

# High Country

# The Outdoor and Environmental Bi-Weekly News

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Lander, Wyoming

Friday, Mar. 31, 1972



Photo by Mike Sawyers

A string of trout from the Logan River, Utah. Destruction of streams, pollution, and other factors may someday make this kind of photo a rarity.

## Wagon Wheel— Mark of Progress

by Tom Bell

"Welcome Wagon Wheel!"

Depending upon your point of view, the epithet coined by the town council of Big Piney, Wyoming, may make you glad or make you sad.

The reference is to the Wagon Wheel project, an experimental nuclear stimulation of deep, tight, gas-bearing formations in Wyoming's Green River Valley. A test involving five 100-kiloton shots to be fired sequentially, one above the other, is slated for the fall of 1973.

El Paso Natural Gas Co. is proposing the experiment in conjunction with the AEC which will furnish the nuclear devices. The purpose of the experiment is to determine if large, commercially valuable gas deposits can be developed by blasting underground caverns.

In proposing the experiment, El Paso cites the growing need for more natural gas supplies and the imminence of an energy crisis. The company says if the experiment is successful, it estimates that production from a 25-well development within the 13,551-acre participating area could be started in 1977 to support sale of 50 to 75 million standard cubic feet of gas per day.

Most residents of the quiet, peaceful Green River Valley are less than happy with the prospect. In an area which has changed but very little from the days of the mountain men who came to the fur rendezvous here, people are fearful of the consequences.

Last week, nearly 600 residents of the valley gathered at Pinedale to commiserate

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Wyoming's Green River flows through a serene and beautiful valley on its way to the Colorado. The controversy over dams and diversions of the pure waters of the Green continues. Now, another element had been added. Project Wagon-wheel, a proposal to recover natural gas from deep, underground strata by nuclear explosions, has stirred another controversy.

## Aquatic Deserts -On the March

by Mike Sawyers

March 30, 6 browns, 12 to 16 inches, 2-1/2 hours

May 18, 5 browns, 10 to 14 inches, 1-1/2 hours

June 20, 8 browns, 12 to 17 inches, 2-1/2 hours

These are records from a personal fishing diary which was kept for a three year period on a portion of the Logan River in Cache Valley in northern Utah.

The Utah Division of Wildlife Resources feels that a trout fishery is producing at an acceptable rate if anglers catch one-half of a fish every hour or one fish every two hours. Actually, this figure -- known as a catch rate -- is used mainly to evaluate streams and reservoirs where the usual catch consists of hatchery produced rainbows. So, when you consider that the figures above add up to catch rates of 2.4, 3.3 and 3.2 fish per hour and that those fish were naturally reproducing brown trout, the numbers become more significant.

In a period when natural browns, no matter what the size, are thought of by many fishermen as trophies, you would hardly consider the Logan River a marginal fishery. Yet that is one of the terms stuck on the lower section of the river that was dredged and channeled by the Army Corps of Engineers.

Although the brown trout angling in the portion of the river from the Main St. bridge on U. S. 91 downstream for a little over a mile was excellent, it was known by relatively few people in a town where fishing is popular. The river was a brown trout's dream. Over hung on both sides by walls of willows it wasn't one of the easier streams in the area to fish (or dredge). Combined with the brown trout's natural wariness and the fact that you had to walk 100 yards to the river in some spots, this large amount of natural cover created a rare treat. There are not many places where you can catch wild brown trout up

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# HIGH COUNTRY

By Tom Bell



Photo by Dillis Gose

When winter wanes and the first warm days relentlessly reduce snowbanks to trickles of water, the mountain cliffs are fleetingly festooned with nature's works of art.

High over the lands of eastern Europe, during World War II, I used to look out from my perch in the nose of a bomber and think to myself, "Gee, this is like sitting in the balcony of the theater back home." I was watching the latest newsreel of a war in some distant land. It was totally unreal. Even though there were enemy fighters screaming through our formation or ominous black clouds of flak hung all around, I just couldn't believe it.

Almost incredulously, I find myself in somewhat the same position now. Only now, I am looking out on a world scene from the perspective of an editor's desk. To be sure, the perspective is limited as it was in those skies over Austria. But the scenario in both cases is very real.

As I write this, debate is to begin on the House Water Pollution Control Bill. It is incredible that representatives of the public interest would deign to spend time debating such a totally inadequate and unacceptable piece of legislation. The flow of material across my desk indicates that the efforts to clean up our total, national water resource has fallen far short of anything meaningful. On page seven of this issue, the article on water introduced into the Congressional Record on February 29 relates the problems we face with water. The conclusions reached by the U. N. Food and Agricultural Organization are stunning.

TIME (March 27, 1972) tells of the problems of El Paso, Texas, and the lead poisoning resulting from a smelter. There, a number of children show symptoms of acute lead poisoning. The American Smelting and Refining Company plant has been sued by state and city officials for emitting enormous amounts of lead, cadmium, arsenic and zinc into the air from 1969 to 1971.

In Ohio, Hanna Coal Co., one of the nation's largest (and in addition a subsidiary of Consolidation Coal Co. which is a subsidiary of Continental Oil Co. - you know, Clean Air CONOCO) has organized massive resistance to strip mine legislation. The president of Hanna, Ralph W. Hatch, gathered some 1,400 people to tell them to actively oppose pending legislation. He said the day the law is passed "the Hanna surface and possibly the underground mines must close down," Hanna employs 1,300 persons in the stripping operations and 900 in underground mines.

The Federal Power Commission is operating under a mask of secrecy. Recently, members of Congress, consumer groups and environmental organizations requested the FPC to unmask. Some 120 major oil and gas officials comprise most of the membership of FPC special task forces. These task forces supposedly supply the FPC with "confidential" information on oil and gas reserves, fuel supplies and operating costs. A petition to the FPC says that "an advisory committee dominated by the very industry the Commission is required to regulate cannot be squared with the public interest."

Each passing day, developments on the environmental front take on more of the aspects of a battleground. And the consequences of winning or losing this one are more grim than any world war which has gone on before. We are engaged in a war for survival of the human species. World War III has already begun!

Like most wars, it is a series of small incidents leading up to the main event. Those small skirmishes are already underway. Only this time, it is not the good guys against the bad guys. It is us against ourselves. It is EPA against the Republican hierarchy. It is political platitudes against the realities of the day. It is pork barrel versus the bottom of the barrel.

Economic blackmail has taken the place of diplomatic blackmail. Political intrigue operates not only on the international level, but also on the national, state and local levels. It seems money will buy almost anybody as well as almost anything.

It is totally unreal. Money does not buy clean, breathable air anymore than it does a life snuffed out by a bullet. Money can't buy a healthful lifetime for a child who has ingested too much lead or too many radioactive particles. No amount of money will restore an ocean once defiled, or a virgin wilderness once used.

I can't believe it. I sit here as I once did in the nose of that plane, and it is as if I were on another planet.

(Continued on page 14.)

## Letters To The Editor



Editor:

Enclosed is a check for \$10 to renew our subscription to High Country News. We've enjoyed the coverage you've been giving the "Controversy" between Governor Anderson and Mr. Dunkle et. al. in Montana.

We'll be moving to Missoula this June and are looking forward to helping get some sensible air quality regulations (among other things) enacted.

Keep it up.

Sincerely,  
Bob and Anne Bohac  
Leadville, Colo.

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Editor:

Please renew my subscription to High Country News.

Also please begin a subscription for my daughter and her husband who, though living in England, are vigorous in their concern about the future of Wyoming's environment. Last summer they flew all the way from Oxford to backpack into the Bridger Wilderness. Send their copies to my address. I will then forward them by air mail



## HIGH COUNTRY NEWS

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to England. We cannot rely on surface mail. In winter it took one letter four months to arrive from Kent by boat.

You may wonder why I do not read my own copies of High Country News and then send them on to England. Why bother with a separate subscription? Because I am never finished with any copy of High Country News. I hang on to every issue. Each frontal page bears my own handwritten table of contents; inside are underlinings and marginal notations. All of which attests to the growing excellence of your publication as a valuable source of environmental information. Please keep it coming. With our blessing.

Sincerely,  
Joseph B. Orr and family  
Laramie, Wyoming

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Editor:

I am herewith enclosing remittance for renewal of our subscription to your wonderful publication. The many other outdoor papers and magazines we receive we scan and read selected articles, but we read all of yours and pass copies on to others when we have finished and taken notes.

Your courageous stand on the eagle murdering issues in Wyoming and other places is especially appreciated and encouraged. I hoped that the persons involved eventually will receive just and due punishment not limited to a token fine so far imposed. I recently amputated the wing of a Golden Eagle which had been shot by some human predator. This regal bird will never again fly but will be placed on display in a zoo where it hopefully will serve as a means of discouraging viewers from participating in such cruel and unnecessary vandalism.

Please, keep up the good work.

Appreciatively yours,  
Erling R. Quortrup, D.V.M.  
Brigham City, Utah

Editor's note: Thanks to readers Orr and Quortrup, amongst many others, for their renewals, their kind words and encouragement. An editor could ask for no more.

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(Continued on page 15.)



Reprinted from The IDAHO STATESMAN, Boise, Jan. 13, 1972.

## Irrigation and Pollution

Was the federal Environmental Protection Agency unfair in a recent report describing forestry, logging, rangeland management and irrigation as the principal causes of water pollution problems in Idaho?

The Idaho Water Users Association and the major farm organizations of the state say it was unfair. They cite an irrigation study in the Twin Falls area which they say shows the water quality has been improved by irrigation.

Unfortunately the EPA report is a summary, not a detailed report. Data to back up the assertion about principal causes was not included.

Perhaps irrigation is not as serious a contributor as the EPA report suggests. It is not as insignificant at the Reclamation Association contend, either. More research on the subject would be helpful.

Irrigation storage in reservoirs has reduced minimum flows in certain streams at particular times of the year. As the EPA said, "Impoundment and regulation of the vast Snake River Basin is dedicated almost exclusively to irrigation. While some reservoir regulation is managed to offset water quality problems, there are no legally instituted management considerations of the water quality impacts."

Irrigation interests have resisted state legislation to recognize stream flows for water quality as a statutory use.

The EPA report says much of the depletion of streams occurs because irrigators apply as much as two and one half times the amount of water per acre as other similarly productive areas.

That statement can be misinterpreted. Most Idaho irrigators do not apply such amounts. But some irrigators in the Upper Snake River Valley do.

Director Keith Higginson of the State Department of Water Administration has challenged the amounts used by some irrigators in Palisades Reservoir, saying that the "overuse" would irrigate 280,000 additional acres.

Some of that water might also be used to improve minimum streamflows in the Snake River.

It has been suggested that with better water conservation practices, enough water could be saved to irrigate another 500,000 acres in the Snake Basin. That is a lot of water.

A Soil Conservation Service official said in Boise last June that only 21 percent of the state's irrigated acreage has adequate conservation treatment, and only 20 per cent of the dry cropland. He cited a study in one high erosion area, the Portneuf River Canyon, showing a soil loss of six million tons per year from 1961-65.

The study cited by the Water Users Association indicated that irrigation actually reduced the phosphorus content of the water, improving its quality in that regard. But water returning to the Snake River showed an increase in salt and nitrogen levels. The author said this pollution would be diluted by the inflow at Thousand Springs. He did not say in his research paper that the over-all quality of the water was improved - a conclusion voiced by the association.

Much of the water used for irrigation does return to the streams. The severe problem with minimum flows comes in the winter when the irrigation return flow is no help.

While the rebuttal questioned the assertions that range management and logging are principal causes of pollution, professional people have described the heavy erosion resulting from poor practices - practices that are being corrected on at least some lands.

A Forest Service study showed an average runoff of 60,000 tons of silt per year from roads on the South Fork Salmon River drainage. The conclusion was that too many logging roads had been built, and too many were in the wrong places. Because of the silt buildup in the river, the salmon run was almost wiped out.

The Water Users Association statement suggested a willingness to recognize and help deal with the problems. One good place to start would be to accept minimum flows for water



quality as a legitimate use of water.

Another would be to support efforts to improve conservation practices on irrigated land, rather than simply pushing for more water projects. Some of the money now spent in other ways by the Department of Agriculture and Bureau of Reclamation should be used to help farmers conserve water and reduce runoff from their lands.

Reprinted from The IDAHO STATESMAN, Boise, Mar. 11, 1972.

## Irrigation and Potatoes

The Department of Agriculture has advised Idaho potato farmers to reduce their acreage by about 30,000 acres for 1972. That advice ought to be considered by the legislature in looking at the Swan Falls-Guffey project.

Under the Swan Falls-Guffey contract, the state is signing a solemn agreement with Idaho Power Co. to work for development of the entire Southwest Idaho project - about 500,000 acres.

The project involves numerous dams on a number of streams. One of them, Garden Valley, would flood a popular and productive valley and nearly 30 miles of rivers.

No legislator, or anyone else, can look 50 years into the future and say that Garden Valley dam should be built, or the entire Southwest Idaho project should be built. It is improper for the legislature to accept such an endorsement in the name of the people of Idaho.

The Idaho Water Resource Board, which has negotiated this contract, tells the people of Idaho that there is no over-production of potatoes. It says there will be a "tremendous demand" for crops from Southwest Idaho by 1980.

Yet the USDA indicates that Idaho in 1971 had 30,000 acres too many potatoes. (About 10 per cent of the state's three million irrigated acres is in potatoes.)

If you look at the forecasts of the Economic Research Service of the Department of Agriculture for crop needs, there is no indication of a tremendous demand for new acreage. It forecasts a 10 million acre reduction in cropland harvested and used for pasture in the U. S. through the year 2020.

That forecast was based on a population projection which was scaled downward a year later to reflect more recent birth rates.

No one should pretend to be able to make a decision for all the people of Idaho today on how a major portion of their water should be used for the next 50 years and more.

This is what the Legislature is asked to do even though:

--The water board doesn't have a completed water plan for the state.

--Much of the Southwest Idaho project has

never been studied and much of the existing data on it is outdated.

The board sees its mission as irrigating as much land as possible in Idaho. That goal seems to be at odds with the economic facts of life on the farm. It is certainly at odds with the right of a majority of Idahoans to have all uses of water fully and fairly considered.

The legislators have been advised that Idaho Power Co. insists on the language in this contract for the Swan Falls-Guffey joint venture.

If the flexibility which ought to be in any such agreement was the intent of everyone concerned, the contract wouldn't be written as it is. It presumes that all parts of the Southwest Idaho project should be built, the only test being a finding of financial feasibility. While the legislature might be reluctant to approve some specific segment in the future, the contract requires that the state's revenue be used for no other purpose, so long as any financially feasible portion is not built.

The goal of flexibility in future decision making - which should be guarded by the legislature - is contradicted by the contract.

What future legislatures are likely to recognize if this contract is approved - and what the people of Idaho can recognize right now - is that this contract is outdated. It is based on policies of the past. It ignores some of the realities of the present.

This agreement is a contradiction of the theory which the Water Board espouses - the theory of carefully and thoroughly evaluating all possible information before making decisions concerning Idaho water.

While the board says other decisions regarding Idaho water should wait for its completion of a water plan, it wants to plunge on this 50-year commitment without completing a plan.

While the board is not well equipped to reflect the changing climate of opinion, the legislature is. As a representative body it should be able to recognize that this kind of a commitment is poor policy.



## Birds Appraised

LINCOLN, Nebr. -- A federal expert on foreign game birds will tour Nebraska along with three Game Commission men for a look at the type and quantity of food and cover Nebraska's winter landscape offers any new species that might be introduced into the state.

The federal expert is Wayne Bohl of the U. S. Bureau of Sport Fisheries and Wildlife, director of that agency's Foreign Game Bird Introduction Program. Bohl's tour of the state was originally scheduled for last year, but it was postponed at the last minute and set for January of 1972.

The four biologists will conduct the inspection to see Nebraska's winter habitat at its seasonal worst. Severe winters and the state's winter habitat may be one of the factors that could figure in success or failure of establishing a new species.

Over the years, the Game Commission has been seeking new species of game birds that might provide additional hunting opportunity in Nebraska, especially in areas where man is using the land in a way that is unfavorable for native or already introduced species. At present, areas such as portions of southwestern Nebraska and the perimeter of the Sand Hills appear to offer the best stocking possibilities.

Basic environmental factors such as vegetation, altitude, rainfall, temperature range, relative humidity, and soil type have been used as a basis for selecting birds native to parts of Europe and Asia and matching them to Nebraska's environment. The Commission also considers the effect any of these imports might have on wildlife already established.

Through this comparison, the Game Commission came up with a list of five partridge and pheasant species that might do well in parts of Nebraska not now supporting ring-necked pheasants, quail, or grouse or in areas with habitat they do not utilize fully. All of these birds are native to parts of Soviet Russia, Turkey, and Iran, however. If it is decided to stock any of them obtaining birds will be dependent on the diplomatic climate.

# The Environmental Effects of Nuclear Power

This is the third in the series by nuclear scientist Pete Henault of Idaho Falls, Idaho. Henault's series, which will be concluded next issue, first appeared in the Boise, Idaho, Intermountain Observer.

by Pete Henault

The environmental impacts of nuclear power fall into two broad categories: those caused by the release of radioactivity and those caused by the release of waste heat.

The impact of released radioactivity, if indeed it is not adequately controlled and some day becomes an impact, will be long-term in character, something that will affect future generations. And the impact will be seen first in a biological way, affecting our health and the health of life around us. We might see it first as a gradual increase in the cancer rate, or in infant mortality, or in the decline of some non-human population as in the case of eagles declining because of the effects of DDT on eggshells.

But the most harmful environmental impact of nuclear power, in the coming years at least, the one that is already changing our quality of life and the one promising to be the most difficult to control, is the effect of waste heat. And while it is a very real problem of nuclear power, it is not the fault of nuclear power that it is a problem.

Most of the environmental effects of waste heat today are harmful effects and are, therefore, called "thermal pollution" by the critics and ecologists. The power companies, the Atomic Energy Commission, and those who equate more power with progress prefer to use the term "thermal effects," partly to give the public a more favorable image of their power plant and partly because the waste heat is not always harmful or does not have to be harmful. But for the next 20 years or so, it appears that "thermal pollution" will be by far the more accurate term to use.

The highest efficiency that most conventional fossil-fueled plants achieve is about 41 per cent. Today's nuclear plants, because they cannot operate as hot as conventional plants, have an efficiency of only about 30 per cent. This means that 70 per cent, or nearly three-fourths, of all the energy produced by nuclear reactors is thrown away - dumped into our environment as waste heat.

Thirty per cent versus 41 per cent doesn't appear too bad and nuclear power proponents are quick to point out that what ecologists and environmentalists are calling "thermal pollution" has been around for a long time. Technically, they aren't lying and most environmentalists, not trained in the dialogue of British thermal units and thermal efficiencies, find it hard to rebut their argument. But looking

at the facts in perspective yields a different picture.

A typical size for electrical generating plants in the next few years, whether nuclear or conventional, is one million kilowatts. Plants two and three times larger are being built, but the one million size will be more or less standard.

In order to generate one million kilowatts, a nuclear plant, because of the 30 per cent efficiency, must produce 3,333,000 kilowatts of heat. A conventional plant, with 41 per cent efficiency, must produce 2,440,000 kilowatts of heat to generate the same amount of electricity. Looking at the difference between the total heat produced and the electrical output, one can see that the waste heat is 2,333,000 kilowatts for the nuclear plant and 1,440,000 kilowatts for the conventional plant. Today's nuclear plants, therefore, waste about 893,000 kilowatts, or a full 60 per cent, more heat than the conventional plants.

Looked at this way, today's nuclear plant is by far the bigger thermal polluter.

What really bothers environmentalists and professional ecologists, however, is not just the much greater thermal pollution potential of nuclear plants, but the growth of all thermal pollution.

Our present consumption of electricity is growing at the rate of 9.25 per cent per year, completely doubling every 7.8 years. And use has been accelerating during the past 10 years with no sign of leveling off soon.

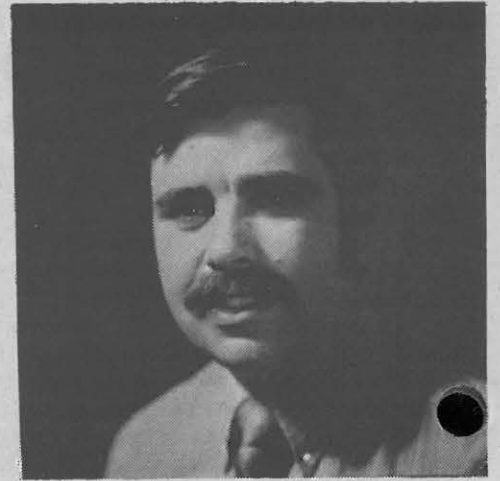
"Doubling every 7.8 years" sounds innocent enough and to some it even has the sound of prosperity. But to those who spend their lives studying the balance of nature and see how thermal pollution is already affecting our quality of life, this doubling rate is an awesome and frightening statistic. It should frighten us all.

In any one doubling period, the growth quantity - be it energy, population, or the amount of land covered by highways - increases by an amount equal to its growth during its entire past history. By late 1979, therefore, only 7.8 years from now, we must install as much electrical generating capability as we have installed in all our previous history.

Our present electrical generating capacity in the United States is about 362,770,000 kilowatts and is growing at the rate of 2.6 million kilowatts every month. By January 1982, if we continue at the present rate of growth, our capacity will be 878,700,000 kilowatts and growing at the rate of 6.5 million kilowatts per month.

By comparison, the generating capacity of the entire state of Idaho is approximately 1.9 million kilowatts, or only about 70 per cent of the present monthly growth rate of the nation.

The city of Idaho Falls normally consumes about 40,000 kilowatts and on a recent cold day



Pete Henault

established a new record of 51,000 kilowatts. Our nation is presently installing an average of 51,000 kilowatts of new generating capacity every 14.3 hours. In ten years, we will be installing that much new capacity every 5.7 hours if the trend continues.

This growth, in the Northwest alone, is going to cost us an average of \$2,500,000 per day, every day, for the next 20 years, just to provide new generation and transmission facilities - an investment of \$21 billion by the end of 1991.

Already the cooling water needed to cool the steam condensers of today's generating plants adds up to 2,300 billion gallons per day, an amount of water equal to twice the daily runoff of the entire nation. Most of this is used as "once-through" cooling and is returned immediately to the nearby river or water source from which it is taken and is available for use again further on downstream. But about 60 billion gallons per day is lost as evaporation and not returned. For all uses, the United States is today consuming about 310 billion gallons per day or about 26 per cent of its entire daily runoff.

Obviously, when we're using such substantial fractions of all there is, we cannot continue with the doubling process very long.

By the year 2000, when the majority of today's population will still be under 55 years of age, the waste heat from power generating plants, if we were to follow the present trend, would be 18 times what it is today. Eighteen times the 60 billion gallons per day we are now using is more than all the water available in the United States for all uses.

There are three principle ways for a power plant installation to rid itself of the waste heat: 1) dumping it directly into the nearest river, lake or bay; 2) dumping it into the atmosphere through a specially designed "wet cooling tower"; and 3) dumping it into the atmosphere by use of a special "cooling pond."

The cheapest, and the most environmentally threatening to the Northwest, is the direct dumping to the nearest source of fresh water.

A typical one-million-kilowatt power plant, dumping its waste heat into a river carrying a flow of 3,000 cubic feet per second (cfs), will raise the temperature of the river by about 10 degrees Fahrenheit. It may take several miles for the water to return to its natural temperature.

By comparison, the minimum allowable flow downstream of the proposed Teton Dam, if built, will be 300 cfs. The minimum allowable flow of the Middle Snake in Hells Canyon, one of America's mightiest rivers, is 5,000 cfs.

Since water above 93 degrees is uninhabitable for all fishes in the U. S. except certain southern species, it wouldn't take many plants dumping their heat into Idaho streams before our trout and salmon began to disappear.

Although temperatures above a certain level would cause direct fish kills (the lethal limit for trout is 75-77 degrees F), thermal discharges well below the limit can have a profound effect on aquatic life. Higher than normal temperatures can adversely affect a fish's metabolism, respiration and heartbeat. This results in a greater need for oxygen while, at the same time, dissolved oxygen content in the water is decreasing. The combined effect is often detrimental.

As the water temperature is changed abnormally, the entire food chain is thrown out of balance. Reduction in supply of a living organism that is part of the food chain of a fish species may lead to the depletion of that species. Often the elimination of one species is followed by the establishment of an undesirable species.

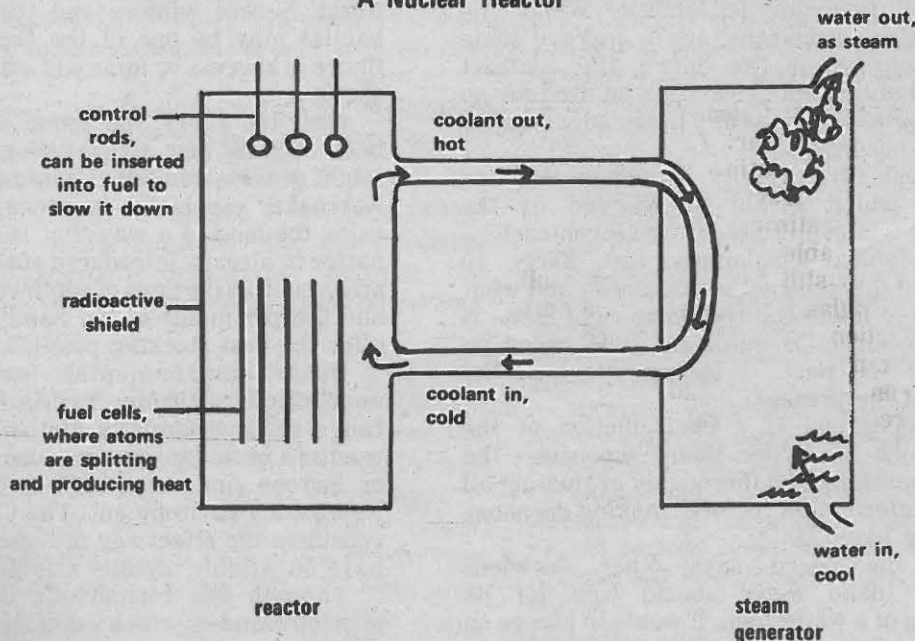
Not surprisingly, fish activity slows down at high temperatures. At a water temperature of 63 degrees F, trout will slow down in pursuing food;

(Continued on page 5)

Nuclear fission takes place in the nuclear reactor. Inside the reactor, the neutrons are splitting the atoms and producing a tremendous amount of heat. This heat is controlled in two ways:

1. Control rods of stable material which can be inserted into the uranium to slow the rate of fission; and
2. Cooling fluid which circulates through the reactor. This fluid, which may be water or another liquid coolant, is heated in the reactor and then used to make the steam which drives the turbine and generates electricity.

A Nuclear Reactor



The reactor heats the coolant, which goes to the generator and is piped through water. It heats the water into steam, and the water cools the coolant down for recirculation back to the reactor.

# Part 3: A Problem of Heat

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at 70 degrees F, they are incapable of pursuing food. Preferred environmental temperature for trout is about 58 degrees F.

Effects on reproduction can be adverse also. The temperature requirements for spawning are usually much more limited than for adult survival. For example, the Federal Water Pollution Control Administration recommends a maximum temperature of 48 degrees for the spawning of lake trout and about 55 degrees F for other species of trout. The Oregon Game Commission states that a rise of 5.4 degrees F in the Columbia River could be disastrous for the eggs of the Chinook salmon.

While thermal discharges near a lake shore tend to disrupt spawning areas and kill eggs, thermal discharges into a river or reservoir pose a thermal block that prevents fish from reaching the spawning areas.

Migrating salmon, for example, which do not feed during migration, will tend to avoid the thermal block, become confused, and die without ever reaching the spawning beds. Those that do pass the thermal block expend an excessive amount of body fuel due to increased metabolic rates in the higher temperature water and may not have sufficient energy to reach the spawning areas.

These are only part of the adverse effects that might occur from large-scale thermal discharges. Changes in algae species could eventually lead to eutrophication, as in Lake Erie. Because fish are very sensitive to sudden and rapid temperature changes, especially a temperature drop, the sudden shutdown of a power plant would have an adverse effect on the fish in the vicinity of the discharge.

In all this discussion, it is important to remember that it is really the more subtle, ecological effects of thermal discharges that must be studied, effects which may occur to the life processes in a body of water over several years.

Getting rid of the waste heat from power plants by the use of wet cooling towers employs the principle of removing heat by evaporation. The heated effluent is discharged into a high tower (400 to 500 ft.) with sloping sides; as the water falls in a thin film over a series of baffles it is exposed to the air rising through the tower and cooled by evaporation. Most of the water, cooled by up to 20 degrees F, collects in the basin below the tower and is pumped back to the power plant condensers.

The main drawback is the amount of water lost to the atmosphere. The towers for a typical one-million-kilowatt plant would eject as much as 20,000 to 25,000 gallons per minute of evaporated water or about 30,000-40,000 acre feet per year. A series of these plants in Idaho, while losses would likely be somewhat less because of the cooler climate and lower water temperature, would be little different from full-scale water diversion to other states.

While alleviating problems associated with thermal pollution, this high rate of evaporation would raise the humidity of our dry mountain air, something we who love Idaho's climate should not consider lightly. Extreme fogging would occur during periods of temperature inversion, making visibility difficult, causing icy roads during cold weather and possibly raising auto insurance rates.

Other problems would likely be caused by the tons of chemicals added to the cooling water to control hardness, algae and scale buildup, etc., in both the cooling tower and the condenser. This writer doesn't know what effect these chemicals would have on the surrounding environment except that a large portion would be carried into the atmosphere by the evaporating water while the rest would eventually be dumped back to the nearby source of water that is used to replace evaporation losses.

Another way to get rid of the waste heat is to use artificial lakes or "cooling ponds." Size of the ponds, a principle drawback, would be 1,000 to 2,000 acres. A 2,000-acre pond would be one mile wide by three miles long, a few feet deep at one end and sloping to a depth of 50 feet at the other end. Water for cooling would be drawn from the deep end and the warm water discharged at the shallow end.

A steady inflow of water would be required to replace evaporation but losses would be somewhat less than that for the cooling towers. Fog in cold weather would be a problem as in the case of the cooling towers. Chemical addition to the atmosphere would not be a problem but buildup in the artificial lake would be.

Power plant proponents are proud of their artificial lakes. Where only a small meandering stream might exist, they move in with bulldozers and before long they have a "lake." The "lake" is stocked with warm-water fish, boat-ramps are installed, "campsites" constructed - benefits abound. Soon the power plant is said to have a

"positive environmental impact."

Speaking about the benefits of these ponds in Coeur d'Alene recently, a nuclear-power company executive said, "Whereas this new lake will create a fishing and recreation resource where none now exists I have yet to see anyone catch a bass - or water ski - or take a swim - or camp overnight in a cooling tower."

He said this in Idaho, only 150 feet from the shores of Lake Coeur d'Alene.

While the problem of waste heat presents a very dark picture for the years ahead, it would not serve the purpose of this discussion to leave the impression that things are totally black. There are environmentally-acceptable ways to get rid of the waste heat. For large power plants on the coast, where much of the power will be needed, it appears that the heat from a limited



Steam rises from EBR-I at Arco, Idaho. The generation of electricity from nuclear energy entails vast amounts of heat energy.

number of plants can be discharged to the ocean with negligible adverse effects, provided of course, it is dispersed in a careful manner.

For plants located inland, a method having no apparent adverse effect would be through the use of dry cooling towers which avoid evaporation and chemical release to the environment. The hot water is channeled through tubing that is exposed to an air flow, and gives up its heat to the air much the same as an automobile radiator. A few dry cooling towers have been built and put into operation in Europe but dry towers are expensive. Wet cooling towers typically run 6 to 10 per cent of the total cost of a power plant and dry cooling towers cost two to three times as much as the wet towers. There is little talk of using dry cooling towers in the foreseeable future.

Still another way to get rid of waste heat is to use it in some beneficial way and numerous proposals are currently being considered. One of the most promising uses appears to be for the desalination of ocean water. Irrigation or drinking water for a city could be supplied from such a plant. Extensive research has been done in this area and it appears desalination as a use of waste heat is on the verge of becoming economical.

One potential use in the Northwest might be for warm-water irrigation. The intent here would be to lengthen the spring and fall growing seasons or to even keep the ground warm all year round, thereby increasing the number of crops harvested each year. Another possibility might be greenhouse heating. By extending the growing season and providing a hot, moist environment, it is estimated that very large quantities of vegetables could be raised.

Aquaculture is still another much talked about use. In England, three times the normal shrimp production has been obtained in the warmed water near one nuclear power plant. Experiments on Long Island and in Maine have indicated increased growth rates and yields of oysters and lobsters with controlled, warmed water. By using warm water throughout the year, it is estimated that yields of catfish of 5,000 to 10,000 pounds per acre can be expected. Aquaculture is, in fact, a promising potential use for the waste heat and may some day be a prime source of food and protein.

Unfortunately, most of these promising possibilities are only in the preliminary study stage at the present time and even the most optimistic studies do not envision nearly enough uses for the quantities of waste heat we can expect. The most economical solution for getting rid of the waste heat is still to dump it into the surrounding environment as simply and as cheaply as possible. Unless the public demands

that a better solution be found, that's going to mean adverse environmental effects.

For us in the Northwest, who still enjoy a large share of unaltered, high-quality environment, the prospects of this waste heat present a sad picture. We are going to see the artificial cooling ponds stocked with bass and catfish while our trout and salmon streams grow fewer and fewer; and we are going to see the fog-making cooling towers that ice up our highways and raise the local humidity. And our grandchildren will probably learn to accept them as a way of life.

There is little we can do to stop the near-term growth of electrical power, short of a major disaster. Population control may help for the year 2000 and beyond, if we act soon, but not for the next two or three doubling periods. The people who are going to want all this power are already here. We could, if enough people become aware in time, and cared, insist on the more costly environmental safeguards but our past history with dams and conventional power plants gives little room for optimism.

The environmental impact of thermal power plants, both nuclear and conventional, will affect our lives greatly in the next few years. Neglecting the strip mines and oil slicks; the hazy, acid air; the threat of released radioactivity; power lines across sacred Indian lands; and much more; the environmental impact of thermal pollution alone is going to change our lives. Most of the changes we are not going to like.

Next: The fast breeder: least of the evils?

## ..Noted & Quoted..

"Environmentalists have also been raising questions that transcend the issues involved in individual plants. The question has been raised, by Michael McCloskey of the Sierra Club among others, whether our society for environmental reasons viewed broadly ought not curb its appetite for energy and for electrical power. It is a legitimate social question. It is not unreasonable to question whether neon signs or even air conditioning are essential ingredients in the American way of life. More fundamentally, it is not unthinkable to inquire whether energy production should be determined solely in response to market demand."

Dr. James R. Schlesinger, Chairman  
U. S. Atomic Energy Commission  
Addressing the American Nuclear Society  
October 20, 1971

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"The most serious indictment I can make is that, for all the confusion, delays and controversy it has created, the National Environmental Protection Act has had minimal impact in any substantive way.

"NEPA created a paper monster which threatens to strangle all processes of resource development. Please do not misunderstand. As an expression of public policy that all public decisions shall include consideration of environmental values and costs, the Act was probably long overdue and clearly needed. But to date, its sole observable function has been that of furnishing a weapon of delay to those who would use it for that purpose.

"Real tigers of environmental protection we can use, but paper tigers are of no value and great potential harm."

John A. Carver, Jr.  
Federal Power Commission  
February 18, 1972

## Save the Eagles!

Interested in helping save bald eagles? Eagle Valley Environmentalists, Inc. has acquired the first 190 acres of a 1,000-acre roosting refuge. Eagle Valley is a narrow, wooded ravine close to the Mississippi River in Illinois. The environmental group wants to buy the private land to protect the site where eagles roost during the winter.

Chairman of the group is Terrence N. Ingram, Apple River, Illinois. Ingram says they are making "a nationwide search for 1,000 Americans who believe the bald eagle is worth saving.

"If you are one of these 1,000, send your \$100 for 'an acre for an eagle' to EVE, Box 152, Apple River, Illinois 61001."

# Aquatic Deserts . . .



Photos by Mike Sawyers

**BEFORE** - The Logan River during high water showing brushy cover with openings for fishing access.

to 5 and 6 pounds right next to town. Now, there is one less.

On November 2, 1971, \$52,000 for emergency flood control was appropriated by the Army Corps of Engineers. The money was requested by the Cache County Commission in anticipation of heavy spring runoff on the Logan River in 1972.

The Corps met with spokesmen for the county, State Water Rights and the Utah Division of Wildlife Resources on November 4. Assurances were made by the Corps that "only specific areas spilling water to adjacent pastureland would be repaired and specific vegetation choking the river removed." In fact, Kent Miller, northern regional fisheries biologist for the UDWR, said he "personally walked the stream with the bulldozer operator and showed him every area of concern, where the brush and banks ought to be retained and where it did not matter." Miller indicated that he "also pointed out where habitat could be damaged the most and where vegetation should be removed sparingly."

But, the same heavy brush, undercut trees and banks, protruding roots and deep holes that made the lower Logan a difficult place to fish also made it a difficult place to dredge. "They got slowed down by vegetation and debris in the river and simply put their heavy equipment in the stream and channeled through it," said Lee McQuivey, Salt Lake City branch office supervisor for the Corps. McQuivey also stated that he "had personally inspected the work done by the field crew and regrettably it is not as had been agreed upon."

Ironically, Utah had recently passed a landmark law which was to protect the state's rivers from this sort of destruction. The glaring fault in the law was the lack of accompanying enforcement.

The runaway crew from the Army Corps of Engineers was discovered by Gerald Stillings,

fishery management graduate student at Utah State University in Logan, when he stopped by the lower Logan River for an afternoon of fishing. Stillings contacted Dr. William Helm, associate professor of Wildlife Resources at USU. Helm then put in a phone call to Hartt Wixom, outdoor editor for the *Deseret News* in Salt Lake City and one of the driving forces in the passage of the stream protection law. Wixom got in touch with the Corps office and they made repeated calls to Logan in an attempt to get in touch with Francis McGregor who was in charge of the Logan River project. A day was lost when contact failed to be made and that much more of the river was channeled. Finally, the Corps office got in touch with McGregor and the project was halted.

The Corps was working on the project by virtue of a permit granted by the Utah State Division of Water Rights. The permit had been issued "primarily upon the agreement that they do it as outlined by the Division of Wildlife Resources." A spokesman for the Water Rights Board further stated that "had the project not been stopped by the Corps it would have been their (Water Rights) duty to stop them (Corps field crew)."

Don Andriano, chief of the UDWR fisheries section, confronted the field crew and told them "that they had totally disregarded all agreements made in the November 4 meeting." He also said that "the Logan River now looks like Ashley Creek (a stream flowing from the Uinta Mtns. that was channeled into a canal). McGregor's (field supervisor) reply was, "I was in charge of the Ashley Creek project also."

The glaring destruction that was leveled on the trout and whitefish population in the lower Logan River has overshadowed the other harmful effects. A good portion of pheasant habitat was removed along both banks of the river. Willows and low, thick bushes were utilized the year-round by pheasants. The growth was even

more valuable as escape cover during the hunting season.

The trees along the channeled portion of the river were gathering places for several different species of warblers in the spring. With most of the aquatic insect populations now wiped out and a good deal of the streamside vegetation now gone, the warblers and other birds may have to look elsewhere for the necessary food and cover.

Several kingfishers used the lower Logan. Anyone who spent any time there could see them winging along the river and hear them chattering. They would occasionally dip into the river and spear a young-of-the-year brown trout or whitefish. Reproduction of brown trout in the river was high. A fishing trip there would often produce trout ranging from four to 20 or more inches. Groups of young trout, hatched the year before, could be seen swimming in the slow sidewaters when the river dropped in the summer.

This lower stretch of the Logan probably received most of its pressure in the winter and spring from fishermen. Utah law states that all waters west of highway 91 in Cache County are open the year-round for trout fishing.

The brown trout in this river had adapted well. Fishing one of the holes during mid-day, an angler might swear that there was not a fish in the river. But as dusk would descend and the activity in the streamside backyards and pastures would decrease, the browns would leave the deeper holes and move to the riffles. There they would feed well into the night. And since this stretch of river is open to 24 hour angling, they were available to the fisherman.

So, what now? Although an excellent piece of angling water is gone, the state of Utah has many more that should be protected. The Utah Division of Water Rights had beefed up the existing law in order to assure that the Logan River devastation is not repeated within the



Typical brown trout taken from the Logan River.

state.

The law now states that any individual, agency or other entity planning to alter a stream bed or bank must file an application to do so with the State Engineer, Division of Water Rights. The engineer will then work with the Department of Natural Resources to approve or reject all or part of the request.

Other points in the tougher law include an on-site inspection of the stream to be altered including a written report; a public hearing if it is determined that public uses of the stream would be unduly or unnecessarily eliminated; the supervision by the Division of Wildlife Resources if the application is approved; a strong effort to teach the public, including state employees, the intent and purpose of the new law.

## Project Opposed

A mammoth Bureau of Reclamation project in Nebraska is being opposed by the National Audubon Society. National leaders and regional and state leaders from 12 states met in Grand Island March 17-20 to discuss the \$124 million Mid-State Reclamation Project.

Aim of the Audubon Society is to mount a national effort to retain the Platte River in its natural state through central Nebraska. The river is a vital way-station for hundreds of thousands of migrating waterfowl, sandhill cranes and lesser species. The project would dry up the river through much of the year.

Mid-State Calls for diverting waters from the Platte to provide irrigation water, and such other traditional Bureau justifications as "flood control, ground water stabilization, and recreation."



**AFTER** - What was once a natural aquatic ecosystem is now a barren sluiceway.

# Water Problems Mount

High Country News—7  
Friday, Mar. 31, 1972

Senator Bob Packwood of Oregon is one of a handful of truly environmentally aware congressmen in Washington. For instance, he is far ahead of most of his colleagues in such a crucial matter as population control and unrestricted growth.

Recently, he had introduced into the Congressional Record (Feb. 29, 1972) an article which had appeared two days earlier in the Washington Post.

In asking that the article be introduced, Senator Packwood said in part, "The article serves as another of the growing landslide of reminders pointing out the problems being faced by most nations and the entire planet as a result of our continuing exponential rate of growth and resultant impact on the natural environment." The editor.

by Claire Sterling

Rome. — The U. N. Food and Agricultural Organization has just issued a report for the coming Stockholm environment conference saying that the human race is going to run short of water within a century. Jaded though we are about such pronouncements, this one still has some zing. Practically every state on earth is starting to worry about water, a recurrent theme in some 75 country reports for this planet-wide Stockholm meeting. Not all of them have a whole century to turn around in, either.

Among the planet's thickly settled regions already afflicted by water shortages are Spain, Italy south of Lombardy, the Dalmation Coast, Greece, the Anatolian Plateau, all Arab states save Syria, most of Iran, West Pakistan, Western India, Taiwan, Japan, Korea, the Western and Southern belts of Australia and New Zealand, the Northwest and Southwest African coasts, the American Southwest, Panama, Northern Mexico, Central Chile and the Peruvian Littoral. Among those heading for trouble by the year 2000 are all of Soviet Russia except Siberia, most of Eastern, Central and Western Europe, the Northern parts of Great Britain, Ireland, the United States, nearly all the rest of India, the Central Thailand Plains, Tasmania, the islands of Java, the rest of the American continent except Northern Canada and Alaska, the larger Caribbean islands, the rest of Mexico, and parts of Brazil and Argentina.

By FAO reckoning, the planetary shortage will be getting serious in just another 30 years, when the world's population will have doubled (from 3-1/2 to 7 billion) and demands for water nearly tripled (from 2,000 billion to 5-1/2 thousand billion cubic meters yearly). The demands in this case mean everything from swimming and fishing in it to making plastics and steel with it, cooling nuclear reactors, irrigating, flushing away residues of pesticides, fertilizers and livestock feces, carrying off industrial and human waste and, of course, drinking.

Whether because they haven't enough water or are fouling, squandering or driving beyond reach too much of what they do have, rich and poor, industrial and agricultural, capitalist and socialist states are pretty much in the same boat. A dozen or more African states along a 4,000 mile front are losing precious groundwater irrevocably to the encroaching Sahara year after year, in good part because of overgrazing. Kenya and India, the one under and the other over-populated, are both pre-occupied, if for different reasons. East and West Germany have almost identical problems. Holland, at the receiving end of the dirty Rhine, is hardly worse off for drinking water than Rumania and Hungary, depending on the dirty Danube for four-fifths and nine-tenths of their supply respectively. Nowhere, in fact, is the problem's universality more stunningly clear than in Soviet Russia's pre-Stockholm report to the U. N.'s Economic Commission for Europe.

More generously endowed with water than most - Lake Baikal alone, in Siberia, is thought to hold about a fifth of the whole planet's fresh water reserves - the Soviet Union is a lesson to us all. At present, says the Russian report, nearly 25 billion cubic meters of waste water are dumped into the country's rivers and reservoirs every year. By 1980 the volume will be two and a half times bigger, and by the year 2000 about 15 times bigger: 375 billion cubic meters. Even if all the waste water were to be purified in advance, with a lot better techniques than those available now, it would still have to be diluted with at least six times as much pure water. That is only half of the 12-fold volume needed for purification now. "But it would still use up the whole of Soviet Russia's river flow, or 2 1/2 times more than there is now in the steady flow."

Meanwhile, the actual river flow is declining, while levels of lakes and inland seas are falling:

the Caspian has dropped two meters in the last two decades, and the Aral Sea has lost 1,000 billion cubic meters of water. This is believed to be happening because too much water is taken off the river-system by people and industry; too many hydro-electric dams divert still more; rivers and reservoirs are silting up with flood-borne sediment; and the floods themselves are carrying millions of tons of unrecuperable water off to sea. These floods are largely man-made too, provoked by erosion caused in turn by deforestation: what with the trees that Russians have cut down and not replaced, and raging forest-fires, 45 million acres of Soviet forest have been lost in the last quarter of a century.

Assuming the Russians can find enough water to purify enough water to keep themselves going 30 years from now, they still couldn't eliminate the polluting substances entirely. About a fifth of the strongest pollutants would remain with even the costliest cleansing methods, their report says; and cleansing techniques so far are lagging behind the inexorably growing volume of polluted water. All in all, the report goes on, this water-polluting process is "the greatest danger for humanity." There is "widespread expectation of an inevitable exhaustion of rivers, and an awareness of the necessity to substitute new sources of water supply; desalination of sea water as well as melted ice from polar glaciers. . . but can this take the place of river waters? And can we . . . allow rivers to become qualitatively exhausted and, in fact, turn them into waste-water collectors?"

The Kremlin's answer, worthy of the Sierra Club or Friends of the Earth, is "no." Sooner or later, known methods to treat waste water are bound to prove invalid, it says. Distillation and de-salination will certainly be in use, but at steep cost. In the end, it concludes, the only answer is simply to stop dumping waste water into rivers and reservoirs.

How Russia or any other country can do that is something nobody has quite faced up to yet. The implication, though, is that water problems alone may be enough in the end to force world society to stop growing. Human excrement alone is peculiarly hard to get rid of. More

people mean more livestock to feed them, adding to the excrement; more irrigation to grow more food, producing more run-off laden with DDT and nitrogen compounds; more mechanized farming for the same purpose (and a tractor needs more water than a mule); more energy requiring more hydroelectric dams and nuclear cooling; and more manufactured goods relying on more advanced technology requiring still more water (plastics need ten times more than steel, and world plastic production is doubling every 5 or 6 years now).

The question is not just whether the moment may come in our lifetime when we forget what real water tastes like - millions are forgetting already - but whether humans just one generation removed, though surrounded by a chemical substance known as H2O, will be hard put for a drop to drink.

## Lion Cubs Killed

by Jeff Clack

Three mountain lion cubs met their death on the weekend of March 19th under the wheels of a freight train three miles west of Glenwood Springs, Colorado.

Although the circumstances surrounding the cubs' death are mostly conjecture, officials believe the incident occurred Sunday night. A Denver and Rio Grande Western employee checked the track at approximately 1 p.m. Sunday afternoon and did not report seeing the dead cubs. A train crew radioed the dispatcher of the carcasses Monday morning.

The cubs were about a year old. It is thought they panicked at the approach of the train while drinking from the Colorado River. In trying to reach higher ground, they were hit by the train or ran under the wheels. The train was westbound at about 50 miles per hour.

Two of the cubs were severed in parts of the body, one at the neck and one in the midriff. The third was hit from behind and remained intact leading officials to believe they ran in front of the train until overtaken.

The members of the Colorado Division of Game, Fish and Parks on the scene speculated that the cubs were accompanied by the mother but she was able to avoid being hit. More than likely, a train was not entirely new to her experience.

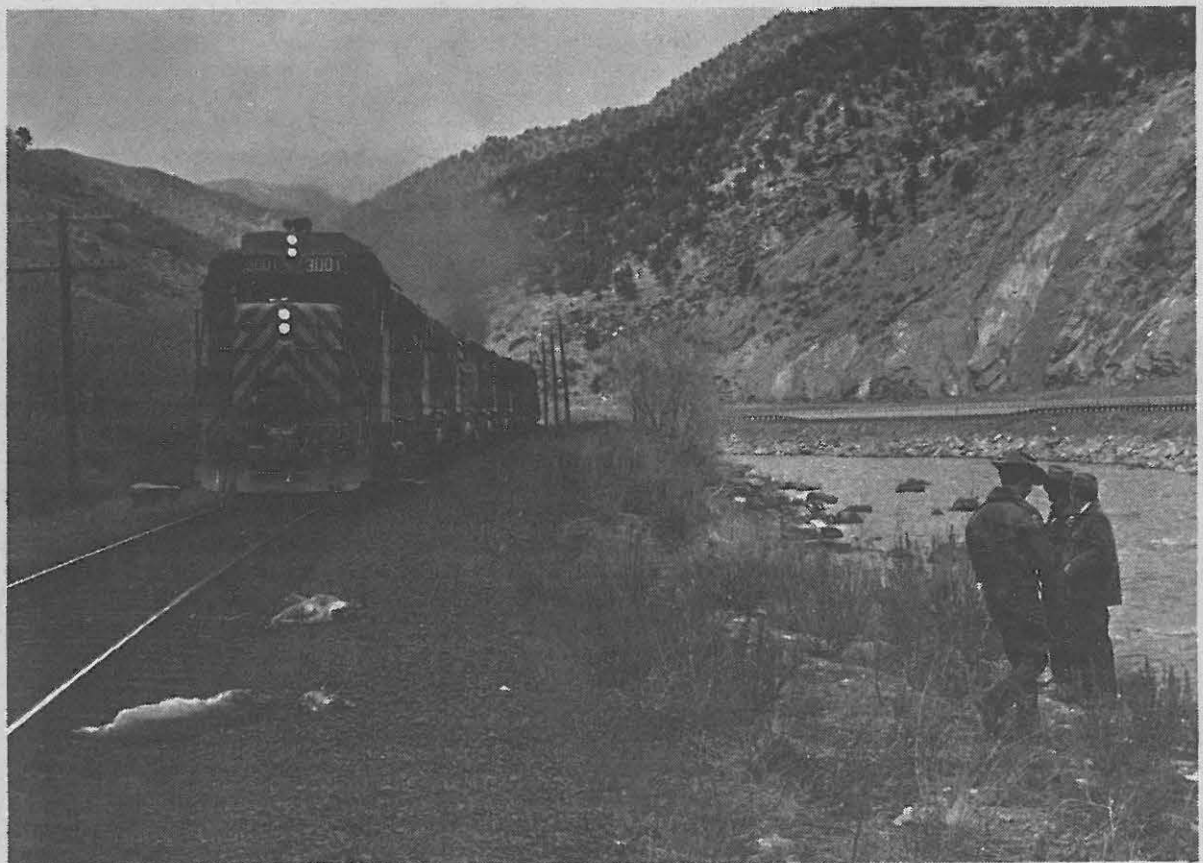


Photo by Jeff Clack

The remains of mountain lion cubs lay strewn along the tracks where they were hit by a train near Glenwood Springs, Colorado. Colorado Game, Fish and Parks Department and Bureau of Land Management men view the scene.

## Snowmobile Hunting Banned

LINCOLN, Nebr.-- Snowmobiles can be a big help in a variety of winter outdoor activities, but hunting is no longer one of them, according to LB 330 passed by the 1971 Nebraska Unicameral.

Section 20 of the law prohibits shooting, taking, hunting, or killing any wild animal or bird from a snowmobile or with the aid of a snowmobile. Under this new law, protection is extended to nongame species like the coyote, as well as game species such as deer.

The same section also makes it illegal to possess any shotgun or rimfire rifle on a snowmobile or to carry any other firearm, bow and arrow, or other "projectile device" unless the bow and arrow or "projectile device" is in a car carrying case and the firearm is unloaded and in a carrying case.

LB 330 also makes it illegal for the owner of a

snowmobile to knowingly permit his vehicle to be used in an illegal manner and provides for a fine of up to \$100 and imprisonment of up to 90 days for any violation of the law. It also empowers any peace officer, including conservation officers of the Game and Parks Commission, to enforce the act.

## Chief to Retire

Chief of the U. S. Forest Service Edward P. Cliff will retire April 29. He will be succeeded by Associate Chief John R. McGuire, 55.

Cliff has come under increasing attack in recent years for his part in promoting the practice of clear-cutting. A number of environmentalists have called for his resignation on several occasions.

# ZILLER'



A squeaky barn door, creaking in the wind may be the only sound in this "ghost town" south of Kemmerer, Wyo.

But in earlier years, "Ziller's" was a busy place. The home place of Nick and Angela Ziller, it was the route of the Oregon Trail from the west. Located about a mile from the old town, it was complete with gambling and dancing.

The rock buildings were built by the miners from the old country. One was the house where Nick and his wife lived. It included the barn, stable, ice house and also had a ranch on Muddy Creek.

The mine was worked only to supply the mine entrance, the small store and the saloon. Sold whiskey around the Cumberland cars in those days.

Ziller's place can be reached by a dirt turnoff, near the Lincoln-Uintara road south of Kemmerer.

Photos by Don Hinton, text by Marly Hinton



Visitors in the Wyoming  
visitors to the "ghost

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# Travel The Targhee

by Thomas M. Baugh

The Targhee National Forest is a land which echos to the passage of Joseph, Chief of the Nez Perce, of mountain men and fur trappers, of miners and pioneers. Bordered on the east by both Yellowstone and Grand Teton National Parks and surrounded by seven additional national forests, the Targhee is truly the center of some of our nation's most fascinating wildlands. This great National Forest is a land of variety. From the majestic western slopes of the Tetons, through the broad mountain valley of the Island Park area, to the rugged Lemhi range, the Targhee offers the visitor a wide spectrum of environments and recreational possibilities.

Man has filled the pages of history on the Targhee. During August of 1877, the hard pressed and desperate Nez Perce Indians gave battle at Camas Meadows to the pursuing forces of General Howard. While Howard's command recuperated, Chief Joseph led his people across the present day Targhee, past Henry's Lake, and into Yellowstone National Park. The General's resting place, at Howard Springs, is now a rest stop for travelers on their way to or from Yellowstone along U.S. 20. The Camas Meadows battleground, although not on the forest, is marked and can be reached from U.S. 191 on the graveled Kilgore-Yale Road.

The recreation potential of this immense tract of land is being realized more and more each year by the many who come here to enjoy nature at it's finest. Summer and winter recreational activities of almost every description take place on the Targhee.

The heavy snows of winter provide the perfect opportunity for winter sports. For the skier there is Pine Basin, Kelly Canyon, Bear Gulch and the Grand Targhee ski resorts. Eleven marked snowmobile trails wander the Forest and offer the enthusiast 150 miles of enjoyable and often challenging snowmobiling. For the accomplished outdoorsman, little can compare to a quiet and observant day of wandering the forest trails aboard a pair of snowshoes.

During the pleasant summer months, camping, picnicing and fishing take priority. Many campgrounds are scattered throughout the Forest. Streams, rivers, lakes, ponds and marshes provide the pleasure of boating and float trips and of course excellent fishing. The eager angler can try his luck on scrappy rainbow, cutthroat or eastern brook trout as well as German browns and kokanee salmon. Speaking of fish, by all means, visit Big Springs if your travels take you to the Targhee. It's well worth the few extra minutes it takes to make the short drive from U.S. 191 over state highway 84. The springs flow from the hillside at a constant rate and temperature. The area surrounding the springs is beautiful and the stream is chock full of large trout. There is a catch here however, the trout in the stream have been protected for many years. The rule at Big Springs is look, but don't catch. After you've stood on the bridge, watched the trout and dreamed awhile, take the short nature walk along the stream bank. Try your

hand at identifying the varied plant life and keep your eyes open for a glimpse of elusive wildlife. You may decide that you want to extend your visit over several days. Big Springs campground is a few short steps from this perpetual fountain and private cabin facilities are available at the springs as well as at several lodges which are located on U.S. 191.

Summer is also the time when the more adventurous slip into a pack, strap a canteen around their waist and strike out on forest trails. One of the more popular of these trails leads up Teton Canyon to Alaska Basin. This rocky basin lies just under the majestic peak of 11,923 foot Buck Mountain. The air is clear, the sky blue and in the evening, with his campfire glowing, the weary but satisfied traveler may hear the wild song of the coyote drifting from the surrounding canyon walls.

As summer becomes fall, the dedicated angler is still at it, but his camping friends have been replaced by hunters. Within season, a variety of hunting takes place on the Targhee. The forest boasts a healthy population of both elk and moose, as well as black bear and the ever present mule deer. For the past several years, a special antelope hunt has been held on the grassy flats surrounding Henry's Lake. Only primitive weapons such as muzzle loaders and the bow and arrow are allowed. The antelope herd on the Flats is relatively small. They move down to summer on the lush grass and return to their winter range in Montana with the onset of winter's snows. Ducks and geese make their homes on the many waterways and ponds throughout the forest. A great variety of grouse wander the dense stands of lodgepole pine and douglas fir.

Such place names as Big Elk, Squirrel and Partridge Creek give an indication of the wildlife resources of this forested land. Throughout the forest, the alert visitor can spot a variety of wild creatures. The remote regions of the Targhee are reported to have small populations of grizzly bear and Rocky Mountain goats. More common, of course, are the already mentioned big game animals such as the elk, moose and mule deer. The streams and rivers are home to the beaver and muskrat. This writer and his family once had the pleasure of watching a small, sleek river otter feeding on the banks of the Falls River, just outside the forest boundary. The Island Park District, located at almost the center of the Targhee, provides ideal habitat for the rare trumpeter swan. The stately and often comical sandhill crane seems to prefer the grassy flats surrounding Henry's Lake and can be seen here during the spring and fall migrations.

Those who prefer the easily accessible scenic tours, should take advantage of the drive along U. S. 89 east from Alpine, Wyoming. The road winds alongside the rugged and impressive gorge of the Grand Canyon of the Snake River. Another trip, well worthwile, is the drive along state highway 47 east from the town of Ashton. Henry's Fork of the Snake River drains this watershed and plunges precipitously between walls of rock, over spectacular Upper and Lower

Mesa Falls.

If you prefer looking down on it all, you'll like the view from the top of 9,930 foot Sawtell Peak in the Island Park District. Keep in mind that the road to Sawtell is gravel and must be traveled carefully.

If your interest has been stimulated remember that many roads lead to the Targhee. U. S. 191 bisects the forest, connecting the small towns of the Upper Snake River Valley with the summer playground of West Yellowstone and Yellowstone National Park. From the Jackson Hole area, state highway 33 crosses Teton pass and drops into the historic Teton Valley known to the early fur trade as Pierre's Hole. It was in this beautiful valley that the mountain men and trappers gathered for their yearly rendezvous. Approaching from the southeast, U. S. 89 passes through tiny Alpine, Wyoming, and parallels the blue waters of Palisades Reservoir and the winding Snake River. From the Salmon River country, to the west of the Targhee, state highway 28 rolls through the grass and sage of Birch Creek Valley, where the smoke of ancient man still stains the roofs of his cave dwellings.

Green timber, rugged peaks, gentle meadows and recreation almost unlimited is a hard combination to beat. All of these things and many more can be found on the Targhee National Forest. Our nation's wildlands hold a special place in today's modern and hectic world. They provide rest and unparalleled beauty, a refuge for those who take the time to know them. Remember, as you travel these lands, that they in turn require your understanding and protection. Treat them as you would treat any treasured possession. They belong to the citizens of today, in trust, for the citizens of tomorrow.



Photo by Jerry Heasley

Wild creatures of the forest run the gamut from the large game animals to the perky, little chipmunk.



## Use Good Leader For Fly Fishing

by Mike Sawyers

The beginning fly fisherman finds many frustrations in attempting to master the fine art of angling with a fly. After being very careful to obtain the correct rod and line for the type of water he wants to fish he may think he is ready. The rod and line balance perfectly and deliver a soft smooth cast.

But the fly must be tied to a length of leader and continue to roll outward as the line extends. Here is where the mistake is usually made. Any old piece of monofilament won't do. To achieve the desired casting result and catch fish, the Wyoming Game and Fish Department suggests the angler use some form of a tapered leader.

The leader may be tapered at the factory and will therefore be knotless. Or, you can make your own with different weights and thicknesses of leader material. Use the blood or barrel knot to join the lines. This knot will not hamper the casting performance.

If a level leader is used (a leader that is the same thickness throughout) there is too much of a difference between the thickness of the fly line and the leader. Most of the power in the cast will be lost at the point where the two are attached.

But if the leader is thick at the point of attachment and tapers to a thin line at the point where the fly is tied, the energy will flow from the fly line and down the leader. The end result



Photo by Tom Baugh

# Wagon Wheel...

and to listen. It was a meeting called by concerned citizens who call themselves the Wagon Wheel Information Committee. In a county comparable in size to Delaware, with a total population of less than 4,000, it was a sizable turnout of concerned people.

As reported in *The Pinedale Roundup*, "sentiment from the audience indicated great concern about the release of tritium into the atmosphere, the magnitude and number of earth tremors which would be felt from the explosions, and the eventual economic repercussions the development of this huge gas field would have on the

Other aspects which refer to possible consequences include the partial draining of two reservoirs and the possible halting of traffic through the Hoback Canyon and the Snake River Canyon.

There may be landslides along the New Fork River only a few miles away. Ironically, if conservationists had not stopped a proposed dam site on the New Fork River, the dam would be within the area of greatest seismic damage.

The five sequential shots, spaced several minutes apart, are expected to each generate a Richter magnitude of five. The statement says aftershocks "will cease within a few hours."

The statement also says, "It appears prudent to request temporary suspension of operations of the large open-pit taconite mine approximately 50 miles southeast of the detonation site, at least during the period of the Wagon Wheel detonations." The taconite mine is on the southern end of the Wind River Mountains, 25 miles southwest of Lander.

In reference to radioactivity and radiation doses, the environmental statement says, "The potential dose from food ingestion depends upon the particular food chain under consideration; in the western Wyoming region, the forage-cow-milk food chain would produce the major contribution to the potential dose delivered to the critical population (young children drinking tritium-containing milk). If it were necessary, the potential exposure to radiation via this pathway could be lowered significantly by supplying the milk cows with uncontaminated feed, or eliminated entirely by shipping in uncontaminated milk. Another significant contribution to the total potential dose is from the pasture-meat pathway for cattle grazing on plants exposed to tritium). This dose could be minimized by using uncontaminated dry feed."

Someone has raised the question as to who is going to dry-feed the thousands of head of elk, deer, moose, and antelope which use the surrounding area.

If Project Wagon Wheel is successful, the long term outlook for residents of the area is not reassuring. The area may become a decidedly unpleasant place in which to live. El Paso says "... assuming that Wagon Wheel results are as predicted and assuming that future drilling will verify

present geological judgments regarding gas-in-place and reservoir properties, development of several hundred sections in and adjacent to the southern half of the Pinedale Unit appear possible. The environmental impact for each such detonation is currently assumed to be similar to or less than that anticipated from the Wagon Wheel experiment."

Earlier, the environmental statement indicated there would be two detonations per section. It also said, "The maximum number of wells to be stimulated in any one year would be in the range of five to seven."

Residents of the area fail to be reassured by such statements. Nor are they given solace by the statement, "A successful Wagon Wheel experiment alone is not expected to have an appreciable effect on the area's foreseeable long-term productivity. Should a successful experiment be followed by a graduated program of field development, a significant impact would almost certainly result..."

Residents have consistently said they are not against development of the gas fields by other means. But they say this particular experiment should be postponed until better technology is developed. They point to the fact that sequential shots have never been publicly demonstrated - and that sufficient technology appears to be several years away. They also point to lack of information on the incremental damage from seismic effects and incremental radiological effects.

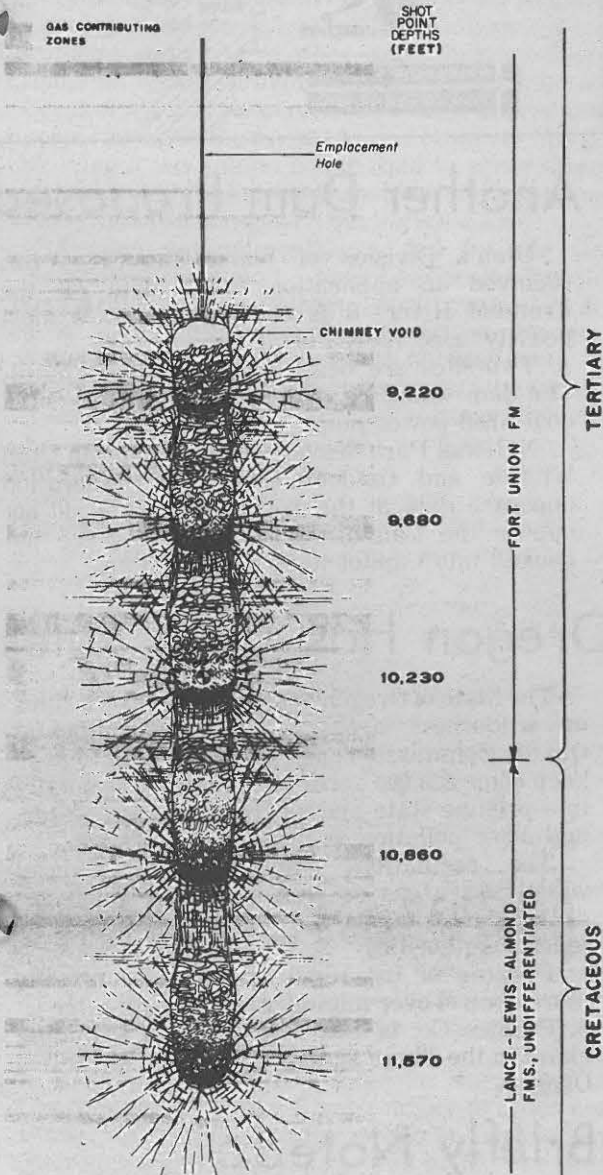
The Rio Blanco experiment near Meeker, Colorado, is being adamantly opposed by the Oil Shale Corporation because of possible seismic damage to geologic structures. The Wagon Wheel experiment is located in an area of important fresh water aquifers. The Colorado River system is already suffering from a lack of essentially pure waters, and the problem is sure to become more acute.

As in the Wagon Wheel, a successful Rio Blanco detonation will be followed by 100 or more similar blasts.

Governor John Love of Colorado and Governor Calvin Rampton of Utah have both expressed reservations toward the nuclear stimulation type of projects.

Wyoming Governor Stanley K. Hathaway and other officials of his administration are slated to appear in Sublette County in mid-April. Hathaway has ten-

(Please turn to page 15.)



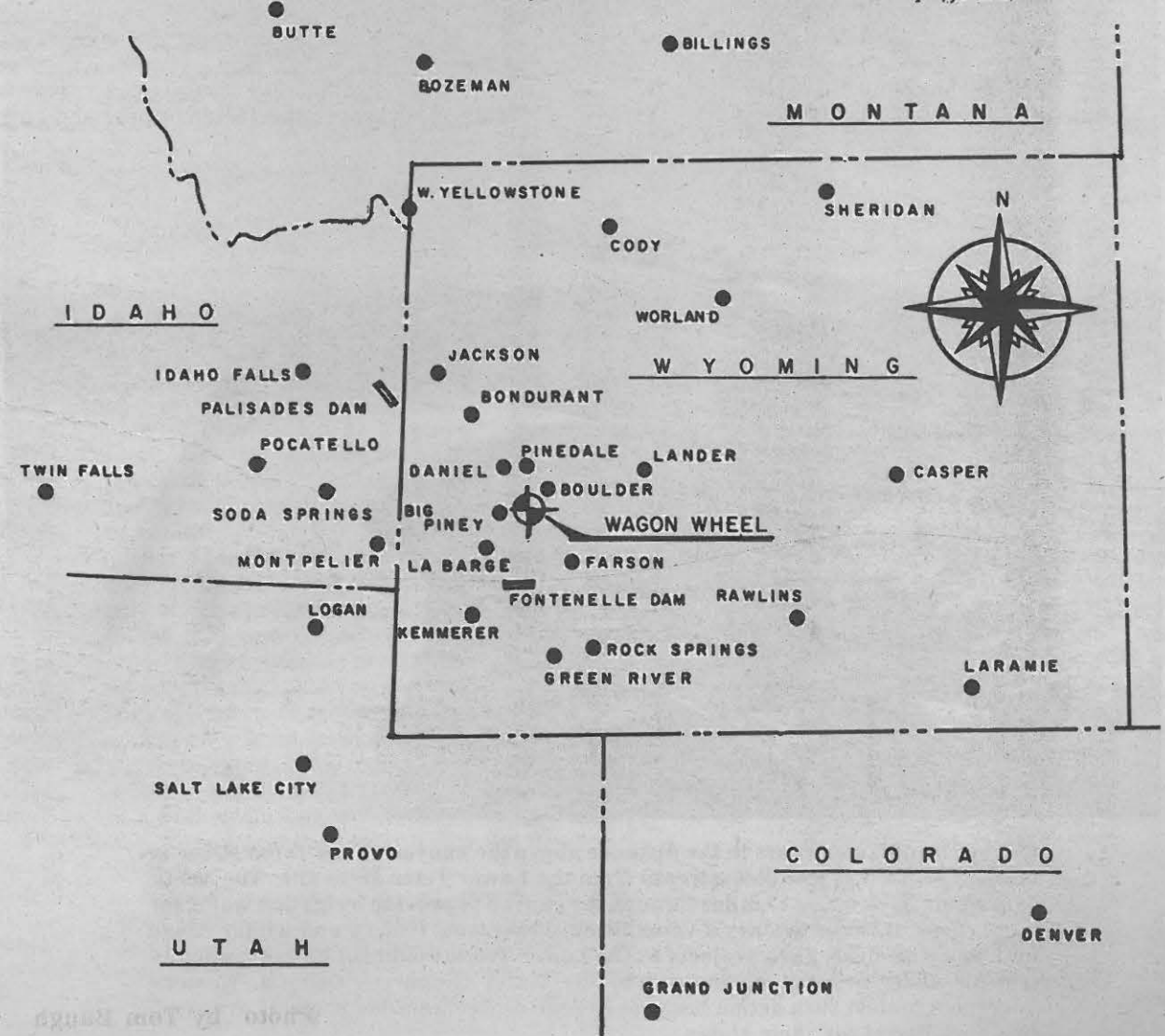
ARTIST CONCEPT OF WAGON WHEEL CHIMNEY REGION agriculturally-based economy of Sublette County."

At the speakers table, only two officials spoke in favor of the project. The mayor of Big Piney, Paul Scherbel, read a statement which he said represented the people of that small community. It ended with the expression, Welcome Wagon Wheel. Within days, several residents of the Big Piney area refuted the representation.

Sublette County's Board of County Commissioners expressed serious reservations about the project. State Representative C. R. Bob O'Neil presented a reasoned and rational statement in which he raised questions relating to immediate physical damages and long-term environmental damages.

Most residents not only view the prospect of earth tremors and radioactivity with some alarm, but also see the experiment and possible following shots as an unwarranted intrusion on their private rights. Many live in the valley or have moved there to escape the social and physical impact of an increasingly complex outside world.

The draft environmental statement says El Paso estimated possible physical damage to buildings might approximate \$65,000. (The Rulison project in Colorado resulted in considerably more damage than had been estimated.) Significant damage is predicted for a state highway bridge 5.5 miles from the blast. People will be evacuated from their homes within eight miles of the blast. Precautionary measures will be recommended within 15 miles of the shot.



# Western..... Roundup

## Predator Control Programs To Shift

Livestock interests throughout the West are still debating predator control. After 41 years, the federal government is getting out of the business. It is now going to shift to the individual states. A bill pending before the House, HR 13153, would repeal the Predator Control Act of 1931 and bring an end to federal spending on predator control in four years.

But with poison use in predator control cut off and the withdrawal of federal programs imminent, the states are now looking at the problem. Livestock interests are generally pessimistic. Most believe they are overstating their case.

Pete Espil, president of the Arizona Wool Growers, says of the ban on use of poisons, "What this decision means is that another segment of agriculture is going out of business."

The Utah Wool Growers in a report to Gov. Calvin Rampton, said, "Manpower is not available for alternative programs and without adequate funding, continued losses will force operators increasingly out of business without the 1080 (poison) program"

State conservation agencies are expressing a different kind of concern. Most are geared to programs and policies of protecting and preserving wildlife species. Now, they see a possible return to such antiquated and undesirable programs as the bounty

system. They also see more political pressures generated by a special interest group.

Dr. Frederic H. Wagner, associate dean of the College of Natural Sciences and co-director of the desert biome research program at Utah State University, says there is a tremendous lack of good information on the predator problem. Wagner says the problems of predator control and sheep losses have not been given enough research attention to give a clear picture.

The nationally known ecologist, who served on the committee which issued the Cain report, says neither the total abandonment nor intensification of coyote control is the answer.

## Wild Colts Given Away

The first of 13 colts captured from the Pryor Mt. wild horse herd in Montana and Wyoming has been given to a 13-year-old girl from Deadwood, South Dakota. Other colts are headed for homes in Colorado, Utah, Idaho, and Montana.

The 13 colts were taken from the herd last fall and cared for by a veterinarian at Lovell, Wyoming. Arrangements to give the colts away was made by WHOA (Wild Horse Organized Assistance, Inc.). Mrs. Velma B. "Wild Horse Annie" Johnston said it was a difficult assignment to draw the final 13 names as recipients of colts.

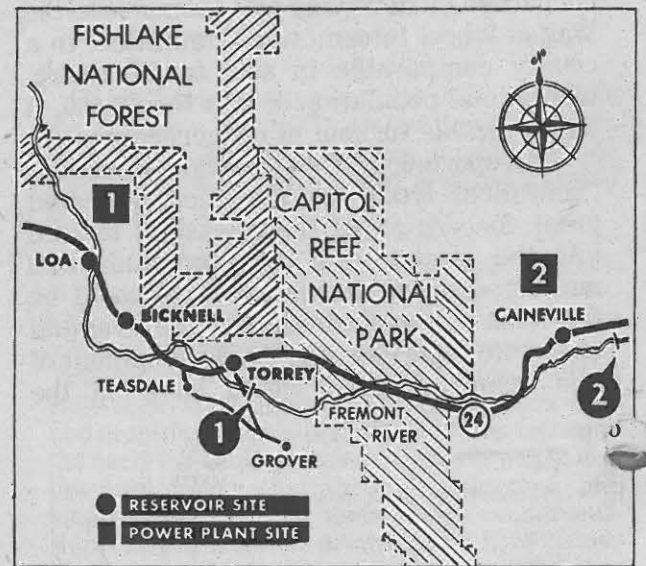


## Public Gets Hearing

Utah conservationists have won a hearing on the controversial China Meadows Dam. The dam would be built on the Wasatch National Forest, just inside Utah from southwestern Wyoming. The dam is part of the Lyman irrigation project in Wyoming.

Previously, only one public hearing had been held - that in Wyoming for the irrigation interests. The area is an important entrance way to the High Uinta Primitive Area for thousands of Utah recreationists.

The hearing is scheduled for 2 PM, April 18 in Salt Lake City at the Salt Palace.



## Another Dam Proposed

Utah's Division of Water Resources has received an application for a dam on the Fremont River. It is one of the state's most heavily used recreational streams.

Two sites are being considered (see map). The dam would be built to supply water for a coal-fired power plant.

National Park Service officials and the Utah Wildlife and Outdoor Recreation Federation oppose a dam at the Torrey site. They do not oppose the Cainville site if water were not backed into Capitol Reef National Park.

## Oregon Has Own Rules

The State of Oregon has imposed its own rules on wilderness areas. The Environmental Quality Commission has approved regulations to keep some 820,000 acres in 12 areas "essentially in a pristine state and as free from air, water, and noise pollution as practically possible."

The regulations apply to the federal wilderness areas as well as state. Such additional restrictions are being questioned by federal authorities.

Purpose of the regulations are to provide more control over mining. Action came after U. S. Pumice Co. of Los Angeles filed a mining claim in the Three Sisters Wilderness in central Oregon.

## Briefly Noted...

Contracts for five wells for the Lower Teton dam project have just been awarded. The wells are preliminary work to the dam construction which is slated to start this spring.

\*\*\*

The Idaho Fish and Game Department has abandoned efforts to rescue some 100 whitetail deer from floating ice floes in Dworshak Reservoir. Officials said rescue attempts only resulted in "wet, tired deer and frustrated rescuers."

\*\*\*

A close associate of former Montana Fish and Game Director Frank Dunkle and Chief of Information and Education for the Department, Max Stone, has resigned his position. He said he would announce a reason for his leaving later.

\*\*\*

The Bureau of Land Management has announced a count of 867 wild horses on the 4-1/2 million acres of the Vale District in Oregon. A February aerial count showed the greatest numbers in the southern half of the district.

\*\*\*

The North Dakota Wildlife Federation held a one-day State Conference on Land Use Planning March 25 at Bismarck. Invitations for the event were sent to all farm organizations, citizen groups and state and federal agencies.

## No Chance For Ranch

A U. S. Forest Service official, Dr. Thomas C. Nelson, says there is very little chance the 485,000-acre Vermejo Ranch in northern New Mexico can be purchased. Nelson said the ranch "was a very fine piece of land that should be in public ownership" but that it had a very low priority. The large privately owned ranch has more water and lakes than all the rest of the forests in New Mexico.

All of the New Mexico congressional delegation and many influential citizens have recommended that the U. S. Forest Service buy the land. The current owners are asking about \$26 million.



The Grand Teton rears in the distance above the canyon of the Teton River in Idaho. This view is just downstream from the Lower Teton Dam site. The 300-ft. dam would back water 17 miles through the canyon to provide irrigation water for more crops. It would destroy a valuable cutthroat trout fishery and winter range for some 1,100 deer. Such projects as the Lower Teton would not be economically feasible under new rules proposed by the Water Resources Council. Western governors protest such action because Bureau of Reclamation projects are sure-fire pork-barrel for their states.

Photo by Don Hinton

In the lonely, sparsely populated country due west of Boise, Idaho, just west of the Idaho-Oregon border, a desert stream runs north. Some of the road maps call it Sucker Creek and indicate the adjacent road as "Poor Road." The real name of the stream is Succor Creek in eastern Malheur County, Oregon's second largest. (It takes up the whole eastern part of the state south of Farewell Bend where the Snake River drops into Hells Canyon, heading north for the Columbia.)

The Oregon State Highway Department proposes to improve that "Poor Road" at a cost of \$10 to \$15 million and in doing so, shorten it by 13 miles. The poor road, considered impassable in bad weather--and there has been plenty of that this winter--provides access to the 1,910-acre Succor Creek State Recreation Area. It also serves roughly 1,000 people living in the area. (As one observer has pointed out, building a ten-million dollar road to serve those thousand people would be more expensive than buying each one of them a new airplane to fly out to civilization.)

Oregon environmentalists, led by the Oregon Environmental Council, have seriously questioned the proposed road. The highway would require 50 acres of the park for its right-of-way, and a 600-foot bridge -- 150 feet above the canyon floor--would be built with approaches requiring cuts that would no doubt mar the landscape of the canyon. The proposed road would carry high-speed traffic by the recreation area only a quarter mile from the existing campground.

A Draft Environmental Impact Statement has been released--a 131-page wire-bound book that smacks of a corporation's annual report to its stockholders. The Oregon Environmental Council feels the slick document raises more questions than it answers. In a letter from the OEC to the compiler of the Statement, Council executive director Larry Williams said in conclusion:

"The study simply does not account for the full environmental impact this secondary highway would have on an isolated and very beautiful desert ecosystem with its unique and delicate plant, animal, geologic and aesthetic resources . . ."

The study does not adequately discuss alternatives to this proposed highway that would have a less severe environmental impact. In fact, the study does not demonstrate that a secondary highway is even necessary. . . ."

"What is clear," the letter continues, "is that the proposed highway would have a substantial, and in many ways irreversible, detrimental impact on the Succor Creek area." The OEC stands firmly opposed to the proposed Succor Creek Highway.

A design hearing scheduled for the spring in Ontario, Oregon, (on the Snake River roughly 60 miles northwest of Boise, Idaho) will give the public an opportunity to voice their views. But it may very well be like the hearings held on the proposed Clark's Fork Canyon Road in Wyoming in recent years when all the decisions had already been made before the public had an opportunity for any input.

Too often in such matters the alternatives--if considered at all--are only considered in a closed-choice manner: shall the road go on this side of the creek or on the other, not the open choice of should there even be a road?

The area in question lies between the Owyhee River, dammed and now known as Owyhee Lake, and U. S. Highway 95 between Winnemucca, Nevada, and Lewiston, Idaho; north of the Mahogany Mountains and southeast of the Lake Owyhee State Park on the reservoir formed by the dam. It is an area that has not known the impact of exploitive man to any great extent to date.

But what will happen when a high-speed road brings hoi polloi tourist traffic into the area? Oregon House Speaker Robert F. Smith, who represents Malheur and adjacent Harney (the state's largest) counties has said that "public enjoyment of the magnificent environment of these areas will be enhanced, rather than destroyed, by completion of these projects." That was the same argument used by those who wanted to dam Grand Canyon and Hells Canyon.

Let's face it: ready public access rarely if ever enhances an area. One rancher who lives in the area told me at the Oregon Guides and Packers' meeting in Grants Pass Jan. 29-30 that in his opinion the proposed road should not be built.

"It'll spoil the whole area, bring too many people into the area who have no respect for the land."

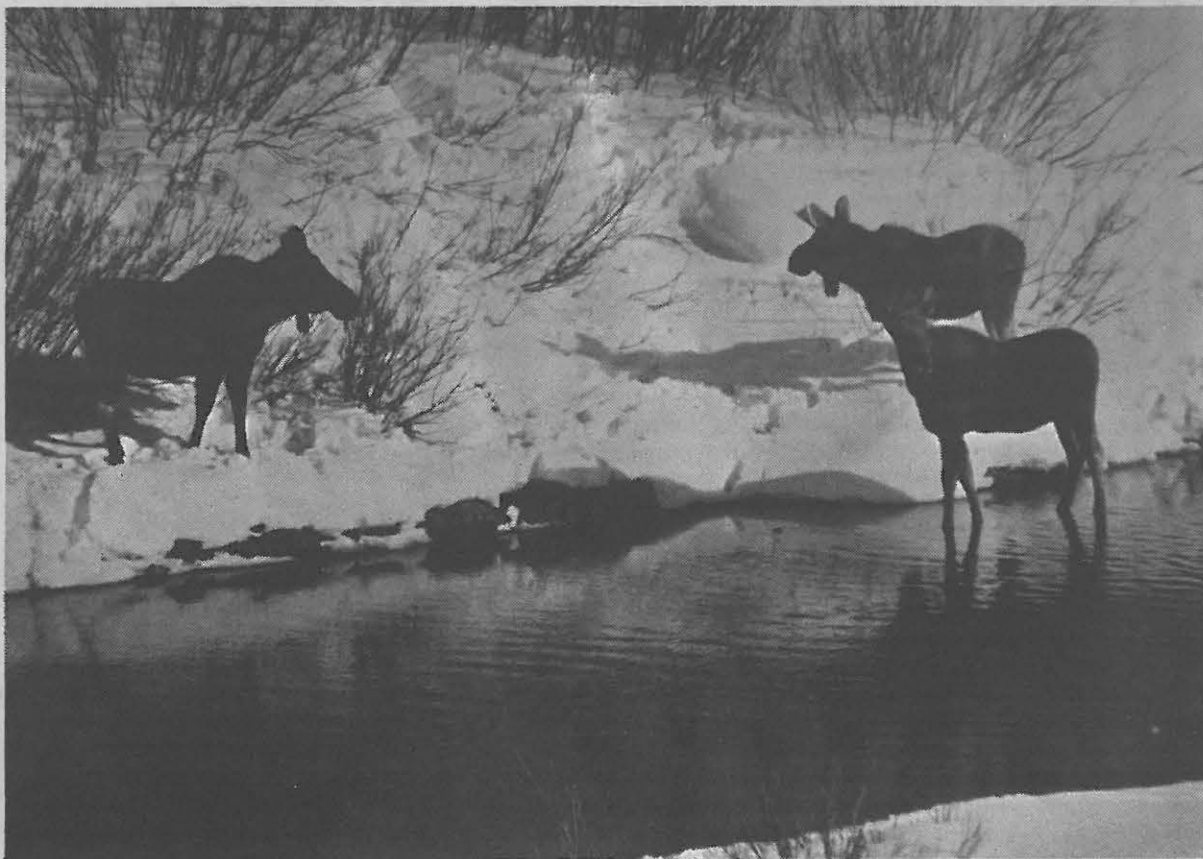
He lives there, and he's against it. How many of his neighbors feel the same way? Will they have their say? Will it make any difference?

The Environmental Impact Statement suggests that it is inconvenient for people in Southern Malheur County to drive through the edge of Idaho to get to Northern Malheur County--as they usually do now instead of driving the "poor road" section. But how convenient will it be to have a new short-cut road that will destroy the scenery, both directly and indirectly. Is the convenience worth the destruction?

As one opponent has put it: "The proposed highway is a classic boondoggle and in addition will impair some magnificent scenery. It cannot be justified on economic, political or aesthetic reasons. It should not be built."

Perhaps it can be justified on political grounds: a pork

barrel for Representative Smith in an election year--the promise of a new road, but it just might backfire like former Governor Don Samuelson's campaign for re-election in Idaho a few years ago. I wonder just how environmentally aware the people of southern Malheur County are. Just how anxious are they for the conveniences that a new road will bring? The elections this fall should be interesting.



Moose on the Ham's Fork River near Kemmerer, Wyoming.

## A Concept of No Growth

by Anthony Lewis

Copyright 1972, New York Times

LONDON - A hundred years ago John Stuart Mill urged human society to limit its population and wealth and seek "the stationary state." He had a vision of a cramped and depleted earth. He sincerely hoped, he said, that men "will be content to be stationary long before necessity compels them to it."

Mill's was a premature vision, and for a long time hardly anyone shared it. Now, suddenly, impressive scientific evidence is being put to us that necessity compels an early end to the dominant earthly ambition of economic growth. For the exponential growth of population and production is putting strains on our environment that cannot be sustained.

To talk about limiting growth as a philosophical matter is easy enough. But when one begins to consider the specific changes of course that would be required of mankind, the difficulties are soon seen to be enormous. The economic habits of a millennium, the motivations, the every conception of a good society would be affected.

The whole question of equality as a social goal, for example, would be transformed. In most societies, East and West, there are gross inequalities of wealth today. They are made politically tolerable in good part by the notion of the whole economic pie growing constantly larger so that everyone can have a bigger slice. That is why politicians from Brezhnev to Edward Heath promise their constituents faster economic growth.

But what happens if everyone in a society knows that there can be no increase in the total volume of material goods? Is it still bearable that one man has three cars in his garage and another not enough to eat?

Similar considerations affect our traditional view of competition as a motivating economic force. Leading ecologists say we must adopt a policy of no net increase in capital investment from now on - only enough to match depreciation of capital.

But if the United States had such a policy, how could manufacturers compete in the traditional way of more productive machinery? Would it not follow that new forms of social control would have to be imposed on production, on marketing, on advertising? And how could they be squared with our ideas of freedom?

Equality is an issue not only within but between societies. If the ecologists are right, then it is foolish and dangerous for developing countries to dream of having industrial economies and a standard of material wealth like the developed world's.

But how can the rich few advise the poor many that they will be better off forsaking the old material goals? And does not that again imply a change in one's whole view of social organization, toward a less material society on the Chinese model, with enough for everyone to

eat but little competition for goods or ease? Does it not follow in international as in national life that an end to growth must not be an imposition by the rich on the poor and hence requires a fresh commitment to a decent level of equality?

Merely to state such problems is to make one thing evident: The complete irrelevance of most of today's political concerns to the most important problem facing the world in the long run. And not very long at that.

There are men in government who understand that - certainly there are in Europe and the Americas and Japan - but the leaders they advise are too busy trying to win this year's election to be interrupted with such disturbing thoughts. And so those who understand that earth is finite read the news with an ironic sense of unreality: the politicians are still talking about more guns and more goods while the scientists know that limits are the urgent need.

One can look at the future projected by the ecologists and be shaken by what it asks for survival. Or one can regard it as a challenge to man's psyche and organizing skills.

A correspondent, one who has begun to be convinced of the inescapable significance of exponential growth, writes to argue that men who understand will nevertheless be powerless to act effectively. For who, he asks, are the "we" who can take remedial steps? Even if the United States now rejected the growth fallacy, how would that matter if the rest of the world went on as before?

In a world of nation-states, the correspondent writes, "we are fools not to eat, drink and be merry because there is not and cannot be any who can prevent us from dying tomorrow. And I and mine expect to die last."

The unwillingness of politicians to recognize ecological necessity so far makes that view of human nature. Like John Stuart Mill, those of this mind will think that a stable state is not only necessary but desirable - a society in which the mind and the arts would matter more than owning goods. They will hope that man will adapt as he has before. It may seem ironic, but those prepared to grapple with the idea of doom will be the optimists.



Thoughts  
from the  
Distaff Corner

By Marge Higley

One of the nice things about manning the circulation desk here at High Country News is getting to read letters from people all over the country. We get all sorts of them. The pat-on-the-back "well done!" ones perk up our spirits and give us the necessary push to keep going when it's tough. Some of the letters tell of interesting first-hand experiences related to a story or picture in a recent issue. There are letters that cry for help in pointing out areas of concern. We get letters from school children who need information on various environmental matters for their studies. A great deal of our correspondence comes from readers in more industrialized states. Their almost universal plea is: Don't let happen to Wyoming what has happened to my home state! Keep it clean and beautiful like it is! Occasionally, we get brick-bats, too. These we take in our stride, glad to know that some of those who don't agree with our concepts are at least reading what we print.

All these letters are handed to the Editor, and many find their way into the Letters column to be shared by our readers. (Once in a while they get lost under the ever-present stack of papers overflowing the boss' desk!)

We got a letter this morning from a young college student. We've had others, in the same vein, and they are always a source of encouragement. This morning's message came just as I had finished reading copy and looking at the pictures of the Logan River. With a feeling of helpless frustration (What's the matter with people, anyway? How can they go ahead with these things without even thinking of the consequences? Are there enough people who really care?) I turned to the mail. And here is the first thing I read:

"Sirs: Thank you for printing such a timely and useful newspaper. I must tell you that it has been just by chance that I learned of your paper. Since I am just a college student, I cannot contribute much money to the cause of saving the environment. One thing that I do have some excess of is time. If there is anyway that I might be of help to you, just contact me, and I will do my best. In the meantime, enter my subscription to your fine magazine. Sincerely, Tom G....."

Suddenly everything seemed less frustrating - less futile. How could I forget, even for a moment, about our wonderful young people? They come here to the office often. High school kids, college students, teachers, young working men and women. They come in search of information, or to ask "What can I do to help?" Sometimes they just want to visit with the Editor, and express their ideas. (He has a willing ear, and they have some good, positive ideas.)

Like our new reader Tom G., most of them have more time than money. But they are truly concerned, and willing to do what they can to salvage the world for future generations. Don't for one moment let all that hair fool you -- they're intelligent! (Have you looked in the old family album lately? I'll bet some of those smart forebears of yours had beards and sideburns, too!)

I am constantly impressed by their cheerful enthusiasm, and even more so by their sense of values. A free-flowing river is more important than all the power it could generate if harnessed. Green money is less important than a beautiful stretch of green forest. Clean air and water are more vital than the Gross National Product. It's gratifying to realize that these are the leaders, businessmen, teachers, and law makers of tomorrow.

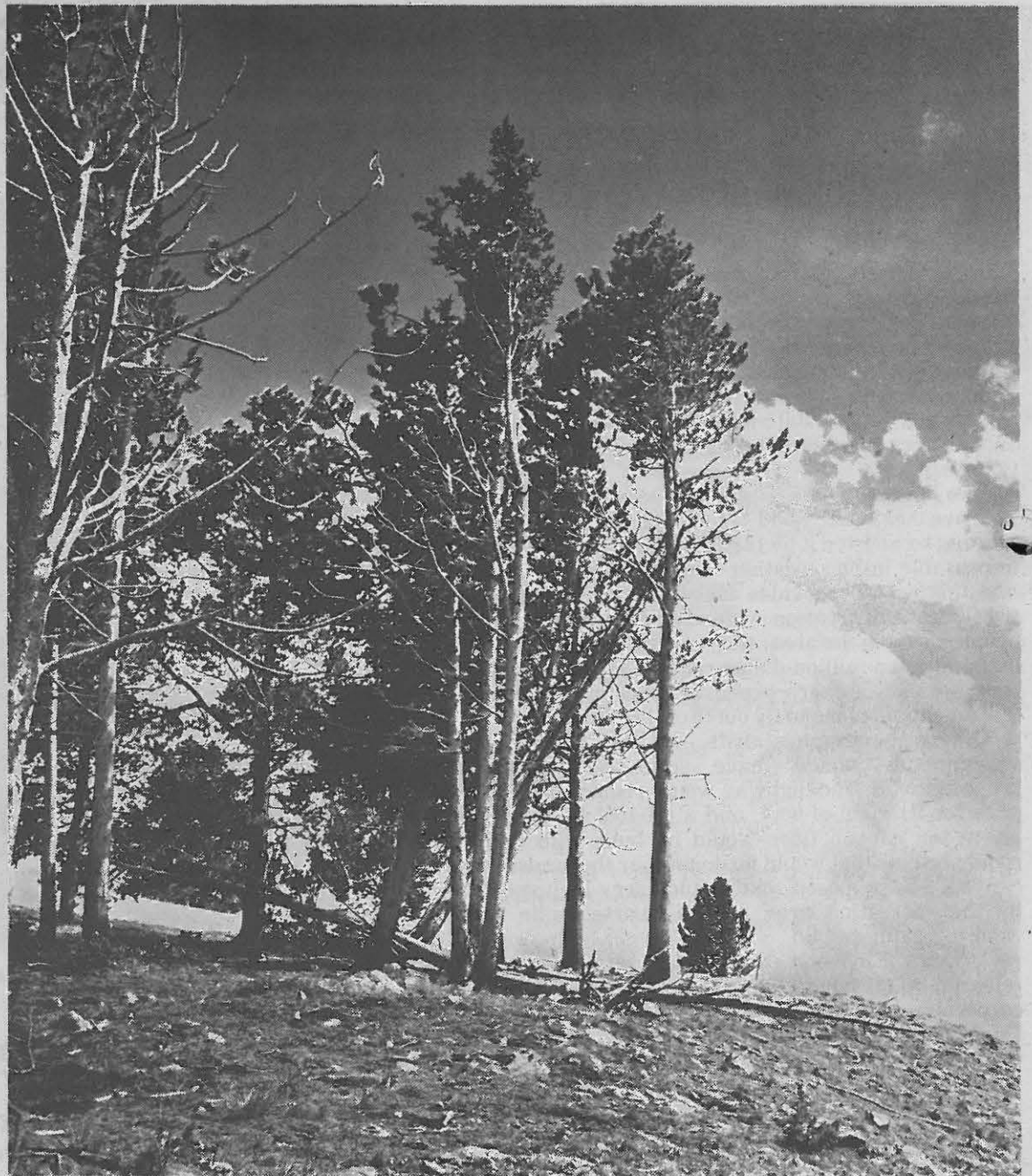
Thanks, Tom G. You've just made my day!



## High Country . . .

I remember I once looked out across the span of two wings and into the eyes of a German fighter pilot. My only thought was, "My, God, I don't even know him. He looks just like me but he is trying to kill me!"

And now it is that I look across the table at a profit-motivated industrialist and ask myself how it is that he is so innocently committing my children to a destiny as ghastly as a bombed out city. Or talk to a politician and wonder how votes can be so casually weighed against Creation.



The sun was warm but the wind was chill.  
You know how it is with an April day:  
When the sun is out and the wind is still,  
You're one month on in the middle of May,  
But if you so much as dare to speak,  
A cloud comes over the sunlit arch,  
A wind comes off a frozen peak,  
And you're two months back in the middle of March.

Robert Frost: Two Tramps in Mud-Time

## Organic Foods Explained

Since the mid-1960's, the American public has been learning some shocking truths about the food we eat. Much of this food comes to us after it has been treated with poisonous chemicals to promote its growth. (We are ingesting these toxic poisons in meat, fish, fruits and vegetables.) Supposedly wholesome foods on the grocer's shelf are laced with preservatives to give them longer "shelf life." (We are buying and consuming 8 million pounds of coal tar products in food and cosmetics every year!) That good old American stand-by, breakfast cereal, turns out to be mostly extenders and additives, with very little nutritional value.

It's no wonder, then, that in the last few years there has been a remarkable trend toward the use of "natural" and "organic" foods. Some people may not realize the difference between them. In its January, 1972 issue, the Lehigh Valley Organic Shopper explains it this way: "Organic foods are foods grown without pesticides; grown in soil whose humus content is increased by the addition of organic materials; grown in soil whose mineral content is increased by the application of natural mineral fertilizers. These foods may not be treated at any time during their growth or processing with preservatives, hormones, antibiotics, etc. Natural foods do not have to be organically grown; they may or may not be exposed to chemicals during their growth. But if processed, they may contain no adulterating chemicals, nor be subjected to processing methods that rob them of nutritional value. Therefore, whole-grain flour may be stone-ground, but not organic because it was ground from grain raised with pesticides. Oil may be natural because it is cold-pressed and unfiltered and contains no preservatives, but it may still not be organic because it was not pressed from organically grown materials."

Organic and natural foods are now available in many grocery stores. Prices tend to be generally higher than they are for their non-organic counterparts, but this could change if the demand increases.

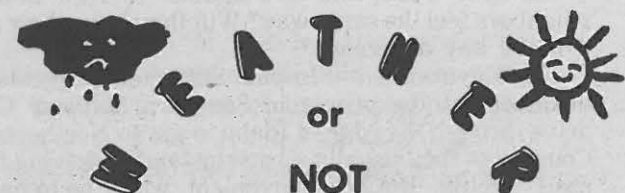
One way to be certain that the baked products you feed your family are nutritious as they should be, is to do your own baking. You can even make your own breakfast food. Granola is made, or a quick-energy snack food. There are many variations, but basically it is made of oats, wheat germ, coconut and fruit. Here is one version.

### GRANOLA

- 4 cups Quick cooking rolled oats
- 2-1/2 cups wheat germ
- 1 cup coconut
- 1 tsp. cinnamon
- 2 tblsp. brown sugar
- 1/2 cup honey
- 1/3 cup salad oil
- 1 tsp. vanilla.

Mix all very thoroughly. Spread on shallow greased pan and bake 30 minutes at 350 degrees F., stirring occasionally. This is the basic recipe, which may be altered by adding chopped nuts and raisins or other dried fruit. It is excellent served with chopped raw apples and milk.

Try it -- you'll like it!



	High	Low	
Sun.	35	20	Whitish
Mon.	35	14	Wetish
Tues.	36	15	Cloudyish

# Brrrrr!

# Environmental Eavesdropper

LOONEY LIMERICKS

by Zane E. Cology

The Wagon Wheel Project -- a nuclear test  
To be tried in the "sparsely-peopled" west.  
(If they make some small error  
That fills you with terror,  
You must try not to be too depressed!)

\*\*\*

The Health, Education and Welfare Department has decreed a partial no-smoking ban in the cafeteria and other rooms of the big government agency. A spokesman said 10 million smokers had kicked the habit in the last five years, and that the non-smoker should be entitled "to an environment reasonably free of contaminants."

\*\*\*

The Environmental Protection Agency estimates that industry must invest some \$42 billion over the next five years in air pollution controls. Investments in air quality alone will force substantial price increases on electric power, automobiles, iron and steel, cement and sulfuric acid.

\*\*\*

Sulfur dioxide emanating from an American Cyanamide plant near Savannah, Georgia, flooded two men on a river dredging crew on the Savannah River. A "cloudlike mist" enveloped a 20-man crew causing eye and throat irritation and breathing difficulties. The two men were hospitalized for sulfur dioxide poisoning.

\*\*\*

EPA says it will decide by June 15 on whether or not to ban all remaining uses of DDT. Hearings on the uses of DDT which began last fall were recently concluded. The federal hearing examiner must submit his findings by April 26.

\*\*\*

Congressman Mike McCormack of Washington told a Senate Commerce Committee hearing that electricity should be taxed up to \$1 billion a year to raise funds for research to head off a "catastrophic" energy shortage. McCormack is a former research scientist at the AEC's Hanford, Washington, nuclear project.

\*\*\*

A consulting chemist at Boxford, Mass., Dr. Paul G. Scheurer, says the lowly earthworm could be used to reduce mountains of garbage to usable compost. He envisions a long tube, filled with earthworms, garbage, leaves, septic-tank wastes and any other biodegradables, moved along by a slowly turning auger mechanism. He is trying to interest 11 towns in an experiment with his idea.

\*\*\*

Toymakers have joined the environment kick. You may soon be able to purchase for your child an Environmental Action Lab, a Johnny Horizon Environmental Test Kit, or Nature's Window, a kit that allows a child to watch plants germinate from seeds.

\*\*\*

# Letters to the editor . . .

Editor:

Mr. Nixon knows best. He guessed there would be no dire earthquake - as the timid ecologists feared, after the Alaskan atomic shot. Mr. Nixon was right. Wyoming must follow the bold Nixon leadership to progress. Wyoming must let no crackpot environmentalists stop the Atomic Energy Commission's "Wagonwheel" test in Sublette county.

With the "Wagonwheel" shot Wyoming can extend the tourist season to garner more tourist dollars in 1973, and perhaps arrange with AEC to have an annual "Wagonwheel" late season tourist exhibition. If it knocks a few bridges out it will not be significant because they are used only by a few simple country folks. The explosion will do much more good for the urban majority than the inconvenience to a few ranchers, and a little risk to wildlife which isn't in the sophisticated pattern of modern living anyway.

Wyoming should cash in on "Wagonwheels" as an autumn tourist attraction which will have more zip than Yellowstone's Old Faithful ever could. In fact the possibilities for bringing extra dollars into Wyoming are unlimited. The Wyoming Travel Commission can put out leaflets explaining how the AEC is going to bring prosperity soon with "radiated" natural gas and tourists will remain. Wyoming can then have an

even greater population than envisioned in "quality growth" plans. There are thousands in Los Angeles for example, who will be delighted to escape the smog for Wyoming's new "radiating" industries because it will take awhile for Wyoming to build up a smog problem. Wyoming needs big industry. For centuries Wyoming has had plenty of fresh air, pure water and clean soil (except for varmint poison) and what has it done financially for Wyoming? Wyoming needs population.

AEC Industry can bring population. Population generates dollars. All this rot about industrial and atomic pollution is for the big birds. There's always been pollution. Let's enjoy prosperity with it while we may. Have faith in future generations. They can look out for themselves and radiation overburden. These ideas that radiation causes cancer and birth deformities is "scare" propaganda of the radical environmentalists. Besides, Wyoming's pleasant breezes will blow excess radiation elsewhere.

Do my unmitigated misstatements have a familiar ring? It's later than you think.

Sincerely,  
J. C. Briggs  
Box 54  
Whiskeytown, Calif.

## Problems May Restrict Growth

For a number of conclusive reasons, the electric power industry cannot continue to grow at its present rate. A recent article (Nov. 71) in the Boston College Law School Journal Environmental Affairs sites four major problems that the present rapid growth has produced:

### Wagon Wheel . . .

tatively blessed the project.

Reaction from other parts of Wyoming has been generally muted. Few know or realize the implications.

The Casper Star-Tribune, some distance removed from the scene of the action, commented editorially on March 25, "Emotional conservationists, as usual, grabbed the scene at a meeting in Pinedale in which Project Wagon Wheel was roundly denounced in fearsome terms of seismic disturbances and radioactive pollution of the water underground and the air overhead."

Meanwhile, concerned citizens of Sublette County go on with plans to further educate their people to the meaning of the big "IF's" in the environmental impact statement. Such authorities as Dr. Robert Pendleton, radiation ecologist at the University of Utah and Dr. Luna Leopold, internationally known hydrologist, among others, have consented to participate in another public meeting. Dr. Pendleton has advised both Governor Love and Governor Rampton on nuclear projects.

The next public meeting is slated for April 21 at Pinedale. By that time Wagon Wheels' welcome may be an overstatement.

### Help on Wagon Wheel

Editor:

It is a pleasure to read your fine newspaper, and the other day I came across a column, which had been zexored by our Committee, written by Tom Bell on March 17, 1972.

In that column, Mr. Bell referred to the Wagon Wheel Project which is in Sublette County, where we live.

It is tragic, that this beautiful area is destined to be shaken by the predicted (AEC fact) 5 Richter Scale earth tremors, from each of the five-100 kiloton explosions that will be detonated in the Fall of 1973.

The people of Sublette County will not sit by and watch this happen. We have formed a committee, which held a public meeting March 20, with the sponsorship of our County Commissioners, at which 600 concerned tax-paying citizens listened to an explanation of the project by Dr. Kenneth Perry, University of Wyoming Geologist, and the personal opinions of the project by County, State, and local officials. It was a calm, intelligent meeting, but the people were obviously against the project.

We urge all your readers to write to their elected representatives to protest this rape of our County. We feel that nuclear detonation is not the only answer to retrieving this natural gas.

Sincerely,  
Phyllis Birr  
Wagon Wheel Information Committee  
Box 249, Pinedale, Wyoming.

a) "Utilities have become so large that they cannot build fast enough to keep up with their present 7-10% rate of growth."

b) lack of space for power plant siting. "Using the Federal Power Commission predictions for peak demand in 1990, and assuming 400 acres for a 3,000 megawatt installation, over six percent of all land and water area in the United States (including Alaska, Hawaii, and all possessions) will be occupied by power plants in 1990. (This does not include transmission lines.) As a comparison, at present all cities, towns, highways, railroads, airports and sites for industry occupy only four percent of the land and water area."

c) increased waste heat disposal. "Approximately 2/3 of the energy converted is lost to waste heat."

d) increased waste materials (all pollutants including nuclear).

Why the rapid growth? A number of factors outside the utilities control have contributed some: a) per capita consumption of electricity has been increasing five times as fast as population growth; b) economy; c) shift from other energy sources to electric power; d) influence of governmental policies designed to increase electrical use.

However, the author, David Permar, feels that the areas over which utilities do have control have been the substantial cause of the increase. It is here he feels that controls can be worked out which will lessen the demand:

- a) promotion
- b) advertising
- c) pricing

Utilities are continuing to push for maximum growth even when there is an energy shortage. The article discussed this in some depth but some points should be mentioned here. Up to now there has been no attempt "to regulate utility advertising, promotion or rate structure for the purpose of controlling demand for electric power or controlling the commensurate utility growth." Some recent legal action has recognized this combination and the Vt. Public Service Board (Oct. 1970) issued a ruling "Prohibiting gas and electric utilities from employing any promotional activities including advertising." (This has been modified due to heavy opposition from the power companies which in effect negated this.)

A reason for this promotion lies in the rate structure. "For an electric utility to make profits and prevent its rate base (a value between original cost and cost of production) from stagnating, it must build new power plants." Of course, an increase in demand is a useful justification for increasing production.

Permar says, "Determination of the cost of service to a specific class of customers (e. g. residential consumers using 800-1,000 kwh a month) depends largely upon the accounting system used. Naturally, the industry uses the system which allocates the least cost per kwh to the largest customer. There is, then, no demand charge for residential users. Factors such as the greater percentage of plant capacity necessary to serve high demand users, and other commensurate costs are not considered. Moreover, the utilities use a rolled-in average figure in allocating plant costs to each consumer. This does not take into account the fact that the newer

(Continued on page 16.)



Two men on foot was all it took to stampede some 4,000 head of elk from the feedgrounds on the Jackson Hole National Elk Refuge recently. Normally accustomed to seeing people on hayracks, as the horse-drawn sleighs travel amongst them, the elk will spook from men afoot. The two men got their feed sleigh stuck in the soft snow and

had to return to headquarters for equipment to get the sleigh out. Refuge Manager Don Redfearn said, "It was a fantastic sight. Seeing the men on foot was just too much for the elk. The wind and the warm weather makes them more nervous than usual."

## Sulfur Tax Proposal Needs Strengthening

The Coalition to Tax Pollution, an organization of major environmental groups supporting an effective tax on sulfur emissions, notes with pleasure that the Administration has come forth with its long-awaited proposal to tax sulfur pollution. A spokesman from the Coalition expressed hope that hearings will be scheduled promptly by the Ways and Means Committee in the House and by the Finance Committee in the Senate, to discuss the entire issue of the taxation of sulfur pollution, and to consider the other bills which have been introduced on the subject.

However, the Coalition expressed concern about the main features of the Administration bill, citing some weaknesses. The Coalition stated:

"The Administration's sulfur tax proposal is distressingly weak. The close meshing with the Clean Air Act involves loopholes, complications, and an open invitation to polluters to redistribute rather than reduce the sulfur pollution problem. The Administration does not seem to understand that a tax scheme and a regulatory scheme can operate complementarily without being totally interwoven - that a tax is strong precisely where the regulations are weak, and vice versa. By putting them together, they detract from the virtues of both.

The level of the tax, even in the dirtiest areas, is not high enough, and the stimulus it will provide for degradation of the many areas which presently do better than the secondary standards (which will pay no tax whatsoever) is an important and unfortunate consequence of this proposal.

By exempting clean air regions, the concept of a tax as an effort to make polluters responsible for the social costs of pollution, by making production costs reflect those social costs, is ignored.

We support a strong sulfur tax proposal - a national tax at the rate of twenty cents per pound. We hope that in discussions of the sulfur tax, the weaknesses of the Administration's bill will be recognized, and that Congress will strive to pass an effective sulfur tax. We do not wish to see a good idea lost because of a bad proposal."

The Coalition had the following criticisms of the Nixon bill:

1. Since regions with air better than the secondary standards will pay no tax, this measure will promote the degradation of these regions. Much of this country presently has air of better quality than that defined by the secondary standards. This feature of the tax is a serious example of the Administration's abandonment of

a policy of non-degradation.

2. The proposed tax levels - 15 cents per pound of sulfur in the worst areas, 10 cents in those areas which are meeting primary but not secondary standards - are not high enough. Much abatement costs more than 10 cents per pound of sulfur abated, and a significant amount even costs more than 15 cents per pound. For example, stack gas cleaning costs about 11.4 cents per pound of sulfur abated, and fuel oil desulfurization to .3 percent sulfur will cost about 19 cents per pound. Thus, even the higher tax will leave a severe urban problem - sulfur pollution from building heating - virtually untouched.

3. There will be no tax until 1976, when, by law, the primary standards must be met anyway. The Administration is postponing the use of the incentive device until after the problem is supposed to be well on its way to being solved.

4. The ambient air over a certain piece of the country does not give a true picture of the air pollution problem, because air pollution does not obey the boundaries of regions defined under the Clean Air Act. A system which taxes according to these regions ignores this fact. Sweden, in its case study for the 1972 U. N. Conference on the environment, cites severe damage from sulfur in rain far from the source of pollution (England), and argues for reduction of total emissions, as well as control of local air concentration problems. In this country, an air pollution episode in Oklahoma was traced by meteorologists to emissions in Wisconsin, Illinois, Indiana, Ohio, and West Virginia.

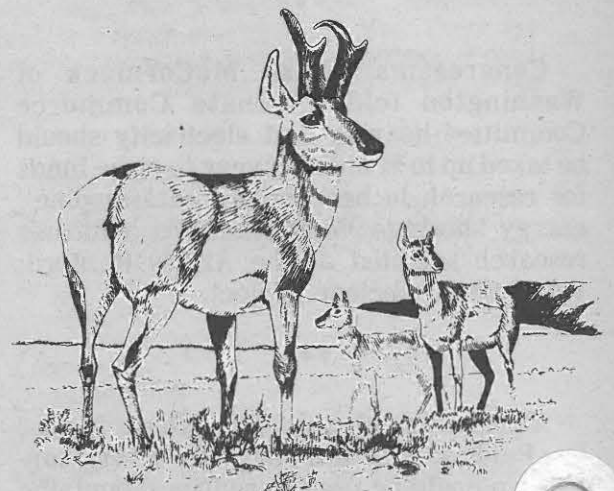
5. The President stated in his environmental message that the tax is "an application of the principle that the costs of pollution should be included in the price of the product." Why, then, is there no tax in a major part of the country? Clearly, the social cost of pollution in these areas, although they have cleaner air generally, is not zero.

The Coalition supports a sulfur tax proposal which has none of the above weaknesses. It has been introduced as a bill by Senator Proxmire in the Senate (S. 3057) and Congressman Aspin in the House (H.R. 10890). It has the following features:

1. The target level of the tax is 20 cents per pound of sulfur, reached in five-cent increments from 1972 to 1975. The phase-in period gives polluters a chance to adjust to pollution control, and make major expenditures on pollution control processes, yet it provides an incentive to do so immediately.

2. The tax is national in scope - it provides no degradation anywhere; it provides a stimulus to send pollution to clean air regions rather than preventing it. Pollution travels great distances (the residence time of sulfur in the air is about one week) and hence integrated control over large areas is necessary.

3. The level of the tax, 20 cents per pound of sulfur, is higher than most estimated costs of abatement, and will therefore promote a high level of abatement, and a continuing incentive to develop better and cheaper methods to control sulfur pollution.



## Problems . . .

plants cost many times more than the older plants; these higher costs should be allocated to those who make the new demands which cause the plants to be built.

"Nor do the electric utilities adequately assess environmental costs. In addition to allocating environmental costs disproportionately with respect to new and old customers, and to high and low demand customers, the utilities simply do not assess for environmental damages which they can avoid paying (e. g. sulfur dioxide which escapes pollution control equipment and ultimately damages the public). Barry Commoner refers to these as social costs. Although it is understandable that the utilities would ignore these costs, the regulatory commissions should in the public interest see that these costs are included in rates, and if excess revenues result, the commissions should see that these funds are used to mitigate the public damage."