the dam in 1975. But controversy continues.

Jim Foster, economist with the Albuquerque District Corps of Engineers, calls the project "completely justified." According to Foster, the average annual flood control benefits of Los Esteros will be \$436,000.

Zane Spiegel, a geologist-hydrologist in Santa Fe, who opposes the project, says the Los Esteros reservoir is on an outcrop of San Andreas limestone, which is connected to springs discharging further south.

"When the water level is high enough, it's likely that there will be a direct flow from the reservoir to the present springs near Santa Rosa and Puerto del Luna," Spiegel says. "The water will come out below Santa Rosa as poorer quality water, and the salinity load will be increased for those downstream. This is critical for irrigation use in Carlsbad," he says.

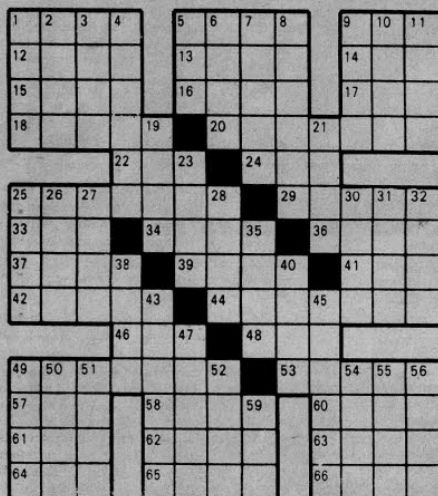
Another question critics have raised about Los Esteros is whether the \$27 million structure will prevent flooding.

According to the Corps of Engineers, the answer is an overwhelming yes. According to Tom Mottl, and some Corps employees, Los Esteros is too far upstream to have much impact on Dark Canyon or Eagle Creek, two areas severely flooded in this century.

Whatever the advantages or disadvantages of Los Esteros, "This will probably be the last project like this in the Albuquerque District," says one Corps employee. "We're interested in planning-type things, non-structural alternatives" such as floodplain zoning and repair of existing dams.

10-High Country News - July 28, 1978

conservation crosswords



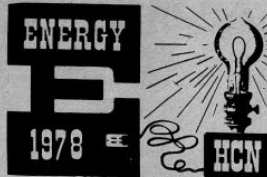
YELLOWSTONE (YS) by Enots Wolley

ACROSS

1. Slovenly person
5. Woman's name (Pl.)
9. "The greatest beauty is organic wholeness. Love that, not — apart from that." Robinson Jeffers
12. Never hurry, never — y
13. Elegant
14. "Do the locomotion" with Little —
15. Out of the wind
16. Indian tent
17. Soak
18. Drug busters (Col.)
20. Minerva —; Mammoth, YS, travertine formation
22. Lynx is one
24. YS spring: —ad, named for nymph who gives life to waters
25. Molly Islands in YS Lake provide nesting area for this bird
29. Major YS river
33. Atmospheric shield threatened by aerosols: —ne
34. Extend across
36. A gully shallower than a ravine
37. Sea eagle
39. Arrogant one
41. American humorist and Laramie Boomerang founder
42. Molten rock material which heats YS waters
44. Piedmont — sculpted the Tetons
46. LA's Trojans
48. — Caliente; YS hot spring
49. Only YS, Iceland, New Zealand, & Siberia have them
53. Small YS tree; birch family
57. Deep Sleep (abbr.)
58. One used by another
60. Arum family plant with edible roots-tuck
61. Portion of a circle
62. What Dagwood tries to take (2 wds)
63. None of these trees in YS
64. "Be Prepared"
65. Millipede has many
66. Ascend

DOWN

1. Protected YS waters helped return this bird from brink of extinction
2. Whatever — wants, — gets
3. Insect that moves in after a fire: wood b—
4. Coarse, dentrital rock with angular fragments found in YS's Grand Canyon and on Mt. Washburn: —a
5. Unusually fitted
6. Your goal with this puzzle (2 wds)
7. Fire suppression may cause a gradual loss of this YS tree
8. First name of YS moose
9. Isolated hill with flat top
10. YS brown-headed wader with recurved beak: —et
11. Scruff
19. Indians involved in 1832 Black Hawk War
21. Peel
23. Sounds of YS woodpeckers
25. Jeffers' medium
26. Idaho-born fellow who became Eisenhower's Agriculture Secretary: — Taft Benson
27. Curlew's beak
28. Vietnam war-era dateline: Da —
30. YS forest bloomer: —ca
31. Danny —
32. Vase-shaped jug
35. Agnew's plea: — contendere
38. Relatives of ostrich
40. Home of boojum and cardon
43. One of the outermost flower parts (2 wds)
45. First Euro-American to see YS, 1807
47. Tall, red-capped YS nester
49. Narrow valley between high-angle faults, such as Death Valley: —en
50. A jury of p—
51. Where Don Riske plays racquetball
52. Loot
54. Spanish painter of limp watches
55. Narrow ledges: b—
56. YS's cinquefoil, avens, bitterbrush, spirea and strawberry family
59. Administrators of YS (abbr.)



energy news of the Rockies and Great Plains

"BUILD THEM ANYWAY." The head of the Bonneville Power Administration has urged the building of 13 nuclear and other thermal energy plants in the Northwest, even though they may not be needed by 1990. The Idaho Statesman reports that BPA head Sterling Munro said "the prudent thing to do is get the plants constructed on schedule. If we err on the side of building too much, it's easily corrected." Each plant would cost a total of about \$1 billion. Munro says that he cannot predict what the energy needs of the region will be by 1990, but that it is cheaper for utility users to build plants they don't need than to need plants they don't have.



TRIBE ASKS COAL TAX EXEMPTION. Claiming that their own 25 percent coal severance tax "pre-exempts state taxation," the Crow tribe has filed suit asking that tribal coal be exempted from the Montana 30 percent severance tax. The lawsuit, filed in U.S. District Court, says that imposition of the state severance tax on the Crows' six billion tons of coal violates Congress's "exclusive authority over the regulation of commerce with Indian tribes." Since mining of tribal coal began in 1975, the state has been paid \$15.5 million in severance taxes by Westmoreland Resources. The suit does not ask for a refund of this money, however.



STONECROP
PO BOX 885-
GRIFFIN CO 80631

Environmental/educational
notecards, posters &
prints.

Proceeds from sales will
be shared with HCN.
* Write for free catalog *

COLSTRIP FALLOUT. The Montana Board of Health is crying "Foul" over the Environmental Protection Agency's handling of the Colstrip power plants' air quality permit. The board says that EPA, in denying a construction permit for Montana Power's two 700-megawatt electrical generating plants, "jeopardized the credibility of the board and the Montana law." EPA ruled that the power plants would violate clean air standards established for the Northern Cheyenne Indian reservation. The Board of Health had approved the plants, but only if certain conditions were met to minimize environmental damage. Montana Power, still smarting from EPA's decisions, says it is studying alternatives to the Colstrip site, including locating the plants in Washington. Any final decision must await the outcome of two court suits. EPA has appealed a federal district court decision that the new clean air rules do not apply to the two power stations. Montana Power also has challenged EPA's approval of the Class I air quality designation for the Northern Cheyenne Reservation. A designation of Class I allows virtually no increase in air pollution on the reservation.

URANIUM SAFETY RULES. A federal investigation of a uranium concentrate spill near Springfield, Colo. has resulted in very few recommendations for more stringent safety standards. The joint study by the U.S. Nuclear Regulatory Commission and the Department of Transportation suggests only that state emergency plans be made "more thorough." The report concluded that rerouting of shipments away from population centers, advance notices of shipments and improved containers for carrying the concentrate — or yellowcake — would not be cost-effective, because of the low concentrations of radioactivity in the material. Rep. Tim Wirth (D-Colo.) called the results of the investigation "very disappointing and an unacceptable response to a serious situation." Wirth had called for the study after a truck collided with some horses near Springfield, Colo., last year, spilling 40,000 pounds of yellowcake.

THE LAST AND THE GREATEST

NEW SCHOOLS EXCHANGE
1978 DIRECTORY AND
RESOURCE GUIDE

* 1978 DIRECTORY OF ALTERNATIVE COMMUNITY SCHOOLS * DIRECTORIES OF FULL-TIME AND PART-TIME ADULT EDUCATION PROGRAMS * BIBLIOGRAPHY FOR ALTERNATIVE EDUCATORS with CURRICULUM ENRICHMENT GUIDE * Information on HOME STUDY * Articles including: A HISTORY OF PUBLIC ALTERNATIVE SCHOOLS; A HISTORY OF FREE UNIVERSITIES; and CHOOSING A SCHOOL. Issue 140 - 124 pages - \$5 Prepaid.

NEW SCHOOLS EXCHANGE
PETTIGREW, ARKANSAS 72752

Support the Alaska Coalition

Wear a great Alaska T-shirt this summer. Silk-screened by the Alaska Center for the Environment. Here's how they look. The real ones are even better, with a red-orange sun, on a high quality, gold, blue, yellow, or beige shirt. Adult sizes small, medium or large, only.

The Alaska Coalition needs increased grassroots and financial support to get the Alaska bill through the Senate and signed by the president this year. An Alaska T-shirt worn by you will help both ways!

Send \$5.50 per shirt plus size and color preference to: Pam Rich Minier, 8907 Cowboy Road, Cheyenne, Wyoming 82001.

(Please make checks payable to Pam R. Minier, who had to front the money to get the T-shirts. \$2.50 per shirt goes to the Alaska Coalition.)



ALASKA
OUR LAST CHANCE

July 28, 1978 • High Country News-11

Eminent domain for slurry pipeline defeated

In a first-ever vote on the issue, the House has rejected granting the federal right of eminent domain to coal slurry pipelines. The bill was defeated by a vote of 246 to 161 and was opposed by a variety of interest groups, including railroads, ranchers and some environmentalists.

The legislation would have authorized slurry pipelines to exercise federal powers to condemn property under railroad tracks for rights-of-way for pipelines. The planned pipelines must cross under numerous rail lines, and the railroads have not agreed to allow access. The legislation was designed to solve this roadblock to construction.

The House vote effectively kills eminent domain legislation for this session of Congress. The issue has been stalled in the House since 1974, when the Senate first passed coal slurry legislation. Supporters say they will try for House passage again next year.

Without eminent domain, slurry pipeline companies are required to

negotiate with individual landowners for right-of-way on private land, or lobby each state legislature for state eminent domain to cross railroads. This latter effort has met with limited success so far. Only Oklahoma, Texas, and Arkansas have agreed to give slurry pipelines this right.

The railroads opposed the legislation because they fear that the pipelines will grab a large share of the coal-hauling business in the West. Currently, all Western coal is hauled by rail and provides the largest single source of revenue for the railroads.

Rep. Morris Udall (D-Ariz.) supported the eminent domain legislation, saying it would provide price competition for the railroads. The pipelines would carry an es-

states that shared the formation agreed to the appropriation.

The second proviso required the U.S. Geological Survey to demonstrate that the water table would not be affected if a pipeline tapped an underground water source.

Roncalio was particularly concerned about underground water sources because one proposed coal slurry pipeline, Energy Transportation Systems, Inc.'s line from Wyoming to Arkansas, has been granted 25,000 acre-feet of water annually from the Madison formation by the Wyoming state legislature.

Rep. Ron Marlenee (R-Mont.) feared that the water issue would be complicated by

The used water would contain acid, zinc, arsenic and other elements.

Western environmental groups are split in their positions on the slurry pipeline. All are concerned with the effects on water, but most also favor an "export policy," in which coal mined in the West is shipped elsewhere to be burned. Water exported by slurry pipeline is preferable to water consumed in a power plant, according to this line of thinking. Many groups do not have a formal stand on the issue, however.

ETSI, the company that is furthest along in its pipeline plans, says the defeat of eminent domain legislation will not directly affect it. ETSI regional manager Frank Odasz says, "My feeling is one of disappointment over the vote, but this does not mean a delay for our pipeline."

Odasz says the ETSI line must make 65 rail crossings on its 1,000-mile trip to Arkansas. However, the company has found that, somewhere along each of these crossings, the tracks cross land that is not owned by the railroad. The company has negotiated with all of the landowners for a right-of-way, and filed 65 lawsuits to prevent the railroads from interfering with pipeline construction. Odasz says ETSI has won 64 of the lawsuits, and the last one is pending.

Construction of the pipeline is still about three years away.

The railroads argue that the pipelines would have competitive advantages not available to them.

timated five percent of all coal traffic, and Udall said the railroads "want the extra five percent so they can have a price monopoly."

The railroads also argue that pipelines would have an additional competitive advantage because they could offer long-term, secure contracts to coal buyers. Railroads are forbidden to engage in this practice by Interstate Commerce Commission regulations.

Heavy opposition also came from Western representatives and agricultural groups who fear that the pipelines would threaten Western water. A coal slurry pipeline carries a 50-50 mixture of water and finely crushed coal. About 20,000 acre-feet of water are needed annually to carry 25 million tons of coal.

Rep. Teno Roncalio (D-Wyo.), a vigorous opponent of the legislation, managed to insert two amendments in committee that severely limited the ability of the pipelines to obtain water. The first barred the tapping of an underground water source, such as the Madison formation, unless all the

uncertainty surrounding Indian water rights. Marlenee was concerned that, once pipelines were granted eminent domain, Montana's Indian tribes would sell large amounts of water to the pipeline companies.

The only environmental group to take a strong stand on the legislation was the Environmental Policy Center. EPC opposed the measure out of concern for the disposal of the water once it reached its destination.

Wyoming Legislative Analysis

Assess your Wyoming legislator's track record before voting this year by reading the Wyoming Outdoor Council's Legislative Analysis for 1977-78.

This is the only Wyoming legislative summary available to the public. It not only contains voting records on major quality of life issues but also an excellent summary of the status of current Wyoming mineral development laws and environmental laws.

To order, send \$1.50 to Legislative Analysis, Wyoming Outdoor Council, P.O. Box 1184-A, Cheyenne, Wyo. 82001 (307-635-3416). Thank you.

ACCOUNTABILITY

Resource and Environmental Policy ... and the Future

September 13-15, 1978

INVITATION AND CALL FOR PAPERS

Capon Springs Public Policy Series

Keynote Speakers

Margaret Mead • Philip Hauser • M. King Hubbert
Justin Blackwelder • Russell Peterson • Ervin Laszlo
Rev. Peter Henriot, S.J. • Stephen Mumford
Charles Cargille

Call For Papers — Abstract Requirements

Abstracts of 200-275 words—including name, paper title, institution and address—should be mailed prior to August 7th in order to be included in the Final Program. Abstracts received later than August 7th will still be eligible for presentation at the Open Session. Presentations will be 10 minutes, with 10 minutes for audience participation. Four copies of each abstract should be sent to: Eliot Glassheim, Population/Food Fund, Box 255 University Station, Grand Forks, ND 58202.

Abstracts Being Accepted

For further information on additional speakers, workshop topics, and special low-cost housing and eating arrangements, contact: Population/Food Fund, Box 8174 University Station, Grand Forks, ND 58202. Telephone: (701) 777-3593.

Location:

Marymount College
2807 N. Clebe Road
Arlington, Virginia



The HCN Hot Line

energy news from across the country

MILITARY SEES THE LIGHT. The Senate has approved a solar energy program in which all new military housing and 25 percent of all other military facilities must be designed to include solar heating and cooling equipment where economically feasible. The program is sponsored by Sen. Gary Hart (D-Colo.). Hart estimates that the installation of solar systems at military facilities could generate new sales of \$50 million to \$100 million. The industry had sales of only \$150 million last year. The bill must still be approved by the House.

ENERGY BILL MOVES. The Carter energy plan, which has proceeded with a limp and a halt through Congress, has completed one phase of the five-phase effort. The Senate has passed, by a vote of 92 to 6, legislation that would prohibit new utility and industrial boilers from using natural gas or oil. It also would force some existing boilers to be converted to coal. The administration says that the measure would save one million barrels of oil daily by 1985, but some opponents say that it will save virtually no oil. The remaining parts of the energy plan do not face such a smooth road, however. Intense opposition is expected in the Senate on a compromise measure that would decontrol natural gas prices, and a filibuster may be undertaken by some senators to prevent decontrol. In addition, the controversial tax portions of the program probably will not be dealt with during this session of Congress, because elections are so near. The conversion measure still must be finally approved by the House.

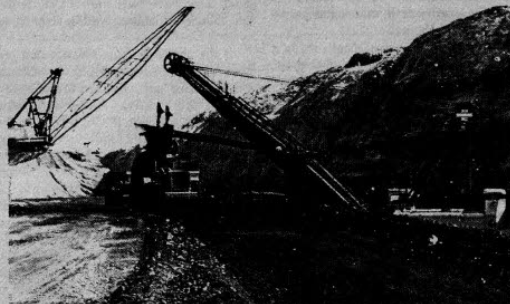


Photo courtesy of Environmental Protection Agency
COAL will be the required fuel for all new utility and industrial boilers under a recently passed portion of the Carter energy plan.

12-High Country News - July 28, 1978

Senate amends Endangered Species Act

Debate raises questions about truth in lobbying

by Justus Bavarskis

As the Senate debated amendments to the Endangered Species Act, Dr. Elvis Stahr, president of the National Audubon Society, wrote a letter to Sen. John C. Culver (D-Iowa), a co-sponsor of one of the amendments.

"The act as interpreted by the Supreme Court is so rigid that it is defeating its own purposes," Stahr said. "This is happening in two ways — excessive caution and reluctance in listing endangered species on the part of the Fish and Wildlife Service, as well as growing timidity on the part of the environmental community to encourage full implementation."

"As you go to the floor today, defending an amendment which we believe seeks to fortify a shaky endangered species program, the National Audubon Society offers its support."

Other sections of the letter suggested strengthening the amendment.

The amendment, sponsored by Culver and Sen. Howard Baker (R-Tenn.) and managed on the floor by Sen. Malcolm Wallop (R-Wyo.), was tacked on to a bill to continue funding the act for another three years, and passed 94-3 on July 19.

But the Audubon Society's support of the amendment has brought it criticism from other environmental groups. Both the stance of the Audubon Society and the criticism reflect a concern in the environmental community over how to lobby for environmental legislation.

The question some professional Washington environmentalists are asking is: In their lobbying, should they adopt a bargaining position, much as companies and unions adopt unrealistic positions in the opening rounds of negotiations, or should they openly admit what would be acceptable to them and pass on that information to their members?

In the case of the Endangered Species Act, the Supreme Court held 6-3 in June that



the act forbids completion of the Tennessee Valley Authority's Tellico Dam on the Little Tennessee River, because doing so would endanger the habitat of the snail darter, an endangered species. This brought an outcry from states and politicians to amend the act.

The Culver-Baker amendment sets up a seven-member board composed of the secretaries of Agriculture, Interior and the Army; the heads of the Environmental Protection Agency, the Council on Environmental Quality and the National Oceanographic and Atmospheric Administration; and the governor of a state affected by a project.

When an agreement cannot be worked out between the Interior Department and the builders of a project, the board may rule on a minimum 5-2 vote that the project is more important than an endangered species.

Sen. John Stennis (D-Miss.) offered an amendment that would have permitted the construction of any project authorized before the Endangered Species Act was passed in 1973. That was turned down 76-22. Sen.

Gaylord Nelson (D-Wis.) tried to persuade the Senate to leave the act unchanged, but dropped his proposal when it became evident it could not win.

MOOD FOR CHANGE

A source at the Audubon Society says it was the society's reading that the mood of the Senate was to weaken the act, and that the Culver-Baker amendment was the vehicle that could best protect endangered species. Otherwise, the source says, the Senate would have voted to weaken the act far more than it did by adopting Culver-Baker.

"How can we continue to say privately that Culver-Baker's good, then go to the Hill and say the act needs no amendment," says the source. "To keep our credibility, we've got to be honest with them (legislators). I think all this posturing in the Senate was getting out of hand."

The "posturing," Culver said during floor debate, consisted of "a number of environmental groups (that) privately come in and whisper and wink and nod that this (the Culver-Baker amendment) is what they want. We think this will be very helpful, but they know if they're going to get their dues every year they're going to have to be demagogues with their constituents."

A staff member of the Senate Environment and Public Works Committee says groups whose private positions were different from their public ones included the National Wildlife Federation, the Environmental Defense Fund, Defenders of Wildlife and Friends of the Earth.

Rafe Pomerance, legislative director for Friends of the Earth, says "Our position is not in support of the Culver-Baker amendment and we didn't ever tell Culver anything other than that in private, at least not that I'm aware of." (HCN attempted to get comment from the National Wildlife Federation, the Environmental Defense Fund and Defenders of Wildlife but phone calls had not been returned as we went to press.)

"One thing that particularly disturbed us," says the Senate committee staff source, "was that after one meeting with environmentalists, during which they said our bill was acceptable, an unsigned letter was circulated around the Senate floor severely attacking the Culver-Baker bill. We know it was one of the environmental groups (that circulated the letter)."

The real issue is whether the apparent conflict between the private and public positions of some environmental organizations could have hurt, more than helped, the chances of endangered species to survive.

"If the choice (in the Senate) had been between the Culver-Baker and Stennis amendments," says the Senate staff source, "then I think Culver-Baker still would have prevailed. But if Culver-Baker had not been introduced, and we'd just gone with the Nelson approach, then I think there's a very good chance that the Stennis amendment would have prevailed."

The Audubon letter was extremely important, the source says, because it persuaded Nelson, who the source says had no chance of winning, to back off. That resulted in more votes for the Culver-Baker amendment, and that puts the Senate in a better position when the time comes to work out a compromise version of the bill in the House, says the source.

Brock Evans, head of the Sierra Club's Washington office, says, "We're (environ-

mentalists) an independent movement. Groups can do what they want."

He says, "I don't agree with Audubon that (Culver-Baker) is what saved the situation from getting worse. We felt that taking a strong stand for no amendment is what saved it. Indications are that the House leadership wants the act to stay as is, but with this split developing there may be some problems."

The Sierra Club was not among the environmental groups named by the Senate source as taking different positions publicly and privately.

"I think a lot of people are being too optimistic about the House," says an Audubon official who declined to be named. "There's not a prayer that reauthorization (of funds for the Endangered Species Act) would come through clean off the floor."

In the House, Rep. Robert Leggett (D-Calif.), chairman of the merchant marine and fisheries subcommittee, has said that he will endorse a change in the act, but has yet to say what his proposal will be.

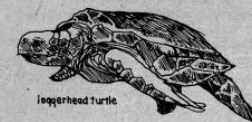
After the Supreme Court's Tellico decision, Rep. Robin Beard (R-Tenn.) threatened to introduce 682 amendments — one for each of the endangered species — to prevent the Interior Department from spending money for their protection. Beard was persuaded to drop that proposal in exchange for bringing reauthorization for the Endangered Species Act to the House floor under the open rule, which means it will be fully debated.

"One of the things I find most interesting (about the lobbying approaches to the Endangered Species Act) is that there's a change in Congress, a change in the country, about the environmental movement," says the Audubon Society source. "We can't go in with swinging fists any more like we did in the '60s. There's got to be a more balanced approach in our outlook to the environment. That doesn't mean we should be willing to give up what we gained. But a lot of environmentalists are against the word 'balancing' because they think that implies they'll get the short end of the stick. But we need to do it for our credibility."

"Environmental considerations," says the Senate committee staff source, "must

be tempered with economic factors. If environmentalists don't realize that, they'll discredit themselves."

"There's some talk of them hurting themselves over this endangered species debate. They (the anti-Culver-Baker groups) backed themselves into a corner because they'd taken a position before they saw the Culver-Baker bill. If they continue to do this, I think they'll lose a lot of influence."



Coal Plants Affect Green Plants

Passive Solar Energy by Joan Nice and coal plants' effects on growing plants by Marjane Ambler are two articles in this issue supported by the fund.

If you would like to help, send a donation to the fund today. Contributions are tax-deductible.

Make out checks to Wyoming Environmental Institute — HCN Research Fund and send to: WEI, P.O. Box 2497, Jackson, Wyoming 83001. Thank you.

classifieds

JOB OPENINGS. National Center for Appropriate Technology has several jobs available: associate coordinator of information and communications, technology research writer, policy researcher and writer, field representative, contract manager. For job descriptions and salaries contact NCAT, P.O. Box 3838, Butte, Montana 59701.

WYOMING NAM. For a democratic socialist view of the energy crisis, nuclear and solar power, send \$1.50 to help cover mailing costs to Wyoming NAM, Box 238, Laramie, Wyo. 82070.

CANYON COUNTRY GUIDEBOOKS. For a list of 12 guidebooks and maps describing the canyon country of southeastern Utah, write Wasatch Publishers, P.O. Box 963H, Moab, UT 84032.

PERSONNEL. The Powder River Basin Resource Council, a citizens' resource conservation organization concerned with energy development issues in eastern Wyoming, plans to hire two field organizers immediately. Energetic, enthusiastic, self-motivated people are desired. Rewarding work, invaluable experience. Send resume to PRBRC, 150 W. Brundage, Sheridan, Wyo. 82801.

WRITERS AND PHOTOGRAPHERS sought by HCN. We are looking for articles and photographs of alternative energy and other appropriate technology projects in the Rocky Mountain region (Wyoming, Montana, Colorado, Idaho and Utah). Pay is two to three cents per word for fair, accurate news reporting. \$2 to \$4 for black and white photographs. Contact Joan Nice, Box K, Lander, Wyo. 82520, with story ideas.

PERSONNEL. The Northern Cheyenne Research Project, an independent research arm of the Northern Cheyenne Tribe, has openings for 3 Vista workers beginning in August. Commitment for one year desired: prefer college graduate with writing or media skills. Benefits total about \$100 per week. Rewarding work, invaluable experience. Send resume to NCRP, P.O. Box 388, Lame Deer, Montana 59043, or call (406) 477-6278.

You can help.

HCN could not get by without a little help from its friends.

You can help in several ways. Send us names of possible new subscribers so that we can send them a sample copy.

Subscribe to the paper yourself, if this is possible. (Just think, you won't have to wait in line at the office anymore.)

Send us names of organizations to which we can send several copies of the paper to be handed out as samples at meeting.

Encourage educators to purchase subscriptions in bulk for classroom use. Write HCN for details. Send all of your requests, names, ideas to HCN Promotion, Box K, Lander, Wyo. 82520. Thank you.



Western Roundup



July 28, 1978

13

Implementation of water policy angers Colorado officials

The first apparent applications of the Carter water policy are raising cries of outrage in the West, particularly in Colorado. The administration has angered Colorado officials by opposing further funding for the Narrows Dam project and by ruling

that the Fryingpan-Arkansas project is not entitled to all the water that it is designed to handle.

Interior Secretary Cecil Andrus announced July 21 that the administration will oppose further funding for the \$162

million Narrows Project in northeastern Colorado. Andrus said the opposition is based on economic and environmental considerations. Andrus also said the project failed to meet the new water policy standards set forth by President Jimmy Carter.

The main environmental objection is that the project would reduce stream flows on the Platte River and endanger whooping crane habitat.

Sen. Floyd Haskell (D-Colo.) said, "The president compromised the integrity of the Interior Department by announcing this water policy and making it impossible to issue an honest appraisal of the worth of the project based on the criteria established by Congress."

Several senators have petitioned Carter to withhold application of the water policy until Congress has reviewed it. Carter has made no direct response to these requests, but the senators are interpreting these actions as implementation of the program.

The Narrows decision came hot on the heels of another controversial Colorado decision, made this time by Interior Solicitor Leo Krulitz. Krulitz ruled that only 3,000

acre-feet of water annually, of a planned total of 13,300 acre-feet, can be delivered to the Fryingpan-Arkansas project near Aspen, Colo. The water will be diverted to Colorado's East Slope.

Colorado water officials say the \$14 million project is 90 percent complete and the full amount of water already has congressional authorization.

Felix Sparks, director of the Colorado Water Conservation Board, charged that Interior is too much influenced by environmentalists. He told the *Denver Post*, "This new crowd is just impossible to work with."

Sparks also denounced the implementation of the new water policy. He said, "If this is an example of how the administration proposes to administer a national water policy, then we don't need that kind of cooperation."

State officials, as well as members of the Colorado congressional delegation, say they will ask Andrus to reverse Krulitz's decision and allow deliveries of the full amount of water.

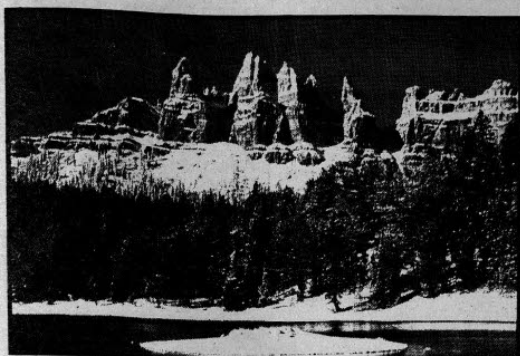


Photo by Richard Murphy, courtesy of the Jackson Hole news

KINSINGER LAKES and the Pinnacle Buttes in the DuNoir area.

House passes DuNoir wilderness bill

The U.S. House has passed by a wide margin a bill to add the DuNoir area to the Washakie Wilderness in Wyoming. The bill now goes to the Senate. Its fate will depend upon Wyoming's two Republican senators, Malcolm Wallop and Clifford Hansen, who haven't said whether or not they will support the 34,500-acre addition called for in the House bill.

Wyoming Congressman Teno Roncalio, who sponsored the bill in the House, was praised by environmentalists and wildlife proponents and criticized by a representative of the lumber industry following the bill's passage. Roncalio is retiring this year after 10 years in the House.

"Teno really understands what wilderness is all about. It's a real tribute to his understanding of both wilderness and timber production in the Rockies that he could guide this bill through the House when there is so much opposition from local commercial interests," says Bruce Hamilton, Northern Plains representative of the Sierra Club. The bill passed 372-22.

On the other hand, Bob Baker of Louisiana Pacific, which operates a lumber mill near the Washakie Wilderness, says

the wide margin of the vote is a "real tragedy." He says, "We feel that Rep. Teno Roncalio is either misinformed or out of touch with the state."

Roncalio, however, doesn't think he is out of touch with the state. At a public hearing held in Wyoming on the proposal, the majority of people who spoke supported a 40,000-acre wilderness addition, and most of them were from Wyoming.

Roncalio says that Baker admits the bill won't have much effect on the local timber operations because they have been restricted from the area for six years. "I can't for the life of me believe Louisiana Pacific is really all that worried about this holding (in Wyoming). Maybe they're stirring up noise in Wyoming in hopes it will be heard in Alaska and Washington (where the company has other lumber operations)."

Roncalio says the mill isn't operating at full capacity because the Forest Service had to decrease the cut in the area to provide for a sustained yield. He says the 11,000-acre area proposed by the Forest Service would have been "just rocks" and would not have protected the elk in the area.

States protest Colorado River EIS

The stage has been set for another confrontation between environmentalists and water developers over the future of the Colorado River. The four member states of the Upper Colorado River Commission have voted to intervene on behalf of the Bureau of Reclamation to fight a lawsuit brought by three environmental groups. The suit would require a basin-wide environmental impact statement before work could begin on nine projects.

The lawsuit, filed in late June by the Environmental Defense Fund, the Wilderness Society and Trout Unlimited, asks for an environmental impact statement on the cumulative impact of the water projects on the Colorado. The lawsuit says that "current piecemeal planning" on the river has diminished water quality, increasing salinity in the basin.

Individual impact statements have been prepared on each of the nine projects, but the suit contends "no EIS has been prepared which comprehensively analyzes this continuing major federal development program, its cumulative impacts on the region, nation or international community or the reasonable alternatives to it."

However, four states — Colorado, Wyoming, New Mexico, and Utah — have decided to intervene in the suit. Fred Kroeger, president of the Southwest Water

Conservation District, says the suit is "totally ridiculous." Kroeger says that a regional EIS would take five years to prepare and would be out of date by the time it was completed.

In addition to the four upper basin states, Nevada and Arizona are expected to file similar action. Among the basin states, only California is expected to refrain from entering the suit. The lawsuit is the second legal action in recent months involving the Colorado. EDF also has filed a suit asking that recent rules governing the salinity of the river be declared void and that no further increase in salinity be allowed.

Spray kills mink?

Herbicide spraying by the Burlington Northern Railroad is believed to have killed between 600 and 1,000 domestic minks on a ranch near Ronan, Mont., the *Missoulian* reports. Glenn Rogers, who owns the mink ranch, had four of his nine mink sheds within 75 feet of the track along which the spraying occurred.

Blood and organ analysis conducted by a Salt Lake City firm showed the presence of Dupont Hyvar X, Amchem Amizol and 2,4-D in the dead minks.

Gravel filibuster annoys Senators

"Udall is saying Alaska is split on D-2. Let's show Congress we are united. A vote for Hickel is a vote against D-2."

—State Representative ED DANKWORTH



Hickel For Governor

WALTER HICKEL'S campaign ads focus on the legislation to protect Alaska lands.

Sen. Mike Gravel (D-Alaska) antagonized Senate Majority Leader Robert Byrd by attempting a filibuster before the Alaska National Interest Lands Conservation Act even reached the Senate floor. By reading former President Gerald R. Ford's biography, Gravel hoped to keep the Senate in session all night July 13, and thus prevent the Senate Energy and Natural Resources Committee from meeting to mark up the legislation.

Depending upon the committee's actions, the bill could protect as much as 110 million acres of what are known as d-2 lands.

Byrd, of West Virginia, and Sen. Howard Baker (R-Tenn.) used a parliamentary rule to allow the committee to meet, and Byrd

told Gravel that he would lose whatever support he had from him if he continued such tactics.

Gravel and Sen. Ted Stevens (R-Alaska) still promise a filibuster when the bill gets to the floor, which may be in two or three weeks. Apparently, both of them, as well as the two front-leading gubernatorial candidates, incumbent Jay Hammond and Walter Hickel, believe the mood in Alaska is against the proposed legislation. Hickel is accusing Hammond of secretly supporting the House version of the bill, which puts the most land under federal protection. In fact, Hammond also has consistently opposed the House bill, and he sent telegrams to every member of the House telling them so before they acted on the legislation.

14-High Country News - July 28, 1978

CLIVUS MULTRUM Organic Waste Treatment System

The Clivus odorlessly composts bathroom wastes and organic garbage for on-site reuse. It uses no water and recycles nutrients, saving energy. These characteristics, its simplicity and long life make the Clivus an appropriate tool for an age of rational technology. Distributors sought. For more information contact: Clivus Multrum Northern Rockies, 205 Meadows Road, Whitefish, MT 59937.

Rocky Mtn. National
Park Hiking Trails—plus Indian Peaks. Complete guide to 440+ miles of trail. Maps, drawings. Quality guaranteed. Free Catalog. \$7.50 postpaid.
6000 Kingslee, Box 6X, Charlotte, NC 28210

KAYAKS & CANOES

Do it yourself and save 50%.
FREE CATALOG, PLASTICRAFTS
2800 N. SPEER BLVD.
DENVER, CO. 80211

LARSEN'S BICYCLES

233 EAST 2nd ~ PHONE 754-5481
POWELL WYOMING 82435

RALEIGH



dealers for:
Clivus Multrum
composting toilets
Sunlite® fiberglass glazing for
greenhouses and solar panels
for information send SASE to:
teton tinkers + traders
box 91 Victor, Idaho 83455

CARVED HIKING STAFF

Handsome oak, displays seagulls, tree, fish — postpaid \$14.95. (Its unique.) Lifetime quality.

STAFF O' LIFE® P.O. Box 17751
Memphis, TN 38117

SERVICE DIRECTORY

WILDLIFE PHOTOS

ORIGINAL CUSTOM PRINTED WILDLIFE PHOTOGRAPHS HAND PRINTED ON BEAUTIFUL GLOSSY NON-FADING CIBACHROME PHOTOGRAPHIC PAPER. VERY TRUE COLOR, ALL AGAINST BEAUTIFUL NATURAL BACKGROUNDS.

ANTELOPE — Newborn fawn, running doe, buck, big herd. DEER — Buck in velvet, buck leaping fence, fawns in winter. ELK — Bull on snow, bull in velvet, bugling bull. GOLDEN EAGLE — Immature bird in nest (extreme closeup). CANADA GEESE — Feeding.

PRAIRIE DOG, MARMOT, STRUTTING SAGE GROUSE, TRUMPETER SWANS 8x10 print — \$10 — add \$1 for matboard mount. Available on beautiful REDWOOD PLAQUE for \$5 extra 11x14 print — \$20 — add \$2 for matboard (no plaques) Other wildlife scenes — write, probably have them.

ED'S CAMERA ADVENTURES, 242 Main Street, Lander, Wyoming 82520 (307) 332-3600.

Kayaks—Canoes—Accessories

White water boats by Dick Held

For brochure contact:

Steve Peterzen, Dept. A, 924½ East Fremont, Riverton, Wyoming, 82501, 307-856-7432 or Bob Peel, Dept. A, 209 East Monroe, Riverton, Wyo. 82501, 307-856-6498.



BACK TO THE LAND MAILING SERVICE

Receive mailings from dozens of back-to-the-land publications and businesses. From solar and wind energy to dehydrators and drip irrigation. Keep informed; save time and postage. Receive mailings for six months. \$3 or write for information.

G & J Distributors, Dept. MM, 4523 Labath, Santa Rosa, CA 95401

Peregrine Smith, Inc.
Purveyors of fine books—
including Western history, fiction,
art and architecture.
Write for Catalog
P.O. Box 667 • Layton, Utah 84041

State of Wyoming Public Notice

PURPOSE OF PUBLIC NOTICE

THE PURPOSE OF THIS PUBLIC NOTICE IS TO STATE THE STATE OF WYOMING'S INTENTION TO ISSUE WASTEWATER DISCHARGE PERMITS UNDER THE FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972 (FWPCA), P.L. 92-500 AND THE WYOMING ENVIRONMENTAL QUALITY ACT (35-11-101 et. seq., WYOMING STATUTES 1973).

IT IS THE STATE OF WYOMING'S INTENTION TO ISSUE WASTEWATER DISCHARGE PERMITS TO (2) TWO INDUSTRIAL DISCHARGERS AND (3) THREE OIL TREATMENT DISCHARGERS. TO RENEW (1) ONE MUNICIPAL DISCHARGE PERMIT, AND TO MODIFY (2) TWENTY-ONE OIL TREATMENT DISCHARGE PERMITS WITHIN THE STATE OF WYOMING.

APPLICANT INFORMATION

(1) APPLICANT NAME: BASIN ELECTRIC POWER COOPERATIVE
MAILING ADDRESS: C O BANNER ASSOCIATES, INC.
P. O. BOX 550
LARAMIE, WYOMING 82070
FACILITY LOCATION: GRAYROCKS DAM CONSTRUCTION -
PHASE II, PLATTE COUNTY, WYOMING
APPLICATION NUMBER: Wy-0027936

The Basin Electric Power Cooperative is in the process of constructing Grayrocks Dam on the Laramie River. In order to construct the dam, it is necessary to dewater the area at the base of the dam to allow heavy equipment to operate.

Dam construction will be carried out in three phases; the proposed permit covers the second phase. Effluent water falls into three basic classes: (1) Drilling muds and fluids - These liquids will be completely contained in "drilling pits" and there will be no discharge of this material; (2) Water which is brought to the surface immediately upon completion of the well. This water tends to be turbid and will be discharged to a complete containment pond; and, (3) Water which is pumped to the surface after "clean-up" of the well is completed. This water will constitute the permitted discharges and will be released directly to the Laramie River (Class II stream).

The proposed permit requires that any discharge to the River have a turbidity of less than 10 NTU's to insure compliance with Wyoming's surface water quality standards. Because the chemical quality of the water being pumped is virtually identical to that of the River, no other effluent limitations were judged applicable.

The proposed permit requires the permittee to monitor the turbidity of the discharges twice per day and to report results monthly. There will be four discharge points: 003 is the southernmost outfall from Standby Well No. 1; 004 is the combined outfall of Standby Well No. 1 and Well No. 5; 005 is the outfall from Well No. 6; and, 006 is the outfall from Well No. 7.

Phase II is expected to be completed late in 1978, or early 1979; therefore, this permit will expire March 31, 1979.

(2) APPLICANT NAME: ROCKY MOUNTAIN ENERGY COMPANY
MAILING ADDRESS: 4704 HARLAN STREET
DENVER, COLORADO 80212
FACILITY LOCATION: COPPER MOUNTAIN PROJECT, NORTH
CANNING BULK SAMPLING, FREMONT
COUNTY, WYOMING
APPLICATION NUMBER: Wy-0027961

Rocky Mountain Energy plans to begin ore sampling operations at their Copper Mountain Uranium mining area located approximately fifteen miles east of Boysen Dam. Ore samples will be collected through excavation of a small pit. Groundwater may be encountered in this pit. If water is encountered it will be treated with barium chloride for radium removal and then settled prior to discharge to an unnamed tributary of the East Fork of Dry Creek (Class IV water). The primary pit discharge (001) is located in the SE¼, Section 28, T40N, R92W, however, a contingency discharge point (002), located in the SW¼, Section 27, T40N, R92W, is also authorized.

Effluent discharges will be required to meet limitations considered to be "best practicable" effective immediately. Periodic self-monitoring of effluent quality is required with reporting of results quarterly. Due to the fact that there is uncertainty surrounding the eventual EPA toxic substance effluent limitations for uranium mines, a relatively short-term permit (expiration date December 31, 1980) is proposed.

(3) APPLICANT NAME: BUTTES RESOURCES COMPANY
MAILING ADDRESS: P. O. BOX 121
OSAGE, WYOMING 82223
FACILITY LOCATION: STATE LEASE, NW¼, SEC-
TION 36, T36N, R66W,
NIOBRARA COUNTY, WYOMING
APPLICATION NUMBER: Wy-0027944

(4) APPLICANT NAME: DIAMOND SHAMROCK CORPORATION

MAILING ADDRESS: 5730 WEST YELLOWSTONE
CASPER, WYOMING 82601

FACILITY LOCATION: MARTIN SPRING FEDERAL NO. 42-8,
NEW, SECTION 8, T36N, R74W,
CONVERSE COUNTY, WYOMING

APPLICATION NUMBER: Wy-0027707

FACILITY LOCATION: MARTIN SPRING FEDERAL NO. 44-5,
SE¼, SECTION 8, T36N, R74W,
CONVERSE COUNTY, WYOMING

APPLICATION NUMBER: Wy-0027715

All three facilities are typical oil production units located in Converse and Niobrara Counties, Wyoming. The produced water is separated from the petroleum product through the use of heater treaters and skim ponds. All discharges are to Class IV waters of the State (waters which have no hydrologic potential to support aquatic life). The discharges must meet Wyoming's Produced Water Criteria effective immediately, Chapter VII of the Wyoming Water Quality Rules and Regulations infers that as long as the Produced Water Criteria is met, the water is suitable for beneficial use. Because the discharges are to Class IV streams, limitations more stringent than those indicated in the Produced Water Criteria are not necessary to insure compliance with Wyoming's Surface Water Quality Standards.

The two Diamond Shamrock permits are for emergency situations only. There will only be a discharge from these facilities in the case of mechanical malfunctions.

Semi-annual self-monitoring is required for all parameters with the exception of oil and grease which must be monitored quarterly.

The permits will expire December 31, 1982.

(5) PERMIT NAME: TOWN OF BUFFALO, WYOMING

MAILING ADDRESS: P. O. BOX 430
BUFFALO, WYOMING 82834

PERMIT NUMBER: Wy-0021024

The wastewater treatment facilities serving the Town of Buffalo consist of a single cell non-aerated lagoon with two separate outfalls. 001 is the outfall which lies near the southeast corner of the existing lagoon and 002 is the outfall which lies near the northeast corner of the existing lagoon. Discharge point 003 will be the outfall from any new or upgraded waste treatment facility. All discharges are to Clear Creek (Class II stream).

The proposed permit contains three separate effluent limitation sections. First, an interim requirement that the existing facilities be operated at maximum capability and efficiency. The interim requirement remains in effect until completion of new or upgraded facilities designed to meet Secondary Treatment requirements which, according to the State's construction grant officer, should be completed by July 1, 1980. With Secondary Treatment, the national standards for BOD5 and total suspended solids are imposed, and limitations on fecal coliform bacteria and total residual chlorine based on Wyoming's Water Quality Standards go into effect. The third effluent limitation section requires another upgrading to meet Wyoming's in-stream standards for ammonia. Ammonia removal is considered to be tertiary treatment and it is Wyoming's policy that funding for tertiary treatment will be made only after all publicly owned treatment works in the State have been upgraded to Secondary levels. Because tertiary treatment is such a low priority it is not possible to include a definite schedule for achieving ammonia limitations. The situation will continue to be evaluated and it becomes possible to include a tertiary treatment compliance schedule in the future, the permit will be modified and such a schedule will be added to the permit.

At this time it appears that violation of Wyoming's in-stream standards for dissolved oxygen will not occur provided National Secondary Treatment Standards are achieved. This position will be re-evaluated (and the permit modified if necessary) as more information becomes available.

Included in the permit is a limitation on flow volume. The limit is set at the maximum design flow of the new or upgraded plant. Once 80% of this design flow is reached, the permit requires the permittee to begin preliminary planning for expansion and, if necessary, upgrading of the facility.

The proposed permit specifies different limitations on total suspended solids depending on whether the method of treatment is lagoons. Federal regulations allow a higher limitation on total suspended solids if lagoon treatment is used, and the Town of Buffalo has specifically requested this provision. The Town specifically requested exemption from the July 1, 1977 deadline for achievement of Secondary Treatment Standards which is allowed under the 1977 Federal Water Pollution Control Act. Because the Town has not yet been given Federal funds for construction of Secondary Treatment facilities, the requested exemption has been granted.

The proposed permit requires periodic self-monitoring of effluent quality with reporting of results quarterly. The permit is scheduled to expire September 30, 1983.

(continued on page 15)

(continued from page 14)

(6) PERMIT NAME: ATLANTIC RICHFIELD COMPANY	(11) PERMIT NAME: EXETER EXPLORATION COMPANY	(17) PERMIT NAME: PRENALTA CORPORATION
MAILING ADDRESS: 1860 LINCOLN STREET, SUITE 501 DENVER, COLORADO 80285	MAILING ADDRESS: 327 GUARANTY BUILDING 817 - 17TH STREET DENVER, COLORADO 80202	MAILING ADDRESS: P. O. BOX 2514 CASPER, WYOMING 82601
FACILITY LOCATION: CLARKS RANCH FIELD, NW4, SECTION 8, T36N, R84W, NATRONA COUNTY, WYOMING	FACILITY LOCATION: PUBCO FEDERAL 4-5, SW4, SECTION 4, T36N, R81W, NATRONA COUNTY, WYOMING	FACILITY LOCATION: PRENALTA GOVERNMENT 31-7-36-77 LEASE, NE4, SECTION 7, T36N, R77W, NATRONA COUNTY, WYOMING
PERMIT NUMBER: Wy-0024864	PERMIT NUMBER: Wy-0027111	PERMIT NUMBER: Wy-0026298
(7) PERMIT NAME: ARNELL OIL COMPANY	(12) PERMIT NAME: FARMERS UNION CENTRAL EXCHANGE, INC.	(18) PERMIT NAME: SOUTHLAND ROYALTY COMPANY
MAILING ADDRESS: 6815 SOUTH STEELE STREET LITTLETON, COLORADO 81022	MAILING ADDRESS: P. O. BOX 126 LAUREL, MONTANA 59044	MAILING ADDRESS: 400 EAST 1ST, SUITE 314 CASPER, WYOMING 82601
FACILITY LOCATION: POISON SPIDER FIELD NO. 1 BATTERY, NW4, SECTION 12, T33N, R83W, NATRONA COUNTY, WYOMING	FACILITY LOCATION: SAGE SPRING CREEK, UNIT A BATTERY TREATER PTT, NW4, SE4, SECTION 31, T37N, R77W, NATRONA COUNTY, WYOMING	FACILITY LOCATION: OKIE DRAW FEDERAL NO. 1-14, SW4, SE4, SECTION 14, T37N, R85W, NATRONA COUNTY, WYOMING
PERMIT NUMBER: Wy-0024368	PERMIT NUMBER: Wy-0024503	PERMIT NUMBER: Wy-0027367
FACILITY LOCATION: POISON SPIDER FIELD NO. 2 BATTERY, NW4, SECTION 12, T33N, R83W, NATRONA COUNTY, WYOMING	(13) PERMIT NAME: HARPEL PETROLEUM CORPORATION	(19) PERMIT NAME: TERRA RESOURCES
PERMIT NUMBER: Wy-0024376	MAILING ADDRESS: P. O. BOX 2811 CASPER, WYOMING 82602	MAILING ADDRESS: P. O. BOX 2500 CASPER, WYOMING 82601
(8) PERMIT NAME: BEREN CORPORATION	FACILITY LOCATION: SOUTH CASPER CREEK UNIT, SW4, SECTION 34, T34N, R83W, NATRONA COUNTY, WYOMING	FACILITY LOCATION: BROOKS RANCH SAND UNIT, NW4, SECTION 15, T33N, R77W, NATRONA COUNTY, WYOMING
MAILING ADDRESS: 2160 FIRST OF DENVER PLAZA 833 - 17TH STREET DENVER, COLORADO 80202	PERMIT NUMBER: Wy-0024619	PERMIT NUMBER: Wy-001473
FACILITY LOCATION: IRVINE BROTHERS FEDERAL LEASE, SE4, SECTION 8, T37N, R84W, NATRONA COUNTY, WYOMING	(14) PERMIT NAME: THE HAWKS COMPANY	FACILITY LOCATION: NOTCHES DOME FIELD TENSLEEP UNIT, NE4, SECTION 10, T37N, R85W, NATRONA COUNTY, WYOMING
PERMIT NUMBER: Wy-0026603	MAILING ADDRESS: P. O. BOX 2491 CASPER, WYOMING 82601	PERMIT NUMBER: Wy-0001481
FACILITY LOCATION: MCCHESENEY LEASE, NW4, SECTION 17, T37N, R84W, NATRONA COUNTY, WYOMING	FACILITY LOCATION: PINE MOUNTAIN FIELD, SECTION 35, T35N, R84W, NATRONA COUNTY, WYOMING	FACILITY LOCATION: BOONE DOME UNIT, WELL NO. 2, NW4, SECTION 10, T35N, R85W, NATRONA COUNTY, WYOMING
PERMIT NUMBER: Wy-0026611	PERMIT NUMBER: Wy-0025101	PERMIT NUMBER: Wy-0001503
(9) PERMIT NAME: DIAMOND SHAMROCK COMPANY	(15) PERMIT NAME: HAROLD KENTTA	FACILITY LOCATION: NOTCHES DOME FIELD OKIE NO. 1 UNIT, NE4, SECTION 10, T37N, R85W, NATRONA COUNTY, WYOMING
MAILING ADDRESS: 5730 WEST YELLOWSTONE CASPER, WYOMING 82601	MAILING ADDRESS: P. O. BOX 1346 CASPER, WYOMING 82601	PERMIT NUMBER: Wy-0001511
FACILITY LOCATION: MARTIN SPRING FEDERAL NO. 13-21, SW4, SECTION 21, T36N, R74W, CONVERSE COUNTY, WYOMING	FACILITY LOCATION: FORGERY RANCH UNIT, SECTION 26, T33N, R87W, NATRONA COUNTY, WYOMING	(20) PERMIT NAME: UNION OIL COMPANY OF CALIFORNIA
PERMIT NUMBER: Wy-0027201	PERMIT NUMBER: Wy-0025119	MAILING ADDRESS: P. O. BOX 79 WORLAND, WYOMING 82401
(10) PERMIT NAME: J. G. DYER	(16) PERMIT NAME: PHILLIPS PETROLEUM COMPANY	FACILITY LOCATION: SOUTH CASPER CREEK UNIT, NE4, SE4, SECTION 3, T33N, R83W, NATRONA COUNTY, WYOMING
MAILING ADDRESS: P. O. BOX 338 CASPER, WYOMING 82601	MAILING ADDRESS: P. O. BOX 2920 CASPER, WYOMING 82602	PERMIT NUMBER: Wy-0023914
FACILITY LOCATION: SBMWCSU TANK BATTERY, SW4, SECTION 16, T33N, R75W, CONVERSE COUNTY, WYOMING	FACILITY LOCATION: EVELYN "A" LEASE, NW4, SECTION 4, T33N, R75W, CONVERSE COUNTY, WYOMING	(21) PERMIT NAME: E. C. YEGEN
PERMIT NUMBER: Wy-0026573	PERMIT NUMBER: Wy-0026191	MAILING ADDRESS: P. O. BOX 959 BILLINGS, MONTANA 59101
		FACILITY LOCATION: NORTH CASPER CREEK FIELD GOWIN NO. 1 BATTERY, SE4, SECTION 36, T37N, R82W, NATRONA COUNTY, WYOMING
		PERMIT NUMBER: Wy-0026859

All facilities are typical oil production units located in Natrona and Converse Counties, Wyoming. The produced water is separated from the petroleum product through the use of heater treaters and skim ponds.

The permits are being modified to simply change the expiration dates from July 31, 1980 to December 31, 1982. This change will be extremely beneficial in spreading out the expiration dates of oil treater discharge permits in Wyoming and thereby spreading out the work load for this Department.

All discharges are to Class IV streams with the exceptions of Dyer (Wy-0026573), which is to the North Platte River (Class II stream) via an unnamed drainage, Phillips (Wy-0026191), which is to Deer Creek (Class II stream), Terra (Wy-0001473), which is to Muddy Creek (Class II stream) via an unnamed drainage and E. C. Yegen (Wy-0026859), which is to the North Fork of Casper Creek (Class III stream) via an unnamed drainage.

All discharges must meet Wyoming's Produced Water Criteria effective immediately with the exception of Farmers Union (Wy-0024503) and Prenalta (Wy-0026298). Letters of beneficial use have been received by area ranchers concerning these discharges, therefore, limitations on the chemical parameters have been waived. The 10 mg per 1 oil and grease limit and the 6.5 - 8.5 pH limit are still included in these permits.

Chapter VII of the Wyoming Water Quality Rules and Regulations infers that as long as the Produced Water Criteria is met, the water is suitable for beneficial use. It has been determined that more stringent limitations than those included in the Produced Water Criteria are not necessary to insure compliance with Wyoming Surface Water Quality Standards for those facilities which discharge to Class III streams. There is presently no evidence to indicate that limitations more stringent than those included in the Produced Water Criteria are necessary to meet Wyoming's Water Quality Standards for those facilities which discharge to Class II or III streams. This Department will continue to evaluate these discharges and, if necessary, will modify these permits if more stringent limitations are deemed necessary.

Semi-annual self-monitoring is required for all parameters with the exception of oil and grease, which must be monitored quarterly.

STATE EPA TENTATIVE DETERMINATIONS

Tentative determinations have been made by the State of Wyoming in cooperation with the EPA staff relative to effluent limitations and conditions to be imposed on the permits. These limitations and conditions will assure that State water quality standards and applicable provisions of the FWPCA will be protected.

PUBLIC COMMENTS

Public comments are invited any time prior to August 27, 1978. Comments may be directed to the Wyoming Department of Environmental Quality, Water Quality Division, Permits Section, Hathaway Building, Cheyenne, Wyoming 82002, or the U.S. Environmental Protection Agency, Region VIII, Enforcement Division, Permits Administration and Compliance Branch, 1860 Lincoln Street, Denver, Colorado 80295. All comments received prior to August 27, 1978 will be considered in the formulation of final determinations to be imposed on the permits.

ADDITIONAL INFORMATION

Additional information may be obtained upon request by calling the State of Wyoming, (307) 777-7781, or EPA, (303) 327-3874, or by writing to the aforementioned addresses.

The complete applications, draft permits and related documents are available for review and reproduction at the aforementioned addresses.

Public Notice No: Wy-78-009

HCN Bulletin Board



LOONEY LIMERICKS

by Zane E. Cology

A buyer the least bit reflective
Will look for what's most cost-effective.
He'll go for the passive,
The cheap and the massive,
The solar that's chic and connective.

GASOHOL REPORT

Gasohol is an economically and environmentally sound alternative to gasoline, according to a report by the Citizens' Energy Project in Washington, D.C. The 14-page report discusses the manufacturing of gasohol — a 90 percent gasoline, 10 percent biomass-derived alcohol mix — and the political barriers blocking its use. The report is available for 90 cents from Citizens' Energy Project, 1413 K St. NW, 8th Floor, Washington D.C. 20005.

ENERGY AND PUBLIC LANDS

The energy crisis has spawned an annual event in Park City, Utah — the Energy and Public Lands conference, which will be August 16-18 this year. Denis Hayes of the Worldwatch Institute; Guy Martin, assistant Interior secretary for land and water resources; Helen Ingram of Resources for the Future; Allan Boyce, assistant vice-president of Burlington Northern Railroad, and Frank Gregg, director of the Bureau of Land Management, are among

the speakers. The conference is sponsored by the University of Utah and the Environmental Law Institute in Washington, D.C. Registration is \$225. For more information contact: Conference and Institutes, 1152 Annex Building, Division of Continuing Education, University of Utah, Salt Lake City, Utah 84112.



16-High Country News - July 28, 1978

HCN readers say 'good, but not good enough'

Dear Friends,

High Country News readers are a feckless lot, who wander from place to place, make a lot of money and brood about the environment.

No. Let's try again: **High Country News** readers are well-educated, widely traveled professionals who read a lot, spend much time outdoors and work hard to preserve the environment.

Those two interpretations emerge from a reader survey conducted by HCN and they illustrate the difficulty of trying to conduct surveys of this kind — you can do almost anything you like with raw statistics.

Altogether, 271 of our 3,600 subscribers responded to the survey, most with good humor. Two, however, answering the question, "What do you like least about **High Country News**?" replied, "Difficult surveys."

Difficult or not, we believe we learned something about you and what you expect from us in this survey, though statisticians may quibble that a random sampling of 7.5 percent hardly establishes any clear trend, particularly when the answers are so diverse.

But, it's all we have to work with. So without further ado, except to thank those who took the trouble to respond, here's what you readers — or 271 of you — think of us:

First, it seems we can't do anything right. Asked what you disliked most about us, about a quarter of you found something to pick on. Only a few of you, however, picked on the same thing. Most picked-on is our running of advertisements, a decision we made two years ago, agonized over for years before and still are agonizing over. Six of you said that accepting advertising, censored as it is, was what you dislike most about us. The financial picture being what it is, you may have nothing left to dislike most if we stop running ads.

Five thought our articles are too long and as many thought the paper was too small. Four disliked the layout. One each said we're faddish, we're staid, we're biased, we're not biased enough.

Then, examining answers to the question, "What do you like most about HCN?" we found we can't do anything wrong. Here, definite patterns emerged. Fifty-seven said our news coverage was what they liked best, an encouraging answer since we try to be a newspaper. Between 20 and 30 think our reporting and writing are of high quality, we're fair, accurate and timely and our stories are factual. The other scattered responses ranged from an affection for long stories to a fixation with our centerspreads, from admiration for our mixture of national and regional news to respect for our coverage of local issues. One even said his favorite aspect of HCN was the classified advertising, and another said it was the alternative advertising.

We turned to our regular features and the issues we try to cover. We found that **Western Roundup** was the most popular feature, and wildlife and alternative energy the most widely read issues. **Hot-line**, **Bulletin Board** and the centerspreads all received creditable grades, while the book reviews, letters and opinion pages passed muster fairly comfortably. There was only lukewarm enthusiasm for the cartoons, "Dear Friends" and the "High Country" column. The "Branching Out" column was liked not at all by the most readers — 63 — though it had 46 loyal supporters. Our coverage of issues such as

agriculture, politics, coal and uranium development and Indian resources all are quite well received, with coal development leading the pack.

We presented you with a confusing, double-barreled question and deservedly got confusing, double-barreled replies. In one spot, we listed 11 stories we published during the past year, and asked you to rate them according to whether you liked them very much, moderately or not at all. In another spot, we asked what story or series



you liked most and left a blank space for you to fill in. (The blank spaces, some readers said, weren't big enough, and they liked that not at all.)

What transpired here was, for example, the following: 173 said they very much liked the **Western Watch** on Washington series, but only 18 picked political profiles — including **Western Watch** — as their favorite stories of the year. Peter Wild's series on conservation pioneers was the runaway favorite story with 45 votes, while the uranium issue and continuing coverage of solar and wind energy tied for second with 31 each. **Western Watch** was liked "very much" by most readers, beating Bill Schneider's grizzly bear story by a claw.

Only one story or series was disliked more than liked, and that was **Poetry of the Earth**, which failed to arouse any interest on the parts of 65 readers. That was another Peter Wild idea, so he becomes the only contributor in HCN history to be voted most and least popular in the same year.

A newspaper, at least theoretically, always tries to improve itself, and we found our readers think we can stand some improvement in virtually everything we do. We agree. We'll keep trying. You appeared satisfied with only one aspect of HCN — the layout. Asked if the layout was easy to follow — and that's not the same as asking

whether the layout is good — 202 readers said yes. Otherwise, though the answers generally were on the positive side, you had reservations.

Forty-five readers, for instance, said our reporting is fair all the time, while 180 thought it was fair only most of the time. To say that a newspaper is fair most of the

Peter Wild became the first contributor in HCN history to be named most and least popular in the same year.

time is about the same as saying a judge is awake for most of a trial.

You expressed similar, mild dissatisfaction with the length, development and liveliness of our reporting, with our editors and with our illustrations.

Yet, in doing so, you encouraged us, too. Only one thought we'd turned belly up in the past year and 167 thought we'd improved. We've improved so much, you said, that 125 of you want more pages, and 136 are willing to pay more for them.

And perhaps the most encouraging aspect is that the vast majority of you thought we're of some practical use. We asked if our coverage of environmental groups and their organizing strategies was helpful, boring or destructive and 239 said it was the first, 15 the second and six the third. In addition, 253 found our coverage of commercial solar systems helpful, four found it boring and no one thought it destructive.

Finally, we got a little jaded with the daily fare and decided we'd try to be funny by putting out a lampoon of ourselves. Forty-nine of you thought we'd succeeded in being funny, 26 thought we'd succeeded in being stupid and 69 felt we'd been slightly funny.

That's what you told us about ourselves. Here's what we learned about you:

First, we could easily start a book exchange. Between them, the 200 subscribers who said they'd read at least one book during the past year polished off 182 different books. Twenty-two read more than 60 books last year, and 54 read between 20 and 40. As for subject matter, the books ranged from flush toilets to Faulkner, from environmental affairs to Eleanor Roosevelt, from civil rights to civil tongues.

We learned that 156 of you shop at mail order houses, with **Recreational Equipment, Inc.**, **L.L. Bean** and **Sears**, in that order, the favorites. We learned that 190 of you traveled during the past year, and that 41 of you were away from home between two and 10 months of the year.

We learned that a reader revolt is brewing. In our last survey two years ago, we asked if you objected to our including your name on lists we exchange with other publications to attract subscribers. Then, less than one percent of the readers said they did, indeed, mind. Now, 44 object to this, and 175 don't. We'd like to act on these objections, but can't until the 44 objectors — and any other reader who feels the same way — send us their names and addresses so we can remove them from the lists.

We learned that 133 of you like to hike, but only 75 of you like it so much that you're willing to carry a backpack. Hunting, fishing, skiing, camping, photography, wildlife observation, river running and gardening are among your favorite outdoor activities. Reading is the favorite indoor pastime. One brave reader's favorite outdoor recreation is sky diving. Another reader, equally brave given the context, prefers television above all else.

We learned that 163 of you live in the Rocky Mountain region, and 103 outside it. Only five who live in the region intend to move out. Two-hundred-and-nineteen read HCN because they consider themselves environmentalists; four read it because they're non-environmentalists. The vast majority — 218 — describe themselves as lovers of nature, and 90 are either government or private professionals, while 34 are journalists, 55 students, 82 volunteer environmentalists and 16 professional environmentalists.

Until it gets to the upper brackets, the income of our readers is fairly well divided. There are roughly 50 in each \$5,000 per year increment between no income and \$20,000; 69 make more than \$20,000 a year. Most are well- (or at least lengthily-) educated, with 115 doing some college graduate work, and 71 getting through college.

You have strong opinions about the environment, and 218 feel strongly enough to express your feelings to your representatives. Three-quarters of you do not believe

Asked what you like least about HCN, some of you said, "Difficult surveys."

that environmental leaders are too willing to compromise, and even more of you think environmental leaders should broaden their appeal. One-hundred-and-fifty-one testify at environmental hearings. One-hundred-and-sixty-nine think environmental groups are effective and, casting doubts on that answer, 161 say political leaders are not adequately informed about the environment.

The federal government, say 162, does a better job than state and local governments of enforcing environmental protection regulations. To 206 of you, smoking should be banned in public places; 228 oppose the use of predator poisons; 162 support the use of returnable containers; 157 value a deer more than a wild horse. And you're evenly divided over the 55-mile-per-hour speed limit.

Which brings us back to the beginning. About half of you, as you move from place to place and work to protect the environment, want to do it more quickly than the law presently allows.

— the HCN staff

In The News

Solar
homes that capture heat. 1

Plants v. plants
must agriculture pay cost of coal? 1

Los Esteros
archeological losses. 8

Slurry defeat
not dead yet. 11

Endangered Species
dilemma in D.C. 12

Reader Survey
what you think. 16