

*Sierra
Club*
BULLETIN

FEBRUARY 1971

EDITORIAL

The changing nature of the Sierra Club's program is producing some distinctive challenges. A few years ago, our national conservation program was epitomized by a few singular and long-lived campaigns: saving the redwoods and keeping dams out of the Grand Canyon. Since then, our program has spread to embrace a wide spectrum of environmental concerns. Characteristically, these are expressed in the form of legislative proposals for reforms, with long lists pending before Congress and state legislatures. The campaigns now tend to be shorter, and the focus shifts faster.

Behind the complexity of the legislative scene, a new and more durable pattern in our program is emerging. Our legislative proposals, in the main, reflect a growing conflict over priorities in society. This conflict pits the Club, and much of the environmental movement, in a contest of will and strength against most elements of the American economy and the government agencies allied with them. In deciding whether environmental or commercial and productive considerations are to predominate, we are locked in struggles: with the aircraft industry (e.g., SST construction and major airport expansion), the auto industry (e.g., smog-producing vehicles), the power industry (e.g., problems of plant siting, pollution, proliferation, and safety), the soap and detergent industry (e.g., phosphates), the chemical industry (e.g., hard pesticides and wide-spread contaminants), the oil industry (e.g., off-shore drilling, spills, and Alaskan fields), the mining industry (e.g., strip-mining and mining in wilderness), the timber industry (e.g., over-cutting), the agriculture industry (e.g., excessive use of fertilizers and pesticides, and destructive drainage and channelization), the dam building industry (e.g., end of wild rivers), the highway builders (e.g., too many freeways), and the construction industry (e.g., subdividing open space and too many high-rises in central cities). And the list goes on.

We know that each of these industries, if unrestrained, will further abuse the environment. Yet often at the outset, it is hard to obtain detailed knowledge about the specific causes of these abuses. Only the industries, and the government agencies that promote them, have that knowledge. Since they wish to ward off further regulation, they will not willingly disclose it. Environmentalists must piece together what information they can collect, much in the manner of an intelligence operation. Through probing debate, they challenge industries' conduct, eliciting responses that help winnow out the facts. In the nature of things, these probes do not always develop the information sought. Because the forum for public issues is neither a laboratory nor a courtroom, this process of fact-finding seems disorderly.

Sometimes, these industries, and even our members associated with them, accuse us of being "irresponsible and unfactual." We want to be as factual and responsible as possible. But our chief responsibility is to the environment, not to the peace of mind of these industries. It is they who have the option of bringing the full facts forward and reforming their practice, not environmentalists. The burdens of responsibility fall on both sides, but ours can only be defined in the light of their behavior.

In exercising our responsibility, we have caused many of them to behave much better than they otherwise would, but typically the full facts are brought out only when the issues are settled.

—Michael McCloskey
Executive Director



Sierra Club

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... TO EXPLORE, ENJOY, AND PROTECT
THE NATION'S SCENIC RESOURCES ...

COVER: From the Sierra Club Exhibit Format book *Gentle Wilderness*. Photograph by Richard Kauffman.

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THE SIERRA CLUB,* founded in 1892, has devoted itself to the study and protection of national scenic resources, particularly those of mountain regions. Participation is invited in the program to enjoy and preserve wilderness, wildlife, forests, and streams.

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*Reg. U.S. Pat. Off.

NEWS

SST

The first major environmental vote to face the new Congress will come late in March on further funding for the Supersonic Transport Program. During the closing days of the 91st Congress, it was agreed to continue federal funding of the project until March 31, and to schedule a separate vote on the remaining Fiscal Year 1971 appropriation for the SST sometime in late March. Such a vote will be the first time the SST has had to stand or fall on its own merits; always before it has been part of the total Department of Transportation appropriation bill.

Both the House and Senate appropriation committees held hearings on the SST subsidy during the first week in March. Meanwhile, as William Magruder, chief of the SST program, forecast to the press in February, a major lobbying effort has been mounted by the Nixon Administration to persuade new members of Congress and last year's congressional opponents of the SST program to support additional money for the SST. If Congress, or even if one of the Houses of Congress, has not voted yet on the funding measure by the time you receive your *Bulletin*, please write to your senators and/or your representative urging them to oppose the SST.

BASF ABANDONED

Badische Anilin und Soda Fabrik (BASF) has abandoned plans to build a \$400 million petrochemical complex along the South Carolina coast in Beaufort County. In announcing the decision, the West German subsidiary said it was ready to return the 1800-acre site at Port Victoria to the state. BASF's decision to cancel its plans for the estuarine waters of South Carolina was in response to 15 months of opposition from conservationists; a stern warning from Secretary of the Interior Hickel that his department would tolerate no pollution at Port Victoria; and a rash of court suits against BASF, the State Ports Authority, and the State Development Board. Former South Carolina Governor Robert McNair, who personally encouraged the heavy industrialization of the South Carolina coast, called BASF a victim of environmental frenzy.

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ACTION NOW
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THE STRIPMINING OF AMERICA

By Wayne Davis

Kentucky is being destroyed by stripmining. Not slowly and surely, but rapidly and at an ever accelerating rate. And the disease that affects Kentucky soon may spread to more than half our other states.

Most Sierrans are aware of the problem of acid mine drainage. Sulfur impurities in coal, when excavated and exposed to the air, invite invasion by bacteria which manufacture sulfuric acid. The result is streams with a pH so low that nothing survives but bacteria. The damage is permanent; some sickly red streams run dead a hundred years after mining operations have ceased, with little prospect of improvement in sight.

The extent of the problem is enormous. Keith O. Schwab, of the Federal Water Quality Administration in Cincinnati, has data showing 12,000 miles of degraded streams from mine acid drainage in the Appalachian states. "We can ill afford to lose more streams to mining pollution," he said, "but this is exactly what is happening."

Acid mine drainage has been with us as long as we have been mining coal. It comes from deep mines and surface mines. It has long been accepted by most local people as a price they must pay for an economy which removes the coal and burns it up as quickly as possible. Progress means removing the wealth, destroying it, and leaving the land and streams permanently impoverished.

Acid mine drainage, considered one of the most vicious of industry by-products, is trivial however compared to the massive onrush of destruction caused by the incredibly rapid move to surface mining.

In surface mining heavy machinery removes the

soil, including trees, grass and everything else on the surface, to expose the coal seam beneath. In the steep hill country of Eastern Kentucky, this means pushing massive amounts of spoil down the mountainside. Even the largest trees are broken and pushed over. The magnitude of the devastation is difficult to imagine for anyone who has not seen it. Man's ever accelerating technology, now rushing forward faster than the speed of thought, has designed machinery which will move 100 cubic yards of dirt with a single bite. Such shovels, standing as high as a 12 story building, are used around the clock, as is the smaller equipment at many of the mountain stripping sites. With profits running as high as 50 percent annual return on the dollar invested and the minimum price of Eastern Kentucky coal having doubled over a 6 month period last year, the rush is on while the getting is good. Western Sierrans who watched the timber barons' frenzied efforts to cut as many big trees as they could before Congress established a national park will understand the rape of Kentucky. As stripping grows and as people become more informed, the opposition forces encompass an ever larger segment of the public.

When rain falls upon a strip mine site massive quantities of mud wash into the streams. A study by the U. S. Forest Service in Kentucky showed streams carried as much as 46,000 ppm of suspended sediment, compared to a maximum of 150 ppm in adjacent forested watersheds. Stream bed burdens of as much as 66,500 cubic feet of sediment per square mile of watershed were observed in the stripped areas. In addition to the stream beds the woodland



flood plains were also made a muddy mess from silt. Subsequent rains not only brought down more silt but moved part of the previous loads on downstream, affecting more of our watercourses.

Bethlehem Steel Corporation has mined the high quality low sulfur coal needed for processing steel from deep mines in Eastern Kentucky for many years without arousing the displeasure of conservationists. However, their decision in 1969 to strip 40,000 acres in several counties changed them from an acceptable responsible corporation into the number one target and rallying point for the anti-stripping forces. Strip-mining not only puts permanent scars on the mountainsides, but it also kills the streams, which are public property.

Silt kills streams by destroying the nature of the bed. Many aquatic invertebrates upon which fish feed live beneath the stones in the gravel-covered bottom of a stream. A fine load of silt from the clay-banks above glues down the stones, making them inaccessible and preventing the free movement of oxygen-carrying water among the gravel and beneath the stones.

The effect upon spawning of fish is similar. Most species of game fish lay eggs in the gravel of the stream bottom. If a fine layer of silt washes off the strip mine spoils and covers the eggs, they are deprived of sufficient oxygen for development and fail to hatch. Thus the stripminers rob the public of a valued resource.

Although land destruction occurs, acid mine drainage and silt are the best known effects of stripmining, a less known but equally dangerous factor may be the

raising of the mineral ion concentration of the water effecting its usability by man and his industries. The U. S. Public Health Service sets standards for drinking water quality and the various industries have their own tolerance levels depending upon the purpose of the water they use.

The U. S. Forest Service has done studies on the effects of stripmining on water quality in Eastern Kentucky. In a report they point out that although the U. S. Public Health Service's Maximum Permissible Level for sulfates in water is 250 ppm, on severely disturbed watersheds in Eastern Kentucky they found concentrations ranging up to 2100 ppm. Whereas the tolerance level for manganese is 0.05 ppm, concentrations of up to 74 ppm were found, and for iron, whose recommended maximum level is 0.3 ppm, concentrations ranged up to 88 ppm.

Why the tremendous increase in stripmining activity? Many reasons have coalesced to result in today's frenzy.

The use of electrical power, pushed along by Madison Avenue's request that we live better electrically, have been growing at 7 percent per year, a rate which doubles consumption every 10 years. Coal is a major energy source for power generators.

Even with nuclear reactor power generators increasing at a rate that doubles their numbers every 2.4 years, with this rate expected to continue at least through 1980, the demand for power is increasing so fast that coal powered generators also are being built.

The scarcity of natural gas, which caused gas companies in the East to deny service to many new industrial customers in 1970, and the ever increasing



dependency of this country on foreign oil sources, has increased the interest in coal, one resource which is still in abundant supply.

The new mine safety law has helped push operators out of deep mining into the stripmining business. Stripmining produces three times as much coal per man as an underground operation and requires less machinery and investment. It is safer for the workers and more profitable to the operators. The result has been that the strip mine has risen from 29 percent of the production 10 years ago to 36 percent today. In the steep Appalachian hills of 9 states strip mine benches now extend for 20,000 miles. Since only 4.6 billion of the estimated 108 billion tons of strippable coal have been harvested, one can see what the future holds.

As the acceleration of stripmining proceeds, attempts to regulate it are frustrated. Although Kentucky has a fairly good mining reclamation law and some honest, conscientious people in the Division of Reclamation, law enforcement has broken down. An employee of the Division told me that during the summer of 1970 permits were issued to over 100 new operators. Since anyone who can borrow enough to get a bulldozer into operation can go into business and get rich now, there is a flood of new people into stripmining. The enforcement officer said that some of these inexperienced operators could not operate within the law even if trying to do so and spills of spoil onto public highways and into the streams are the result.

The business is so lucrative that an operator has been quoted as saying that if we will leave him alone

for just two years he doesn't care if we outlaw stripmining, for by that time he would be rich enough to retire.

Operators are getting rich and selling out to the big corporations. The giants of oil and steel, smelling the killing at hand, have been rushing into the fray like a pack of sharks to a bleeding swimmer. The major stripmining operations are subsidiaries of such corporations as Gulf Oil, Humble Oil, U. S. Steel and Bethlehem Steel. TVA is also heavily involved.

If you think coal mining is only a problem for Kentucky and such well known coal states as West Virginia, Pennsylvania and Illinois, you are in for a surprise. A total of 26 states have strippable reserves of coal. We easterners will not even be in the running when the big time arrives, because the states with the largest reserves of strippable coal are North Dakota, Montana and Wyoming. If we draw a line from Pennsylvania to the coal-laden northwestern tip of Georgia, every state west of the line except Wisconsin, Minnesota and Hawaii has some coal deposits. With the industry's trend toward building power plants where the coal is, the destruction of parts of your state may be even now on the shallow horizon.

Stripmining as a big business has moved into Ohio. Ben A. Franklin of the *New York Times* reports that 5 billion tons of low grade fuel, long considered too marginal for mass mining, lie near the surface in Ohio, and the boom is on from Cincinnati to the east-central border to recover it. In 346,000 acre Belmont County alone 200,000 acres have been



sold, leased or optioned to the strippers. Two giant electric shovels, each 12 stories high, scoop up farms, barns, silos, churches and roads to uncover the coal, piling the rubble into strip mine spoil banks. Franklin quotes Ohio Congressman Wayne Hays, whose home is in Belmont County, as saying "They're turning this beautiful place into a desert," but Ford Sampson, head of the Ohio Coal Association is credited with the line, "Are we going to cut off the electric power because some guy has a sentimental feeling about an acre of coal?"

Perhaps a better example of what we are up against is illustrated by the opinion of James D. Riley, a vice president of Consolidation Coal Company, who spoke to the American Mining Congress in Pittsburgh in 1969. To the thunderous applause of the assembled strip miners, Mr. Riley declared that the conservationists who demand a better job of land reclamation are "stupid idiots, socialists and commies who don't know what they are talking about. I think it is our bounden duty to knock them down and subject them to the ridicule they deserve."

What can be done? First we must insist that Americans take their heads out of the sand and recognize the fact that power demand cannot continue to rise as it has been. Nothing — whether the power demand, the production of coal, the number of people, the number of cars, or the gross national product — can continue indefinitely to rise at an exponential rate in a finite world. The sooner we face reality on this the sooner we can begin to attack the problems.

So the next time the power tycoons tell you they

must double power capacity by 1980 you should reply, "Nonsense — long before 1980 we must plan and put into practice a program to level off power consumption at something like present levels or less."

Second we must have federal regulations of mining practices. Any local efforts to regulate this or any other industry encounter the standard and somewhat justified reply that regulation would put them at a disadvantage with their competitors in other states.

Dr. Robert Kuehne says that in Kentucky we could not have designed a better system to ruin the maximum number of streams in a shorter period. Instead of mining watersheds that are already destroyed until all the coal is gone, the economic system assures that we skip around in such a way as to kill all our streams in the coal country.

The Committee on Resources and Man of the National Academy of Sciences-National Research Council has pointed out that the culmination of oil production in this country is now at hand and the culmination of natural gas will arrive at the end of this decade. We are now dependent upon foreign sources for 20 percent of our oil supplies, and by the end of this decade this is expected to rise to 40-45 percent. Although coal reserves are much greater, we should not continue to treat them as the common enemy to be destroyed with all speed by the system found to be so effective in getting rid of our oil and gas.

We simply cannot afford to continue the present pattern of exploitation of the fossil fuels.

Mr. Davis is Professor of Zoology at the University of Kentucky, Lexington.

A Conversation with Leslie Glasgow

Two days after Secretary of Interior Walter Hickel was dismissed in late November of last year, six other high level Interior officials were fired as well.

One of these, Dr. Leslie Glasgow, Assistant Secretary for Fish, Wildlife, Parks and Marine, talked with Sierra Club ex-officio Vice President William Futrell in January. Following are excerpts from their conversation.



Bill Futrell and Dr. Leslie Glasgow

BF: Looking over the last two years, your years in Washington, what do you think was the major thing that was accomplished?

LG: *I think the environmental awakening which resulted from the oil spill in Santa Barbara, the oil spill in the Gulf, the Everglades Jet Port problem, the activities of Secretary Hickel in relation to pollution and other environmental problems were the greatest things that happened while I was there. I cannot single out any one event; it was the total environmental effort that was important.*

BF: You mentioned two ecocatastrophies. Do you think it takes ecocatastrophies to force an environmental awakening?

LG: *I'm not sure it takes catastrophies, but they help jar people into reality, and I am sure that we are going to have some catastrophies in the future*

that will further awaken the country to the importance of environmental degradation.

BF: What are some of the danger areas which you foresee?

LG: *Pollution is the biggest problem of all, and we are going to have to squarely face the seriousness of pollution before we finally get over the hump and convince the majority of the people in industry in this country that we must take care of it.*

BF: What types of pollution — such as lead and mercury poisoning?

LG: *Yes, instances of this kind in which you have poisonous chemicals or metals which are serious enough to result in the death of birds, mammals, fish and even people.*

BF: Do you think there is the likelihood of such

an ecocatastrophe in the pesticide field?

LG: Possibly, but not as likely as in the past. A lot of progress has been made in the pesticide area in the last two years and I think that chemical manufacturers and agencies that are responsible for the use of them have a much better attitude now. I also believe the EPA will bring pesticides under better regulation and further reduce the chances of ecocatastrophies.

BF: What would you feel was the major accomplishment on the governmental level that you and Secretary Hickel accomplished in those two years?

LG: All of the Interior agencies under Secretary Hickel's guidance set higher standards than have ever been set before, and they will have to maintain them. I was responsible for formulation of many of the standards in the environmental area.

BF: In other words, just in the all important day to day operation of the department, rather than any one great issue.

LG: There are many great issues and Secretary Hickel always had a comment that I thought was very appropriate. He would say that we are going to do these things but we are going to do them right, and I thought that was great. The areas which I had were more directly concerned with the environment than any others in Interior except for water quality. I was interested in improving all environmental areas. In the other areas of Interior, minerals for instance, on the offshore or outer continental shelf regulations, you have new oil drilling regulations simply because I pushed for them and if I had not pushed hard, you wouldn't have them; so I was watching everything in Interior. I assumed the position of a watchdog over the environment. One of the things that came up that really created a furor was the time when we considered shale oil development.

BF: In the San Juan Mountains of Colorado?

LG: I went to a meeting in the Secretary's office with some of the other Assistant Secretaries who were briefing the Secretary and they were going great guns convincing the Secretary that shale oil development was the thing that we really need to initiate now. I began to raise the environmental issues, that there was no protection involved in the proposal being made. Eventually it got to be a pretty hot issue. Finally, I told the Secretary that there's absolutely nothing here to protect the environment, I don't see how you can proceed until there is, so he just called a halt to it. That delayed the possibility for shale oil work probably by a year

or more. Secretary Hickel later proceeded with the project following incorporation of environmental safeguards. I was doing this type of thing continually with other agencies in Interior, besides my own, and, of course, that got me in hot water everywhere.

BF: What single thing gave you the most satisfaction during those two years?

LG: I'm not sure I can single out any one particular thing. I worked closely with the people in water quality, and I was responsible for setting many of the water standards in this country much higher than they otherwise would have been. That was a lot of satisfaction. One of the problems I found in Interior was the disagreement between the State wildlife people and the Federal wildlife people — disputes over ownership of game. We reached an agreement which I think was very good and it was a lot of satisfaction to bury the hatchet and to move forward with Interior and the States working together, rather than fighting each other. There are other examples of similar things which were quite satisfying to me.

BF: What do you feel were the most frustrating or disappointing things in those two years?

LG: The most disappointing thing to me was that there were people on the White House staff making decisions that they had no background at all to make. The decisions should have been left to professional people who really knew and understood the problems.

BF: This was in the office of the President?

LG: I wouldn't say the office of the President, but in the White House staff, making decisions on some major projects throughout this country rather than leaving them to the people who understood the best solutions.

BF: Was the order requiring sale of ten percent of the Wildlife Refuges one of these instances?

LG: Yes, I called the White House and talked to those people and tried to explain to them what a catastrophe this would be and what a political blunder it would be. As you know, upon my advice, Secretary Hickel refused to list or dispose of any except for a few isolated acres that were of almost no value to the program. The facts are, we should acquire considerable more refuge land to protect the endangered species, as well as some that are declining rather rapidly. In my opinion, the only way to save endangered species is to provide habitat for them.

BF: Do you have any comments on the Public Land Law Review Commission Report?

LG: *I think that we did need an intensive study of public lands. In the Land Law Review Report you can find information to support most any ideas you have about public land. I think that there will be considerable legislative action in the next session and following sessions of Congress, and I am sure that a lot of special interests will be there pushing their particular position or whatever it is they want. I think that the conservation groups will have to be very very alert, otherwise, some of the special interest groups may be able to take advantage of the report and capitalize on it at the expense of the people of this country. We have to be very alert on all legislative introductions into Congress or any orders given that are based on that report and analyze them very, very carefully and let the public know what it means to them. Then I think the public will respond in such a manner that you will get a decision in the public interest. The idea of changing from multiple use to dominant use may be dangerous. The public will lose and private exploiters will gain.*

BF: We are seeing one of these great confrontations between conservation interests and the extractive industries at the present time in Alaska. Do you have any predictions on what future developments in that will be?

LG: *Yes, I think you'll see that oil production will become a reality there. We need the energy, we need oil, and I don't think there's any doubt as to whether it will be produced. Again, I would like to repeat what I heard Secretary Hickel say at different times, that we will produce oil, but we are going to do it right, with a minimum detriment to the environment, and I think that's the way it should be.*

BF: Do you think that TAPS, the Trans Alaska Pipeline, will be the solution for getting the oil out or whether it will be ocean transportation?

LG: *I think it will be the pipeline. Although TAPS no longer exists, a new organization has taken over. I believe pipelining the oil out is less hazardous than using barges or tankers.*

BF: Do you have any other reflections on the Alaskan situation as to the possibility of saving that part of the country from environmental degradation?

LG: *I think that there are other possibilities in Alaska which may become more detrimental than what we see now. Alaska has many resources that*

eventually will be developed and I think that we should go ahead and develop them because we need them, but we should do it in the most careful manner possible. There are also very scenic areas as well as important refuge sites that should be acquired for public use.

BF: What are some of the other difficulties that you see other than oil?

LG: *There are a lot of minerals in Alaska that eventually will be mined. Development requires people and people destroy and pollute.*

BF: Focussing on the National Parks System, what areas do you expect to see included in the National Parks System in the next couple of years? What areas do you think there might be a chance of being included in the National Parks System?

LG: *With the increase in funding in the land and water conservation fund in the next few years there is an opportunity for several new areas to be included. As you know, one of the ideas is to establish recreation areas in the large centers of population, in the urban areas. Urban parks are going to cost tremendous sums for acquisition, development and operation, and this then cuts down on the number that could be established. If you were to limit acquisition to the standard parks that we have known in the past, there would be a good many of them, and Interior has quite a list.*

BF: What are some of the ones in high priority?

LG: *The Gateway in New York and Gateway in San Francisco both are high priorities. I think that Gateway in New York had the highest priority under Secretary Hickel. Now, you know this all may change.*

BF: In focussing on parks in urban areas, are we seeing a shift in the parks philosophy of Interior and of the administration from scenic wilderness parks to urban use parks?

LG: *I'm not sure it's a shift, it may be an addition. I am sure they will maintain the interest in the western type parks, but will include also the new areas, the urban type parks. The urban parks were being designed to cure social problems, yet there is little information to support this hypothesis. One of the things that was a little disturbing to me was to see Interior move into some of the areas that traditionally are state and local park areas. Interior seems to be assuming local and state obligations. I felt that this was a mistake.*

BF: What is an example of such a move?

LG: Well, it was more discussion than actual example, but there was a strong push by the parks people to move into city type parks. I call them city type parks, they are actually urban parks for the ghetto type areas. This is a state and a city problem more than a national problem.

BF: Would this be funding by the Bureau of Outdoor Recreation?

LG: Yes. Then, in turn, this would detract from funds that were available for wilderness type parks.

BF: If you had the opportunity to pick out one piece of real estate and put it into the National Parks System, what area would you choose?

LG: The Atchafalaya Basin in central and southern Louisiana.

BF: What qualifies it for inclusion in the Parks System?

LG: It was one of the greatest hardwood swamps in North America. It has been altered by man a great deal, but it's still one of the greatest swamps that we have, and it's going to be cleared unless we save part of it. There is an effort being made in that direction now.

BF: What are the chances for a Big Thicket National Park in the near future?

LG: It is difficult to say. I think, though, it will become a reality. The timber interests, just before the past election, had enough interest to make a proposal of their own, and they suggested that they go above the 35,000 acres that they originally proposed. I think you will see some sort of a National Monument or Recreation area, probably a national monument, but it will be at least two or three years. It depends on the persistence of the people who are interested.

BF: What do you think the size of the area will be? Will it be the string of pearls or the 100,000 acre proposal?

LG: It would be at least 100,000 acres. This is what the people want, this is what ecologically is practical, and I think the timber interests will support it.

BF: What do you think the role of a citizens conservation organization such as the Sierra Club is in the movement for environmental reform?

LG: Well, I think we are fortunate that we have private organizations that are interested in the environment. I know that without them we would not be nearly as far down the road towards solving

our problems as we are. There is some criticism from members of Congress and from people in Interior that the citizen conservation organizations interfere with the activities of the agency. I never took that position and I saw, and I am sure this is correct, where these organizations were really helpful to this country. Without them I know we would not have had near the environmental consideration that we have had, nor what we will need in the future. I would recommend to some organizations that they become more militant than they have been in the past. I also recommend that private citizens and organizations take more court action against polluters and destroyers of areas that have a high public use value.

BF: For a militant organization, what particular topics in this early part of 1971 should be on the top of their agenda, to inform their members about and to be alert on?

LG: I would think that the most important thing to do now is to be alert to changes in policies that possibly might arise in Interior. I think that there have been some changes since Secretary Hickel has gone that are not good.

BF: What are some of those changes?

LG: Too many political decisions, or decisions made on a political basis rather than on an environmental or resource basis.

BF: What would be an example of one?

LG: The recent story that arose in the paper of the transfer of a Federal Game Agent because he arrested some rather prominent people for baiting waterfowl. When I was there I got requests to take action of this type, and I really backed the federal agents. Also at the time I was fired, the Under-Secretary was pushing to give one of the military agencies 4000 acres of a recreation area owned by the National Parks system.

BF: What park was that?

LG: That was Prince William Forest in Virginia. It's not really a national park, but it is under the jurisdiction of National Parks Service. This is in an area where you have far too few acres of recreation land now and it is part of a heavily used area owned by Interior. The President's policy was, and still is, to take all of the Federal lands that are not being used in the areas where there are high populations and convert them to recreation lands. Now giving up this land just didn't seem right to me, so I opposed it, but the Under-Secretary was pushing hard to give it to the military.

OIL SPILL!

When an oil spill takes place, such as the recent one in San Francisco Bay, there is a tendency to view it as an isolated, unconnected event. Actually, the growing number of these spills is but an indication of the rising magnitude of the oil traffic. It has been estimated that .01 percent of all oil transported is spilled into rivers, harbors, and the sea.

Since the *Torrey Canyon* disaster in 1967, the number of major spills has mounted, too. To help readers visualize the impact of this, we have compiled a partial list of these major spills which shows the pattern of recurrence and damage. A subsequent issue of the Bulletin will explore the meaning of this trend.

1967

Date: 3/18/67

Location: Seven miles off of southwest tip of English coast.

Material: Crude oil.

Source: Tanker *Torrey Canyon* broke up on rocks.

Damage: Over 30 million gallons of crude oil spilled; destruction spread over 100 miles of beaches.

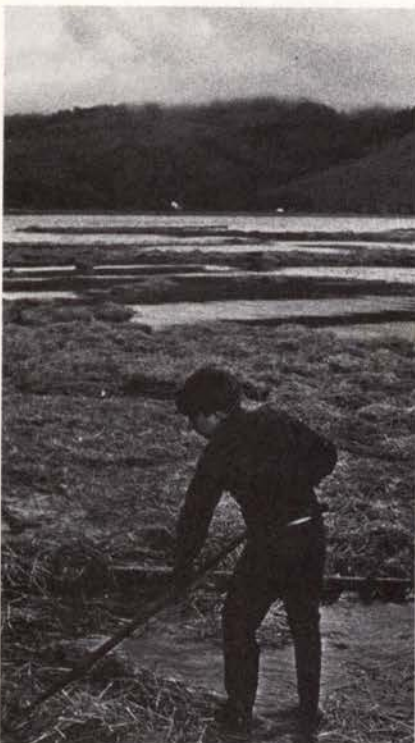
Date: 9/6/67

Location: Wake Island.

Material: Mixed aviation and general fuel oils; Bunker C oil.

Source: Tanker *R. C. Stoner* grounded on reef.

Damage: 5,880,000 gallons of oil spilled.



Heavy fish kill and destruction of reef marine life.

1968

Date: 2/18/68

Location: Old Fort Mifflin Pier, Delaware River, Philadelphia, Pennsylvania.

Material: #6 fuel oil.

Source: Tanker took on water, bow sank and stern elevated.

Damage: 294,000 gallons of #6 fuel oil spilled into river; spill lasted ten days.

Date: 3/3/68

Location: San Juan, Puerto Rico.

Material: Crude oil.

Source: Tanker *Ocean Eagle* was "overloaded and grounded"; broke in half.

Damage: 3,500,000 gallons of crude oil spilled.

Date: 3/7/68

Location: Eleuthera Island, Bahamas.

Material: Crude oil.

Source: Tanker *General Colocotronis* grounded on east coast island.

Damage: From approximately 900,000 to 1,600,000 gallons of crude oil spilled; an oil slick fourteen by two miles long created.

Date: 4/21/68

Location: Waikiki Beach, Hawaii.

Material: Bunker C oil.

Source: Unknown.

Damage: Most beach and recreation areas along beach were spoiled; oil carried to shore by winds and tides.

Date: 4/29/68

Location: South Africa, off of Cape Peninsula.

Material: Crude oil.

Source: Tanker *Esso Essen* grounded, three miles from shore.

Damage: 1,200,000 gallons of crude oil spilled; a slick fifteen miles by three; high bird and sealife kill.

Date: April-May, 1968

Location: West coast of Africa.

Material: Crude oil.

Source: Tanker *Andron* sank, May 5, 1968 after coming to Durban for repair of leaking tanks.

Damage: 4,914,000 gallons of oil spilled; huge bird kill.

Date: 6/13/68

Location: Northeast of Durban, South Africa.

Material: Crude oil.

Source: Tanker *World Glory* broke in two. Damage: 13,524,000 gallons of oil spilled into sea; 60 by one mile oil slick, came within two miles of coast; up to 150 miles of coast threatened.

Date: 12/13/68

Location: The Carribean coast off of the Panama Canal.

Material: Bunker and diesel fuel.

Source: Tanker *Witwater's* hull broke in two.

Damage: 630,000 gallons leaked into waters.

1969

Date: 1/28/69

Location: Santa Barbara Channel.

Material: Crude oil.

Source: Drilling platform blowout, five and a half miles from shore.

Damage: Over 4,000,000 gallons of crude oil leaked into sea; rapid initial leakage fell to approximately 20,000 gallons a day; 40 miles of residential and recreational coastline contaminated; huge bird kill.

Date: 2/9/69

Location: Buzzards Bay, Massachusetts, Long Island Sound.

Material: #6 fuel oil.

Source: Tanker *Algol* grounded.

Damage: Slow leakage over a number of days into Bay; slicks 150 feet long.

Date: 4/30/69

Location: Entrance to Liverpool Bay, Irish Sea.

Material: Heavy fuel oil.

Source: Tanker *Hamilton Trader* collided with another vessel.

Damage: Over 400,000 gallons of oil spilled; contaminated 50 miles of residential, commercial and recreational shoreline; several thousand birds killed.

Date: 5/31/69

Location: 12½ miles south of Trelleborg, Sweden.

Material: Crude oil.

Source: Tanker *Benedicte* suffered damage to cargo tanks after being involved in a collision.

Damage: 588,000 gallons of crude oil spilled; most dissipated naturally; minor contamination of tide water and shoreline.

Date: 11/5/69

Location: 120 miles southeast of Nantucket, Massachusetts.

Material: #4 fuel oil.

Source: Tanker *Keo* broke in half during violent storm.

Damage: 8,820,000 gallons of oil spilled into water; oil dispersed by violent seas; possible suspect in Martha's Vineyard bird kill.

Date: 11/ /69

Location: Seewarren, New Jersey.

Material: Low flash crude oil.

Source: Onshore storage tank collapsed and surrounding dike overflowed.

Damage: Reportedly over 8,000,000 gallons



of oil spilled, contaminating surrounding marshes; pollution still present one year later.

1970

Date: 1/23/71

Location: Mouth of New Haven Harbor, Long Island Sound.

Material: Light, highly refined #2.

Source: Humble Oil tanker *Esso Gettysburg* ran aground on a rock ledge at mouth of harbor.

Damage: 386,000 gallons of oil spilled; long range effects on sea life potentially fatal for many.

Date: 1/25/70

Location: Offshore Grand Isle, Louisiana.

Material: Crude oil.

Source: Undetermined.

Damage: Oil slick fifteen miles covered Grand Isle beaches.

Date: 2/4/70

Location: Cerberus Rock, Chedabuco Bay, Nova Scotia.

Material: Bunker C oil.

Source: Tanker *Arrow* chartered by Standard Oil ran aground and broke in two.

Damage: Over 1,500,000 gallons of oil

spilled; eighty miles of coastline contaminated; over 5000 dead birds found (many others presumed dead); many dead or "disoriented" seals; heavy destruction of intertidal marine life; herring industry threatened.

Date: 2/10/70 - 3/31/70

Location: Chevron Platform "Charlie," Gulf of Mexico, Breton Sound.

Material: Crude oil.

Source: Off shore well blow out.

Damage: Over 1,000,000 gallons of crude oil spilled into sound; slicks up to 120 square miles reported; because of proximity to wildlife refuges and ecologically sensitive areas, estimated total of 1,000,000 waterfowl threatened; spill directly in path of shrimp migrating to marshes. . . .

Date: 4/20/70

Location: Tarut Bay, Saudi Arabia.

Material: Crude oil.

Source: Pipeline carrying crude to refinery broke.

Damage: 4,200,000 gallons of oil spilled; oil confined to Tarut Bay; some coastal areas near Ad Dammam affected.



Date: 4/25/70

Location: Alaska Peninsula, Alaska.

Material: Appeared to be a light diesel fuel oil.

Source: Undetermined.

Damage: An area of 400 miles along the coast was affected; wildlife devastated: estimated 86,000 dead birds, some dead sea otters, one dead whale, 400 seals acting "strangely."

Date: 6/15/70

Location: Johnson's Creek, Bridgeport Harbor, Connecticut.

Material: Oil.

Source: Tanker unloading at dock.

Damage: 600,000 gallons of oil spilled.

Date: 11/13/70

Location: Schylkill and Delaware Rivers, 35 miles north of Philadelphia.

Material: Oil and sludge.

Source: Heavy rains weakened walls of man-made lagoon built to retain slop oil; walls collapsed.

Damage: 3,000,000 gallons of oil spilled; all municipal water supplies on the Schylkill and Delaware Rivers in area affected closed.

Date: 11/30/70 - 12/1/70

Location: Florida Keys.

Material: Bunker C oil.

Source: Undetermined.

Damage: Oil slick 75 miles, from Key Largo to Marathon.

Date: 12/1/70 - present

Location: Shell Platform, Gulf of Mexico, 65 miles south of New Orleans.

Material: Crude oil.

Source: Blowout on offshore drilling platform.

Damage: Patchy oil slicks reported, on water and on Louisiana coast.

1971

Date: 1/18/71

Location: San Francisco Bay.

Material: Bunker C oil.

Source: Two Standard Oil tankers collided in the Bay near the Golden Gate Bridge; the tanker *Oregon Standard* sprung a leak.

Damage: Over 840,000 gallons of oil were spilled into the Bay, with a resulting heavy destruction of sea, bird and plant life in a 60 mile area reaching from northern Marin County to south of San Francisco.





The Sierra Club Position on Clear-Cutting and Forest Management

By Gordon Robinson

The Sierra Club encourages the use of selection systems of forest management on commercial forest lands, and discourages even-age management.

It supports forest practices that promote and maintain a mixture of species and ages of trees, but it opposes monoculture.

It has faith in the natural forest, but is skeptical of the artificial forest.

It expects our public agencies to practice excellent forestry on our public commercial forest lands, and it supports such measures as will promote excellent forestry on private commercial forest lands.

Excellent Forestry Defined

Excellent forestry has four characteristics: It consists of limiting the cutting of timber to that which can be removed annually in perpetuity. It consists of growing timber on long rotations, generally from one to two hundred years depending on the species and the quality of soil, but in any case allowing trees to reach full maturity before being cut. It consists of practicing a selection system of cutting wherever this is consistent with the biological requirements of the species involved and, where this is not the case, keeping the openings no larger than necessary to meet those requirements. Finally, it consists of taking extreme precaution to protect the soil, our all-important basic resource. The advantages of such forestry are overwhelming.

Low Fire Hazard

To begin with, the lowest fire hazard is in the full-canopied old growth forest. The risk of losing timber to fire is therefore least where the forest is managed on a selection system in which as full a canopy as possible is permanently maintained. Fire danger is a function of temperature and moisture. By providing shade, the closed canopy of a dense forest keeps the material on the ground cool. Also, air does not circulate freely under a closed canopy and is humid from moisture given off by trees. In contrast, young plantations are highly inflammable because they tend to be hot and dry, and the combustible leaves, frequently having an oil content, are close to each other and to the ground.

While foresters frequently insist upon the felling of all dead trees during logging operations for fire suppression purposes, it is generally overlooked that these very trees are required habitat for many birds who perform great services in controlling insect enemies of our forests.

Low Windthrow Hazard

Light selective logging, or clearcutting in small openings (group selection), provides maximum assurance against windthrow. The even-aged forest canopy has a generally well-defined, nearly horizontal upper and lower limit. The crowns are short and concentrated at the top of relatively slender stems. Such trees are not at all windfirm and may require the stand to be cut all at once unless special provisions are made to minimize severe windthrow. In uneven-aged stands the crowns are commonly larger and more dense, but since they develop in irregular canopies and are subjected to wind stresses all their life long, they develop much greater windfirmness and have stouter boles.

Minimum Risk from Insects and Diseases

Damage from insects and diseases is far more severe where clearcutting is practiced than in the selection forest. Where large areas are clearcut, as in conversion to even-age management, certain insects may breed in the slash in great numbers and later attack the young reproduction. Where clearcutting is practiced there is always a tendency to establish plantations of one species rather than mixtures without regard as to how the planted species naturally occur.

A pure stand — one composed of a single species — forms an ideal situation for a disease to build up to epidemic proportions. Infection is direct and rapid from tree to tree and if one species is destroyed there is nothing left. The most hazardous pure stands are even-aged stands because fungus parasites are often virulent during only one stage of the development of the trees. Pure stands of trees outside their natural range are particularly liable to difficulty. Pure stands are particularly susceptible to disastrous outbreak. For instance, outbreaks of the hemlock looper have been especially destructive only in stands composed of a high percentage of hemlock. Where a heavy mixture of other species occurs, infestation soon thins out and loses its destructive power. It is particularly important that the cuttings in stands that normally grow as mixed types should not favor the leaving of the single species. Since most insects and diseases of forest trees are limited rather sharply to one or a few host plants, mixed stands offer far fewer opportunities for epidemics than do pure stands. In the case of insects, every tree in a pure stand offers food and breeding ground. In the case of fungi the liberated spores find favorable hosts everywhere. In both cases destructive concentration can readily be built up in pure stands.

Yield is of Maximum Value

Forests can and should be managed to produce a continuous even flow of mature timber. Old growth is far superior to young growth, however one looks at it. Stumpage prices are much higher for old growth than for young growth timber. Furthermore, it is anticipated that young growth stumpage prices are not likely to increase substantially over the next 25 to 50 years. Prices of higher-grade commodities will increase substantially, but that can't come from young growth. There will be a great increase in the use of pulp, but the great quantities of young growth available will hold prices down. In pulp, furthermore, quality of fibre will become an important factor.

In the dense canopy of a selection forest the trees tend to grow slowly. This is not to say that the total timber grown is any less on a volume basis than in even-aged stands. Returning to quality considerations, the suitability of young growth for veneer is greatly diminished because it is not only undesirable for veneer faces but also veneer cuts are rough; the numerous knots tend to chip the knife although lathe settings are no more critical than in old growth. If lumber is produced, the yield of high grade material is lower than from old growth trees.

Wood Fibre is Highest Quality

As a tree matures and grows in girth, the cambium

produces longer and thicker walled cells. The length of fibres laid down in new growth in conifers increases with the age of the tree. Length generally varies from 1 millimeter at age one to about 4 millimeters at age 70, after which length remains constant with increase in age. This means that where timber is being grown for fibre, the longest fibres occur only in that part of the tree which has grown after age 70. It would seem to be good business, therefore, to grow trees to an age of 100 to 200 years and to use for pulp chips the slabbing from squaring or rounding the logs, and making high quality lumber and plywood from the remainder of the core. This is essentially what is done with our virgin timber today, but not with trees grown on a short rotation.

What has been said about the length of fibres is true also of the density or strength of fibres. That part of the tree which has been laid down by the cambium layer after age 70 contains the strongest fibres as well as the longest ones.

That part of the conifer grown below 40 to 50 years of age is inferior in having a high proportion of extractives. The yield of fibre will be small and the amount of dissolved material that must be disposed of is proportionally higher than in pulping slow-growth old wood. This adds to production costs as well as water pollution problems with pulp mills.

It Costs No More

We hear much talk these days from both foresters and industry to the effect that they cannot afford to grow trees on a long rotation or to great size and that they must clearcut for economic reasons. These appear to be false calculations. A recent study showed that the cost of felling, limbing, and bucking trees from 45 to 48 inches in diameter cost \$7.04 per thousand board feet in contrast with \$18.36 per thousand board feet for trees between 12 and 16 inches in diameter. Similarly, the cost of yarding and loading was twice as much for trees 12 inches in diameter as it was for trees 30 inches in diameter.

The February, 1969 issue of the *Journal of Forestry* reports the findings of a research team studying comparative logging costs under four cutting specifications ranging from single tree selection to clearcutting. They concluded that logging costs from standing tree to truck do not differ appreciably with cutting method, and the forest manager is therefore free to choose a cutting technique on the basis of management and silvicultural considerations other than costs.

A recent study in the redwood region indicated a logging cost of \$11.37 per thousand board feet in a selection forest and \$11.45 per thousand board feet where clearcutting was practiced. This was a study

Where good forestry is practiced the land offers a satisfactory esthetic experience to the visitor most of the time. Under such forestry, depicted in this picture, other values such as recreation, fish and wildlife habitat, and watersheds are protected. This type of forestry was practiced by the U. S. Forest Service until recently when they began to yield to pressure from industry. Scene shows area of Deschutes National Forest along the Santiam Highway in central Oregon. Photo by James David, 1970



conducted by the U.S. Forest Service in the Redwood Purchase Unit. A similar study made in the pine region showed that where clearcutting was practiced, involving 17,000 board feet per acre, 133 man minutes per thousand board feet were expended. Heavy selection cutting involving 13,000 board feet per acre required only 118 man minutes per thousand board feet. But a light, sanitation-salvage cut involving only 3,000 board feet per acre cost only 119 man minutes per thousand, considerably less than clearcutting.

These rather surprising figures are explained by the fact that where selective cutting is employed we are generally removing only the largest trees which gives us the greatest handling efficiency during each step of the logging process.

Seed Source is Reliable

Selection management provides us with many advantages in obtaining reproduction. There is no difficulty with seed source. We are assured of reforestation with trees acclimated to the particular site. Collecting seeds in one area for reforestation in another is far more hazardous than most foresters realize. In general, naturally regenerated stands are less susceptible to disease than those artificially reproduced.

Foresters would do well to heed the warning of a recent report from the Southern Forest Experiment Station. One hundred forty species were tried in southern Arkansas and northern Louisiana, mainly pine and eucalyptus. The best growth was obtained in Slash, Pond and Virginia pine, but none were as large as native Loblolly after 9 to 12 years. This experiment strongly supports the well-known principle of silviculture that one is safest with natural regeneration, or at least with perpetuation of indigenous

species.

Soil is Protected

American foresters notoriously disregard the effects of logging practices upon soils. This is particularly true of the post war era in which logging has become highly mechanized and where much of the remaining timber being logged is on steep ground. The oversized and unwieldy equipment used by logging operators is totally unacceptable in the concept of excellent forestry. Logging should be conducted with light, small equipment, preferably rubber tired, in order to be maneuverable around trees left in selection forests and to function without disturbing the soil. All logging should be planned and supervised to prevent this damage, and no logging should be permitted where complete protection of the soil cannot be assured.

Clearcutting promotes erosion and compaction of the surface soil, particularly where mineral soil is exposed. Clearcutting allows organic matter to become desiccated, slowing down decay in dry climates such as characterize much of our western forests. Clearcutting exposes the forest floor to intense insolation and evaporation and, as a result, the normal soil life of fungi, bacteria, worms, microscopic plants and animals of all kinds are destroyed or at least greatly changed, with fauna and flora of open lands coming in. This is usually undesirable. Clearcutting invites invasion of vegetation that severely competes with forest tree seedlings. In the northwestern United States, clearcutting of forests and forest fires have increased floods from watersheds from both rain-snow melt floods and snow melt floods. Where stocking of the forests has recovered with time the flood peak discharges again decrease.



This clearcut in Northern California illustrates the destructiveness of such forest management. Water from rain and melting snow will quickly run off instead of soaking into the ground causing instability in the water supply below. It will also erode away the nutritious surface layer reducing the growing capacity of the soil. Spawning beds in the streams are damaged, recreation values are lost, and hazard to the young forest that might return will be high from fire, insects and disease.

Photo by Harvey Richards, Oct. 1969

Landslides Minimized

It is fair to conclude from published literature that there exists a definite cause and effect relationship between clearcutting and mass-soil movement. Forest cover affects deep seated stability of a slope in two ways, by modifying the hydrologic regime in soil mantle, and by mechanical reinforcement from the root system. The former is important only the first year, before invading vegetation takes hold. The root system is far more important, and gradual deterioration of tree roots leads to progressively greater slope instability.

Soil Fertility Maintained

Something should be said for maintaining the natural mixture of species that occurs in the forest. This, too, is best done through reliance upon natural reproduction. Some species make excessively heavy demands on soil nutrients when planted in pure stands. They may do well in youth but later slow up and deteriorate. The admixture of species that makes light demand on the soil and whose leaf litter decomposes readily into a mild, rich humus is often necessary. Furthermore, pure stands may fail to utilize the site completely, either because they are composed of an intolerant species and in consequence have thin, open crowns which presumably fail to utilize the sunlight completely, or because they are shallow rooted and utilize only part of the soil.

Preserves Watershed and Fish Habitat

Selection management with careful planning of roads and logging is of great importance in sustaining the quality and productivity of the soil for these many reasons. It tends to maintain soil porosity and its water absorption qualities, thus reducing erosion and flood damage. Care of the soil and maintaining

a full canopy also protect the habitat for fish in streams by keeping the water clean and cold and by preserving spawning beds. Silt and slime, the products of erosion, are unsuitable for spawning. They inhibit the flow of water through gravel where fish eggs are spawned, thus shutting off the essential supply of oxygen.

Preserves Natural Beauty

Excellent forestry largely preserves the beauty of the natural forest. For most people such well-managed forests will quite adequately serve most of their wildland recreational needs. By maintaining the natural beauty of the forests we therefore take a good deal of pressure off wilderness. In contrast, present practices on the national forests, and to a greater extent on private forest lands, is creating an ever increasing demand for more wilderness.

If national parks and wilderness areas become the only places of natural beauty we have for outdoor experiences, people who do not care for wilderness *per se* will crowd in with those who do. This would not only increase the use of such places but would add to the clamor for roads and other nonwilderness development. Furthermore, if we should reach the sad state of having no large, old-growth timber except within our national parks, we would surely face a great clamor to log that, too. Indeed, the overture to this clamor is already being heard. We had a foretaste in the ridiculous arguments advanced in opposition to the Redwood National Park which will be all too familiar to the reader.

Excellent forestry costs nothing but restraint and offers the greatest gifts a forest can provide.

Mr. Robinson is the Sierra Club Staff Forester.

ACTION NOW

Alaska contains our nation's greatest remaining scenic, wilderness and wildlife resources; it also offers our last best opportunity for far-sighted, comprehensive land planning. This planning must be completed before any irrevocable commitment is made for significant parts of Alaska — particularly in the Arctic. However, because of the new-found petroleum fields of the North Slope, economic values threaten to ride roughshod over all other values, human, social, cultural, wilderness, wildlife, and scenic.

In mid-January the Interior Department released an environmental impact statement recommending that a right-of-way across federal lands in Alaska be granted for construction of an 800-mile pipeline to carry North Slope oil to the south coast seaport of Valdez. The Sierra Club believes this "is a project-serving document tailored to the existence in Alaska of a multi-million dollar stockpile of 48-inch in diameter pipe, fabricated for oil companies, rather than to the ecological needs of the area."

The Sierra Club has analyzed the impact statement and finds it is replete with deficiencies:

- *The report does not provide adequate safeguards against environmental damage.* Admitting that as much as 48 percent of the hot-oil pipeline may have to be above ground because of unsolved permafrost problems, the report offers no design specifications for a raised line. The report catalogues the damage to tundra, the danger to wildlife and the threat to spawning beds in the 350 streams and rivers to be crossed by the pipeline. But it offers no firm safeguards, nor does it deal with the feasibility of recovering spilled oil in the Arctic.

- *The report ignores certain adverse impacts.* The report does not consider the Valdez-West Coast segment of the system for transporting North Slope oil and its environmental impact on Puget Sound and the California coast. The report omits any discussion of the effect new human activity north of the Yukon River will have on land classification proposals. Scant attention is given to the impact of extracting an estimated 80 billion yards of sand, gravel, and crushed rock from uplands and stream beds. The discussion of seismic hazards is grossly incomplete.

- *The report fails to give adequate consideration to alternatives.* The report is predicated on justifying the

800-mile North Slope-Valdez pipeline as the only solution. It does not adequately investigate the feasibility of an all-land route through Canada, nor of a cold-oil line, nor does it discuss the case for an oil reserve, which the Club believes is the best immediate solution.

- *The rationale for immediate development is weak.* The report lists its own high oil consumption projections and national security as justifying the need for immediate development of North Slope reserves. Some economists think the projections are too high, and, in any event, will only frustrate the quest for clean air. National security is hardly enhanced by exhausting our domestic reserves, and many suspect the oil is really destined for Japan.

While a decision on the pipeline had been expected by mid-April, Interior Secretary Morton has now announced that action will be delayed until the fall to allow time for further studies. Conservationists are urging President Nixon to direct Secretary Morton to announce that a proper sequence of steps will be followed by federal authorities before any additional permits are granted:

- (1) The Bureau of Land Management, which now has temporary jurisdiction, must be given permanent authority over federal lands in Alaska and sufficient funding to develop a comprehensive plan for land-use in Alaska.

- (2) This master plan must identify and protect fragile and unique natural areas in Alaska, such as wildlife refuges, wilderness, and parks.

- (3) The plan should then identify areas which ultimately should be open to economic development. Complete research on techniques for environmental protection must then be carried out for each type of economic development, including oil.

- (4) Once these steps have been taken, then rational judgments can be made about where and when appropriate leases and permits for development can be granted.

Planning in any other sequence will force us to make choices and accept risks without knowing what we are doing. Write today to President Richard M. Nixon, the White House, Washington, D.C., 20002, and to Secretary Rogers C. B. Morton, Department of the Interior, Interior Building, Washington, D.C., 20240.

SIERRA CLUB TREASURER'S REPORT



Photo by Cedric Wright

To the Members of the Sierra Club:

We present, in this issue of the Bulletin, the Sierra Club's financial statements for the year ended September 30, 1970, together with the opinion of our independent accountants, Price Waterhouse & Co., who audit our accounts.

While valid comparisons can be made between the Statement of Financial Position at this year end and that of September 30, 1969, we call your attention to Note 3 concerning the change in the Club's fiscal year, which precludes any significant comparison between the two periods shown in the Statement of Revenues and Expenses.

The Unrestricted Funds are operating amounts that include conservation, publications, member services and outings. Restricted Funds are designated by the Board of Directors for specific purposes and include reserves for outings and lodges. Also included are contributions specifically designated for special projects. The Permanent Fund is the Club's principal reserve and, under Bylaw XVIII, cannot be expended and must be "separately and securely invested." A substantial part of this fund is pledged as security for short-term notes.

The Marketable Securities, which are shown in the statement at cost, had a market value at December 31, 1970 of \$461,036.

A long-term note appears on this year's report in the amount of \$41,068. This note is payable to Con-

tinental Data Services Corporation over a 36 month period and is for the cost of new computer applications of our business systems. We expect to recover the cost of the installation through efficiencies in operations.

It is very encouraging to end this year with an Excess of Revenues over Expenses. All elements of the Club remained within budget except Publications. Here the year's results were affected by inventory write-downs on slow-moving books. Book sales were substantially below target, but most of this deficiency was made up by increased income from Subsidiary Rights.

Our current year's budget contemplates a \$25,000 surplus. Our objectives also include a further reduction of our investment in back-listed books and continued progress in the liquidation of our Notes Payable and Accounts Payable, both of which were substantially reduced during the fiscal year reported here.

While distinct improvements have been made in our financial picture, a continuation of these improvements is necessary and we must continue to maintain the fiscal control and responsibility that has been evidenced by the Board, the Executive Committee, and, notably, by the professional staff.

Charles B. Huestis, Treasurer

**To the Board of Directors and
Members of the Sierra Club**

In our opinion, the accompanying statements of financial position, revenues and expenses and statement of changes in fund balances present fairly the financial position of the Sierra Club at September 30, 1970 and the results of its operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding period. Our examination of these statements was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances, including at September 30, 1970 confirmation of marketable securities owned by direct correspondence with the custodian. It was impracticable for us to extend our examination of contributions received from the general public beyond accounting for amounts so recorded.

Price Waterhouse & Co.

JANUARY 18, 1971
SAN FRANCISCO, CALIFORNIA

**Notes to Financial Statements
September 30, 1970**

NOTE 1: Accounting methods: The accounts of the Club are maintained generally on the accrual basis except that members' dues, which are billed in advance, are recorded as revenue on a cash basis when received; and land, buildings and equipment owned by the Club and held or operated for use by its members, guests or the public are expensed when purchased by the Club.

NOTE 2: Marketable securities: At September 30, 1970 marketable securities comprised:

| | Cost | Market |
|---------------------|------------------|------------------|
| U.S. Treasury bills | \$ 28,991 | \$ 28,800 |
| Corporate bonds | 94,943 | 77,600 |
| Preferred stock | 56,524 | 42,100 |
| Common stock | 224,083 | 278,627 |
| | <u>\$404,541</u> | <u>\$427,127</u> |

NOTE 3: Change in fiscal year during 1969: By resolution of the Board of Directors on September 21, 1969 the fiscal year of the Club was changed to end on September 30 from December 31. The results of publishing operations for the nine months ended September 30, 1969 are not indicative of a full year of such revenues and expenditures because of the

FINANCIAL STATEMENTS AND AUDITORS' REPORT

STATEMENT OF FINANCIAL POSITION

| | September 30 1970 | September 30 1969 |
|--|----------------------|----------------------|
| Assets: | | |
| Cash | \$ 49,129 | \$ 31,471 |
| Accounts receivable, less \$30,000 in 1970 and 1969 for doubtful accounts and returns | 355,457 | 346,588 |
| Inventories, at the lower of cost (first-in, first-out) or market: | | |
| Books on hand | 349,892 | 477,341 |
| Books in process | 90,265 | 49,606 |
| Other | 43,701 | 78,662 |
| Marketable securities, at cost: | | |
| market value \$427,000 in 1970 and \$523,000 in 1969 (Note 2) (\$363,716 cost pledged as security for notes payable to bank in 1970 — Note 7) | 404,541 | 398,742 |
| Advance royalties, travel deposits and other deferred charges | 143,817 | 140,655 |
| | <u>1,436,802</u> | <u>1,523,065</u> |
| Liabilities: | | |
| Notes payable to bank — 9%, secured by marketable securities (Note 7) | 250,000 | 300,000 |
| Other notes payable — current prime interest rate | 41,068 | |
| Accounts payable | 413,827 | 543,200 |
| Accrued royalties and other expenses | 171,239 | 158,304 |
| Advance travel reservations, royalties, publication sales and other deferred revenues | 248,117 | 287,160 |
| | <u>1,124,251</u> | <u>1,288,664</u> |
| Net assets | <u>\$ 312,551</u> | <u>\$ 234,401</u> |
| Fund balances: | | |
| Unrestricted funds | (\$373,283) | (\$392,153) |
| Restricted funds | 186,287 | 160,722 |
| Permanent fund | 499,547 | 465,832 |
| | <u>\$312,551</u> | <u>\$234,401</u> |

FOR THE YEAR ENDING SEPTEMBER, 1970

STATEMENT OF REVENUES AND EXPENSES

| | Year ended September 30 1970 | Nine months ended September 30 1969 (Note 3) |
|--|------------------------------------|--|
| Revenues: | | |
| Dues and admissions | \$1,143,609 | \$ 600,586 |
| Sales of publications | 734,724 | 446,110 |
| Trip reservations and fees | 714,988 | 720,629 |
| Contributions | 240,469 | 162,444 |
| Royalties | 213,747 | 46,246 |
| Life memberships | 33,469 | 37,795 |
| Investment income and other revenues | 39,237 | 34,941 |
| | <u>3,120,243</u> | <u>2,048,751</u> |
| Expenses: | | |
| Salaries and employee benefits | 554,051 | 388,303 |
| Charter transportation and other outings costs | 491,321 | 525,913 |
| Outside contract services | 346,209 | 211,792 |
| Cost of publications | 326,750 | 257,936 |
| Printing | 238,148 | 91,143 |
| Chapter allocations (Note 4) | 179,331 | 75,334 |
| Office supplies and postage | 131,521 | 106,293 |
| Travel | 108,405 | 85,659 |
| Royalties | 106,257 | 65,482 |
| Rent | 91,521 | 57,140 |
| Meetings and elections | 73,648 | 71,972 |
| Photography and exhibits | 58,921 | 9,944 |
| Telephone | 58,234 | 53,337 |
| Shipping and mailing | 52,581 | 32,528 |
| Advertising | 52,777 | 50,085 |
| Insurance | 36,886 | 14,162 |
| Interest | 26,483 | 19,487 |
| Other expenses | 102,362 | 51,521 |
| | <u>3,035,406</u> | <u>2,168,031</u> |
| Excess of revenues over expenses (expenses over revenues) | <u>\$ 84,837</u> | <u>(\$ 119,280)</u> |

STATEMENT OF CHANGES IN FUND BALANCES

| | Year ended September 30, 1970 | | | |
|--------------------------------------|-------------------------------|------------------|------------------|-------------------|
| | Unrestricted | Restricted | Permanent | Total |
| Revenues | \$3,085,606 | \$ 922 | \$ 33,715 | \$3,120,243 |
| Expenses | <u>3,035,049</u> | <u>357</u> | | <u>3,035,406</u> |
| Excess of revenues over expenses | 50,557 | 565 | 33,715 | 84,837 |
| Transfers and other changes | (31,687) | 25,000 | | (6,687) |
| Fund balance, begin- ning of year | <u>(392,153)</u> | <u>160,722</u> | <u>465,832</u> | <u>234,401</u> |
| Fund balance, end of year | <u>(\$ 373,283)</u> | <u>\$186,287</u> | <u>\$499,547</u> | <u>\$ 312,551</u> |

absence from that period of Christmas sales which have historically represented a substantial part of a full year's publishing operations.

NOTE 4: The Club's chapter organizations: The Club's various chapter organizations are accounted for separately and are not included in the accompanying financial statements, except that chapter allocations, amounting to \$179,331 in 1970 and \$75,334 in 1969 (nine months) are included as expenses.

The combined net assets of the chapters amounted to approximately \$106,951 (unaudited) at September 30, 1970, largely cash, and their combined revenues and expenses for the year then ended were approximately \$280,492 (unaudited) and \$248,330 (unaudited), respectively.

NOTE 5: Tax status: The Club qualifies for tax exempt status under Section 501 (c)(4) of the Internal Revenue Code as a civic organization operated exclusively for the promotion of social welfare. Under this section of the Code, a contribution to the Club is not deductible for tax purposes by the donor. Previously, the Club qualified for tax exempt status as an educational and scientific organization under which contributions were deductible. The Internal Revenue Service revoked this exemption in mid-year 1968. The Club has authorized contest of that revocation by way of a lawsuit to obtain refund of federal unemployment taxes paid.

NOTE 6: Pension plan: The Club has an insured pension plan covering employees who have been engaged for more than one year and are thirty years of age. Participating employees contribute a portion of their salary in addition to contributions by the Club. The total pension expense for 1970 was \$7,456, which includes amortization of prior service cost over a 30-year period. At September 30, 1970, the assets of the plan exceeded the actuarially calculated value of vested benefits. The estimated unfunded prior service liability at that date amounted to \$19,066.

NOTE 7: Subsequent refinancing: Effective December 6, 1970 the Club refinanced its notes payable to the bank by establishing a revolving line of credit with another bank in an amount not to exceed \$300,000. The interest rate is one-half percent above the bank's prime rate. The line of credit is secured by the Club's marketable securities.

NEPA REPORTS

The Cabinet-level Council on Environmental Quality has developed a new set of guidelines to be followed by federal departments and agencies concerning the release of environmental impact statements to the public. Under the new regulations, recently published in the *Federal Register*, federal agencies are to make preliminary draft statements available to the public as soon as they are produced.

The National Environmental Quality Act (NEPA), signed into law on January 1, 1970, requires all federal agencies to prepare a detailed environmental impact statement on proposals for major legislation or other actions which would affect the environment. Prior to the announcement of the new regulations, agencies have had varying interpretations of the Act, some taking the position that the impact statements need not be made public until after decisions have been made on major projects.

AIRPORT SUIT

The Sierra Club has filed suit in the U.S. District Court for the District of Columbia to stop further federal funding for Palmdale Intercontinental Airport until the Federal Aviation Administration adequately studies the huge project's environmental impact. The Palmdale suit is based on the National Environmental Policy Act of 1969 (NEPA), which requires federal agencies to carry out detailed studies respecting the environmental effects of federal projects. It is the first lawsuit to challenge the adequacy of a federal environmental study supposedly in compliance with NEPA.

The 27-square-mile site for the proposed intercontinental airport is located at the western side of the vast 2500-acre Antelope Valley-High Mojave Desert Area in Los Angeles County. Within a 20-mile radius of the site are seven wildlife sanctuaries, seven regional parks, thirteen county parks and one state park. The Sierra Club is concerned about what an international jetport and its associated population growth will mean to the nearby wildlands, and to Los Angeles' already acute air pollution problems.

CABINET REORGANIZATION

President Nixon has disclosed plans to consolidate eight departments into the following four new Cabinet-level positions: a Department of Natural Resources, a Department of Human Resources, a Department of Economic Development, and a Department of Community Development. According to the as yet tentative reorganization plan, the Corps of Engineers, the Soil Conservation Service, and the Forest Service would go into the Department of Natural

Resources, along with the Park Service, the Bureau of Land Management, the Bureau of Outdoor Recreation, and other agencies now within the Department of Interior. Legislation to create the new departments is expected to go to Capitol Hill in the early spring.

RUSSELL RESIGNS

Undersecretary of Interior Fred J. Russell, who headed the department between the departure last year of Secretary Walter Hickel and the confirmation of Rogers Morton as his successor, submitted his resignation to the President in February, apparently at the insistence of Secretary Morton. Russell's departure was the seventh high-level change in Interior leadership since Hickel's falling out with the White House. The top jobs — including assistant secretaryships and head of the Fish and Wildlife Service — are being filled by "acting" assistants and directors, giving rise to comment in the Capitol that the Department of Interior has become an "acting" branch of the Executive Department. White House sources said that Russell, a major California contributor to the Republican Party, would be offered another high administration post. Russell's departure was said to be amicable, so as to allow Morton the opportunity to name his own number two man.

BOARD MEETING

The Sierra Club Board of Directors held its quarterly meeting in Denver on February 13 and 14 to discuss reform of the nation's public land laws. Since last June, when the Public Land Law Review Commission Report with its bias toward short-term, exploitative use of public lands was released, Denver has been the site of several national forums on public land laws. During its two-day meeting, the Sierra Club approved drafts of legislative proposals concerning a National Land Reserve and a National Forest Restoration Act. The Club's directors also acted on resolutions to extend the authority of the Bureau of Land Management and to reform current mining laws. The Club also went on record in favor of establishing pollution taxes which "would make it less expensive for a polluter to adopt alternative processes or invest in additional equipment to curtail releases to the environment than it would be for him to continue as before."

POPULATION STUDY

Governor Ronald Reagan's California Environmental Quality Study Council has made sweeping recommendations for pollution control in the face of what it has called a critical state of clear and present danger

to the health and welfare of 11 million city-dwelling Californians.

In its report to the governor and the California legislature the study council calls for the establishment of a state superagency to control any project that affects the environment. Creation this year of an Environmental Protection Agency with regulatory powers is far from a certainty, however, and the council has, therefore, urged such interim measures as: (1) a moratorium on development of California's 1200-mile coast; (2) strong new motor vehicle pollution controls; and (3) class action suits on environmental matters. A key recommendation was that a study be made by public health authorities to determine safe pollution levels for Los Angeles and San Francisco, beyond which inhabitants of those regions would kill themselves with the pollution they create.

ANNUAL DINNER

Members of the Board of Directors will meet Saturday evening, May 1 at the Claremont Hotel in Berkeley for the Annual Dinner. New officers will be introduced, awards made and other important Sierra Club announcements will be part of the evening's program according to President Phillip S. Berry. See the March Bulletin for details.

SIERRA CLUB ELECTION

The annual national election of the Club will be on the second Saturday of April (the 10th in 1971) as prescribed by the By-laws. Five directorships and several proposals will be at issue. A ballot, information brochure, and return envelope (not postage-paid) will be mailed about March 5 to each eligible member; to those with addresses in the 48 contiguous states by first class mail, to those with addresses elsewhere in the world by airmail. All persons listed in the Club records as members in good standing on February first (about 118,000) will be eligible to vote.

Of the twelve candidates for Directors, eleven were nominated by the Nominating Committee, including three incumbents: Phillip Berry, Laurence Moss, William Siri. One candidate, Gerald Meral, was nominated by petition. The other candidates are: Vincent Arp, Nicholas Clinch, Rupert Cutler, Claire Dedrick, Alfred Forsyth, William Futrell, Douglas Scott, June Viavant. Members should vote for not more than five candidates.

On the other side of the ballot card will be three proposals for amending the By-laws and a proposal to raise basic dues by three dollars. The By-law amendments involve a restatement of Club purposes, limitation of

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the terms of Directors, and a revision of the membership Article XIX. Under present By-laws a proposal to raise dues must be approved by the membership.

The information brochure will contain a statement from each candidate regarding pertinent background and his or her views as to the direction the Club should take, together with a picture. The brochure will also have the details of each proposal, its intended effect, pro and con arguments, and the position of the Board of Directors and the Council on it.

If you do not receive a ballot by mid-March, or it gets messed up, or you mismatch it, here's what to do: Write a note of explanation to the following, and enclose the voided or mutilated ballot if you have it: CHAIRMAN, JUDGES OF ELECTION, Sierra Club, Department E, 1050 Mills Tower, San Francisco, California 94104. If addressed any other way it will get delayed attention. After appropriate checking an attempt will be made to send you a replacement ballot in time for it to be returned by the date of the election. Ballots are to be mailed back to Post Office Box 3793, San Francisco, CA 94119. They will not be opened until the time for counting.

An innovation: You need *not* sign or otherwise indicate your name or address on the return envelope. The prepunched holes at the bottom of the ballot card will indicate to the computer that the ballot comes from a member eligible to vote. The unique prepunched number bears no relation to a particular member or membership number. Thus secrecy of voting is assured.

Lewis F. Clark
Chairman, Judges of Election

CAMPUS PROGRAM

In response to last spring's questionnaire to Campus Environment groups across the country, the Sierra Club Campus Program has been organized to meet the expressed needs for information and assistance.

Student Representatives in every Chapter and Group are being appointed by Chapter Chairmen to assist in getting information to the student groups on organization and model action programs and organizing regional eco-tactics workshops for them. A Guide for student and community ecology groups and a follow-up series of Action Pamphlets will form the basis of an expanded information service.

The two new National Campus Coordinators are Ron Eber and Roger Hedgecock.

The most sweeping congressional investigation of national fuel and energy policy needs in a decade is being launched under auspices of the Senate Interior Committee.

Senate Resolution 45, jointly introduced by Interior Chairman Henry M. Jackson and Senate Public Works Committee Chairman Jennings Randolph, indicates a study of potentially wide-ranging scope, perhaps not duplicated since the work of the temporary National Emergency Commission of the early New Deal era.

"The United States' failure to develop a consistent national energy policy has led to shortages of critical energy supplies and has resulted in increasing social, consumer and environmental costs," Sen. Jackson said in announcing plans for the investigation. "What we have today is a *'de facto'* energy policy. A policy which serves the past; a policy which is not based upon reason or upon our national interests. Complex inter-relationships between energy supply, the environment, resource conservation, economic growth and the attainment of other important national goals will require the development of a comprehensive energy policy against which rational and consistent decisions can be made."

Contradictory federal, state and local activities and programs in the energy field are well known. States regulate oil production while a federal agency controls natural gas field prices. One agency presses for stricter standards for sulfur quality while another decides if imports of such higher quality fuels are in the public interest, Jackson pointed out.

The resolution calls for "a full and complete investigation and study (including the holding of public hearings in appropriate parts of the nation) of the current and prospective fuel and energy resources and requirements of the United States and the present and probable future alternative procedures and methods for meeting anticipated requirements consistent with achieving other national goals, including the high priorities — national security and environmental protection." Also, the study will examine existing policies and laws affecting fuel and energy industries with the view of determining advisable changes.

The committee also will look into policies as they affect the consuming public and the effect of energy producing, transmission and utilization on conservation, environmental and ecological factors.

Ranking members of the Senate Commerce and Public Works Committees and of the Joint Committee on Atomic Energy will serve *ex officio* on the study panel. The resolution also authorizes appointment of advisory panels of nongovernment experts in the fields of fuels and energy and the environment.

The central thrust of the study reflects long-time concerns of the Sierra Club and its members, who have engaged in numerous conflicts over proper utilization of energy resources. However, the degree to which the study gives weight to environmental concerns, *vis a vis* energy supply and utilization, will depend on vigorous in-put by conservationists.

Trouble at Storm King, Santa Barbara, Hells Canyon and Alaska were outgrowths of the existing *'de facto'* energy policies, or, to be more accurate perhaps, of existing non-policies. We need to change these problem-creating policies.

The committee will have until September, 1972, to make its recommendations for legislative remedies. These could have great impact on the quality of life in years ahead.

—W. Lloyd Tupling

Lituya Mountain from Fairweather Glacier. Photograph by Dave Bohn



From the Sierra Club Exhibit Format Book Glacier Bay

