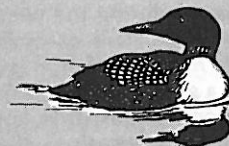




The Adirondack Council NEWSLETTER



to keep supporters informed of our activities

Vol. 5

November 1981

No. 17

GYPSY MOTHS AND THE CASE AGAINST CHEMICAL SPRAYING

by Kathleen Leyden, Summer Intern
The Adirondack Council
August 1981

For nearly 100 years, scientists, chemical companies, legislators, woodlot managers, resort owners and homeowners, have been desperately trying to eliminate the gypsy moths' presence in the northeastern United States. A native of Europe, the gypsy moth (*Porthetria dispar*) was accidentally introduced here in 1869 by a scientist trying to produce a new silk-like fiber. With a population firmly established in Massachusetts by 1890, larvae of the gypsy moth, airborne on long silken threads, began making their way into other states. Strong winds of the New England hurricane of 1938 transported the pest into New York State, and New Jersey was infested soon after by a shipment of egg contaminated plants.

Early attempts at containing the gypsy moth population within the northeastern states involved quarantines, local spraying programs, and the importation of 13 species of predators and parasites from Europe. These control attempts were somewhat successful at reducing both the frequency and destructiveness of the outbreaks. Fear that the gypsy moth would invade the valuable hardwood forests of the Appalachian region led to attempts to eradicate the species permanently. Massive spraying campaigns involving the chemical DDT were carried out in New York State. In 1957, 3.5 million acres in New York, New Jersey, Pennsylvania and Michigan were sprayed with the pesticide. Probably due to the fact that pesticide sprayers were paid by the gallon rather than by the acre, Manhattan, coastal Long Island and Westchester farming communities were included in the spray blocks. The results included massive bee kills, contamination of milk supplies, unknown effects on wildlife and humans, and subsequent large scale outbreaks of gypsy moths on sprayed areas!

Although DDT has been outlawed, chemical warfare on the gypsy moth is waged each year with new pesticides such as Carbaryl (also called Sevin) and Dylox. Each year the amount of acreage defoliated by the gypsy moth increases, and each year state and local governments opt for chemical spray programs that do not eradicate the pest but only suppress populations to preserve "valuable" foliage. Thankfully, the knowledge that chemical spraying is self-defeating, ecologically damaging, a risk to human health, and a waste of public funds is growing, however slowly. This year in New York State, only 63,000 acres in 9 counties were sprayed out of an eligible 139,000 acres in 18 counties. Public outrage and pressure on government has caused this reduction in sprayed acreage. Consider the facts and alternatives, and make yourselves heard before another round of pesticide spraying is planned for 1982.

Life Cycle of the Gypsy Moth

The fuzzy, yellowish eggs of the gypsy moth, deposited on the lower trunks of trees, stone walls, house foundations, vehicles, and occasionally on the ground, begin to hatch in early May. The larvae are beckoned to activity by the increasing

warmth of the spring sun. Soon after hatching, the larval caterpillars begin to climb up to the sunny tree canopies to feed during the day, returning at dusk by spinning down their silken threads. This process is repeated until the individual larvae finds a suitable host tree on which to gorge itself. The caterpillars pass through five or six stages as they feed on the foliage of trees. First stage larvae chew small holes in the central surface of a leaf, and stay throughout the day and night on the tree-tops. The larger second and third stage caterpillars feed at the leaf margins and also remain in the tops of host trees. They are dark in color, covered with hair and have 5 pairs of blue spots followed by 6 pairs of red spots on their backs. In the fourth stage, gypsy moth caterpillars travel up and down the host trees, triggered by sunlight. At dusk, they move up the tree to feed, returning at daybreak to hide in the cracks of bark and ground cover. It is during this stage that the insect causes the most damage and defoliation is usually noticed. During the next stage of the life cycle, the caterpillars pupate and turn into brown hairy capsules attached to trees or under limbs or rocks. The adult moths emerge in early July to mate. The adult male is medium brown in color with defined markings on its wings. The female is a lighter beige color with less pronounced markings. The female, heavily laden with eggs and unable to fly, emits a strong sex attractant to lure the male. She lays her mass of fertilized eggs usually in the same spot where she pupated. The adults then die, having lived only to mate. The eggs lie dormant until spring when the cycle continues.

In North America, gypsy moth outbreaks seem to be characterized by periods of 2-12 years, during which low density populations will alternate with periodic outbreaks. This happened recently when 1980 population levels were 15 times higher than those of 1979. A unique system of natural controls, often ignored by advocates of chemical spraying, exists to limit gypsy moth populations.

In low density populations, parasites and predators keep the population in check. About 12 parasites in North America attack and kill the gypsy moth in various stages, including several species of wasps that lay their eggs inside the eggs, larvae and pupae of the gypsy moth. Approximately 13 species of North American birds and 15 common mammals feed on gypsy moth larvae and pupae. In addition, green ground beetles, toads, frogs, garter snakes, spiders and other insects will feed daily on the pest.

Logically enough, aerial applications of chemical pesticides also kill these non-target, beneficial insects and birds. Dylox, a chemical commonly used against the gypsy moth is toxic to fish and wildlife. An experiment conducted in New Jersey revealed bird populations 55% below control levels, eight weeks after aerial application of Sevin (Carbaryl) - the most commonly used pesticide in gypsy moth control. Sevin is also primarily responsible for a severe decline in honeybee populations in 1980.

The use of chemical pesticides may so severely suppress natural controls that a boom population of gypsy moths occurs. In the absence of predator and parasite species, populations will remain high until a) a shortage of food occurs b) adverse weather conditions prevail (heavy rains and high hu-

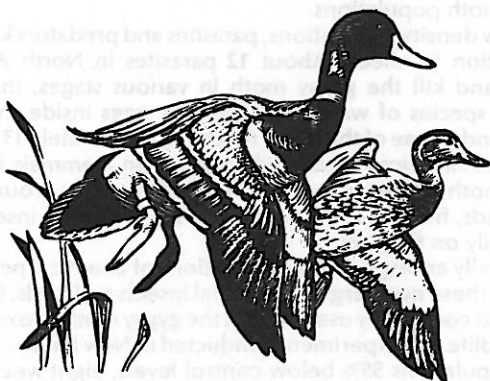
midity cause larval deaths in summer and extreme cold kills egg masses during the winter) c) Nuclear Polyhedrosis Virus (NPV) occurs. This naturally occurring virus, caused by extremely high population levels, has been documented to kill 70% of a gypsy moth population in a given year. It is thought that chemical pesticide application during periods of high gypsy moth infestation will keep population levels just below those needed to cause a massive outbreak of NPV. Advocates of chemical control of gypsy moths continue to disregard the complex nature of forest ecosystems, including the known natural controls systems of the gypsy moth.

Forest Defoliation

The two to three year period required for natural factors to control a gypsy moth outbreak coincides with the number of successive defoliations most deciduous trees can take before being killed. When defoliation occurs, trees can no longer carry out photosynthesis, making them susceptible to disease and death. Defoliation prevents trees from stockpiling extra food. Deciduous trees have the ability to refoliate in mid-summer, but evergreens, especially pines, may not survive after one defoliation. Trees already under stress from herbiciding or exposure to road salt or exotic species, may be killed following one or two defoliations.

Gypsy moths show a preference for oaks, white, grey and red birches, beeches, lindens and willows. During extremely severe outbreaks, however in a frantic search for food, gypsy moths may defoliate pines, hemlocks, spruces and on an extremely rare occasion maples, ashes and elms.

A 2-inch gypsy moth caterpillar is capable of eating 1 square foot of leaf surface in 24 hours, turning summer into winter for a few weeks during an infestation. Some scientists see defoliation (which allows sunlight to enter areas occupied by understory plants) and limited tree mortality as beneficial to the natural diversity of the forest, compressing perhaps 10 years of forest succession into a single season. In addition, forests may become harder as weakened and destroyed trees are replaced by tougher, more resistant species.



Health Hazards of Pesticides

Adverse affects on fish and wildlife due to the use of Dylox and Carbaryl (the two chemicals most commonly used for gypsy moth control) have been identified. Effects on human health however, are little known.

Both chemicals have recently come under investigation by the federal Environmental Protection Agency (EPA). EPA has a procedure called Rebuttable Presumption Against Registration (RPAR) - a public process to gather risk and benefit information about suspected pesticides. The RPAR process is initiated when certain 'risk criteria' have been met. Both Dylox and Carbaryl (Sevin) were pre-RPAR but were not put through the process because of lack of scientific evidence that they were as dangerous as some studies suggested. Documented laboratory experiments, however, show that Carbaryl causes birth defects in guinea pigs, dogs, mice, and chickens; causes stillborn births in rats and rabbits, neuroendocrine malfunctions and reduced fertility in male and female rats, and reduces reproductivity in bobwhite, quail and pheasants. Carbaryl has been proven to affect kidney functioning in humans at low doses. Research on whether Carbaryl is a mutagen and a carcinogen is contradictory. An additional danger is a breakdown product of Sevin-4 oil, alpha naphthol, a substance which causes damage to mollusks and other marine species. A California report recommends that exposure of women of child-bearing age to Carbaryl should be avoided. During the 1980 spruce budworm control program, the State of Maine instituted a 3 mile buffer zone around human settlements and roads in areas targeted for Carbaryl (Sevin) application.

In 1981 the State of Maine's Commissioner of Agriculture, Food & Rural Resources completed a study on Dylox, which concluded that Dylox had exhibited the potential for mutagenicity arising from human exposure. It was recommended that some added restrictions other than those printed on the Dylox label be required, and that uninformed, undesired exposure to Dylox be limited where reasonably possible. The Commissioner further recommended the increased care regarding the use of Dylox and called for better communication between the applicator and the public.

During the 1981 gypsy moth control program in New York State, approximately 31,500 acres were sprayed with Carbaryl because it is less costly than Dylox. Dylox was used on the remaining acreage because Carbaryl is toxic to honeybees occurring in those areas.

Alternatives to Chemical Control

The 1981 programmatic Federal Environmental Impact Statement (EIS) made a recommendation for an Integrated Pest Management Program, with an emphasis on natural and biological control techniques, with chemical sprays to be used primarily as a last resort. This recommendation went unheeded in 1981 in New York State, as the use of Bt, (*Bacillus thuringiensis*) a biological control, was eliminated. Further research is being conducted on sex lures and other means of trapping adult moths.

What the Homeowner Can Do

There are several strategies that homeowners can take to control gypsy moth populations on their properties, and care for their trees to prevent damage.

(1) Buff-colored egg masses left by the gypsy moth can be found from August through early May on trees, vehicles, stone walls, buildings, lawn furniture etc. Carefully scrape them off and place them in a container of soapy water or burn them in a fireplace or stove. Seventy-five to 1,000 gypsy moth eggs will be destroyed by scraping off a single egg mass.

(2) To trap caterpillars during the summer months, tie a piece of burlap or cloth around trees at breast height. Tie the band in the middle with a piece of string and fold the top half over to create a flap under which the caterpillars can hide from the

bright sun. Remove and destroy hiding caterpillars daily.

(3) Gypsy moth pupa can be collected and destroyed from tree trunks and other objects in July and August.

(4) A band of vaseline can be applied near the base of trees to trap caterpillars as they climb up in search of food from mid-May through June.

(5) Pruning lower branches or bark flaps may eliminate natural hiding places.

(6) Watering trees during times of drought, mulching soil beneath trees to seal in soil moisture, and fertilizing trees in mid-fall can help trees survive stress caused by defoliations.

If you have decided like hundreds of other concerned citizens that chemical spraying for gypsy moth control is not the answer, please help educate others about the proven alternatives to chemical spraying that exist. Take action against indiscriminate pesticide spraying by:

(1) Joining the Sierra Club's statewide Coalition for Safe Gypsy Moth Control. Write to:

Richard Lippes
196 Morton Avenue
Albany, New York 12202

(2) Writing to Department of Environmental Conservation Commissioner Robert Flacke and request that he not ask for funds for spraying but instead pursue an Integrated Pest Management Program.

(3) Get in touch with others in your county who are concerned about this issue and form a Countywide Committee for Safe Gypsy Moth Control.



MORE ON GYPSY MOTH

The Assembly Standing Committees on Environmental Conservation and on Agriculture conducted a hearing on gypsy moth control on October 6 in Albany. The Adirondack Council's Executive Director, Gary Randorf, submitted testimony, based to a large extent on the major points in Ms. Leyden's paper. Additionally, it was pointed out that entomologists in Maine have been firm in stating that the gypsy moth's damage is primarily aesthetic and that the moth will eventually drop to manageable levels on its own. An update on research relative to the chemical Sevin was noted. Studies at the University of Maine at Orono continue to keep open the possibility that Sevin may be linked to a rare childhood disease. A researcher at the University of Maine has shown that Sevin increased the growth of certain viruses in experiments on human cells. When the growth rate of a certain virus is increased, also known as viral enhancement, it is believed that Reye's Syndrome, a childhood disease that often results in death, can occur.

A final concern expressed had to do with proper monitoring and administration of the program. The Council's experience with the very limited monitoring and poor administration of the mosquito/blackfly spray program in the Adirondacks lead the Council to believe that such is likely the case with the gypsy moth suppression program, casting further doubts on the appropriateness of applying any more chemical sprays.

ACID RAIN, CLEAN AIR ACT UPDATE

Deliberations over the reauthorization of the Clean Air Act are "heating up." Senators George Mitchell of Maine and Daniel Patrick Moynihan of New York have both introduced legislation that would require a substantial reduction in the discharge of pollutants that are believed to cause acid rain.

The Reagan Administration, on the other hand, is proposing revisions to the Clean Air Act that would undoubtedly exacerbate the acid rain problem by increasing auto emissions and relaxing the performance standards for new coal fired power plants. The Administration is arguing that more scientific study is needed before government imposes costly regulations and standards to reduce acid precipitation. That argument has recently received a devastating blow, however, in a report prepared by the Committee on the Atmosphere and the Biosphere of the National Research Council, called *Atmosphere-Biosphere Interactions: Toward a Better Understanding of the Ecological Consequences of Fossil Fuel Combustion* (National Academy Press, 1981). In that report, a panel of 13 eminent atmospheric scientists reason that there is only one "plausible explanation for acid deposition." The report confirms the long-held claims of environmental, health, and other interest groups, that sulphur dioxide, and nitrogen oxide emissions from man-made sources such as power plants, industrial, commercial, and residential boilers, and motor vehicles are the cause. The report concludes that the problem is serious and will get worse if steps are not taken now to alleviate it. The principal source is the heavy concentration of coal-burning power plants in the American Middle West, particularly along the Ohio Valley.

Congress should be encouraged to resist the proposals of the Reagan Administration and pursue a course of strengthening the Clean Air Act by including provisions in it to begin to reduce substantially sulphur dioxide and nitrogen oxide emissions, which would mitigate or prevent adverse ecological impacts and economic losses resulting from acid precipitation,



and which would reduce the transport of air pollutants across national and international boundaries.

We encourage readers to communicate with their Members of Congress and Senators on this matter. We also hope you will write Interior Secretary James Watt and Environmental Protection Agency Administrator Anne Gorsuch, to take issue with the Administration's misdirected proposals to weaken the Clean Air Act and ignore the growing threat of acid rain. They should heed the words of the National Research Council Report,

"...continued emissions of sulphur and nitrogen oxides at current or accelerated rates, in the face of clear evidence of serious hazard to human health and to the biosphere, will be extremely risky from a long-term economic standpoint as well as from the standpoint of biosphere protection."

An exceptionally well done article on acid rain, written by Robert Boyle, appeared in the September 21, 1981 issue of *SPORTS ILLUSTRATED*. We urge all of you to read it. Another excellent article on the subject written by Anne LaBastille, can be found in the November, 1981 *NATIONAL GEOGRAPHIC*.



CONSTITUTIONAL AMENDMENT SWAPPING FOREST PRESERVE FOR PRIVATE LAND PASSES LEGISLATURE

A proposed constitutional amendment, S.5819/A.8522, passed the legislature this spring. If it is passed by a second legislature in 1983 it will come before the public to be voted on that November. The measure would provide for the exchange of state forest preserve in the Jay Primitive Area in the Town of Lewis, Essex County, for private lands owned by the NYCO Division of Processed Minerals Inc., of Willsboro. The purpose of the exchange would be to provide for the transfer to NYCO of state lands thought to be underlain with wollastonite, a mineral used in ceramics, paints, plastics, and cements, and recently found to be a non-toxic substitute for asbestos as an insulating material.

The Council's Board of Directors has opposed this proposed constitutional amendment by a resolution passed in April, on the grounds that it would set a bad precedent and make vulnerable all of the forest preserve where mineral deposits are thought to exist.

The Department of Environmental Conservation is now awaiting the legal opinion of its Counsel's Office as to the appropriateness of allowing NYCO to enter state lands to verify by core drilling, the extension of a high quality wollastonite deposit from private lands of NYCO into state forest preserve. The Council's Board is opposed to the core drilling on the grounds that such activity would violate the "forever wild" provisions of Article XIV of the State Constitution, if it were allowed prior to the passage of a constitutional amendment.

We intend to follow this issue closely and keep our members informed as to its status.

IN MEMORIAM

— MARY F. PRIME —

Mary F. Prime, activist in environmental conservation, health care and politics, and a dedicated board member of The Adirondack Council, died on Saturday, May 23, 1981.

Mary was one of the original members of the Adirondack Park Agency, being appointed by Governor Rockefeller in 1971. While on the Agency, she worked hard to insure that people and Park protection received fair and equal consideration. Mary was active in garden club affairs and a few years back received the National Medal Award of Merit from the Garden Club of America, "presented with a citation for an outstanding contribution to conservation and perseverance through difficult times to conserve our natural resources in the Adirondack Park."

Mary Prime was a woman of principle, integrity, warmth, and grace and possessed a fine sense of humor. She had a youthful and active mind that expressed great interest in the people and the world around her. Mary encouraged and comforted countless numbers of people with her warm and generous spirit, and many sought her wise counsel on a variety of subjects.

Mary's contributions to the Adirondack Park and New York State have been many and we give thanks that The Adirondack Council was one of the organizations that benefited so richly from her efforts.

A Mary Prime Memorial Fund has been instituted by the Council. Monies raised will be used to fund an intern for the Council from time to time. Interns can make valuable contributions to the Council and the Adirondack Park. Note that the article on gypsy moths was written by an intern working for the Council this past summer. Candidates for intern positions will likely be Adirondack area college students involved in some phase of environmental studies. We will be contacting our members with additional information on this program in the near future.





BILL TO INCREASE PARK AGENCY MEMBERS VETOED

We have previously alerted the membership to a measure that passed the state legislature and would add two more local Adirondack Park residents to the Adirondack Park Agency. The Council opposed the measure on the grounds that Agency membership is presently balanced, and that a local majority vote is unwarranted and could at some point in the future prove damaging. The Adirondack Park is a region of statewide interest and the courts have ruled such in the past when Adirondack Park Agency jurisdiction was challenged.

Fortunately, Governor Carey saw fit to veto the measure and he is to be commended for this bold stand.



THE LAKE GEORGE ASSOCIATION CAMPAIGN

People who know the Adirondacks recognize Lake George as one of the gems among water bodies in the Adirondack Park. Its recreational opportunities attract and serve thousands of tourists, as well as local residents. For scenic beauty, Lake George has few rivals. Traverse Tongue or Black Mountains

and before your eyes will be revealed a panorama of lake, islands, and mountains that is truly breathtaking.

There is now an opportunity to help preserve the natural and cultural heritage that is Lake George. The Lake George Association Fund Campaign is the first effort to establish an endowment large enough to provide an annual income capable of supporting environmental activities on a continuous, long range basis. The most immediate need is for a reliable water testing program to obtain accurate, unbiased data on the principal factors contributing to the water pollution in Lake George. Obviously, such accurate data is essential prior to taking the most efficient steps to correct the water quality problems of Lake George.

Lake George is not desperately polluted, but an algal bloom has occurred in the past. Continuous monitoring will help insure that such blooms, with their attendant disagreeable taste and obnoxious odor, will not occur in the future.

The water testing program will be conducted by the Fresh Water Institute of Rensselaer Polytechnic Institute, who have heretofore undertaken the most extensive and worthwhile water testing activity.

Educational projects designed solely for the protection of Lake George, and a series of studies on population trends, lumbering activities, etc. are other activities being considered for the Fund.

Send requests for additional information to:

The Lake George Association Fund
Lake George, New York 12845



FOREST MANAGEMENT HEARINGS

State Senator Fred Eckert, Republican from Rochester, and Chairman of the Senate Conservation and Recreation Committee, held hearings on "Forest Management Issues in New York State" in September. To many attending, it was apparent that the central reason for the hearings was to launch an attack on Article XIV, the "forever wild" clause in the State Constitution that has guarded the Adirondack and Catskill forest preserves for nearly a century. Eckert was clearly out to gain support for changing the constitution to appease lumbering and development interests. However, many of those making statements did not hold this view.

The Adirondack Council testified at the Glens Falls hearing. The Council asked Senator Eckert and his Committee to:

- Find alternative ways to relieve the growing burden of rising taxation on forest and other open space lands in the Adirondacks.

- Recognize and support the need for revised timber cutting regulations, and forest management plans that reflect these regulations, in the Adirondack Park to avert significant environmental and economic impacts that may result from increased timber harvest that is not properly monitored and managed.

- Recognize that the forest preserve, as it is presently conceived, provides the greatest good to the citizenry of New York State, providing wilderness, recreational, watershed, wildlife, tourism, cultural, and assorted other benefits that far outweigh the marginal benefits that might accrue from relaxing any of the present protective mechanisms.

Reference was made to a telling statement by a spokesman for one of the Park's commercial timber companies:

"Within the Adirondack Park, I feel that it would be a great

mistake to allow any form of timber harvest on State Lands due to the fact that it would threaten the viability of the already marginal commercial timberlands as well as impair the wilderness quality of the public lands."

The point was emphasized that the real potential for increased wood production rests in encouraging increased and improved management and harvesting of the millions of acres of non-industrial private forest lands of the state.

We urge all of you who support keeping the forest preserve as it is to write:

Senator Fred Eckert, Chairman
Senate Conservation and Recreation Committee
Room 609
Legislative Office Building
Albany, New York 12248

Copies to Senator Warren Anderson, Majority Leader, would be helpful.



ADMINISTRATION VIEWS ON ACID RAIN ASSAILED

A new report asserts that acid rain is a serious problem in need of prompt regulation

(Printed with permission from SCIENCE MAGAZINE—from its Oct. 2, 1981 issue; author R. Jeffrey Smith)

An expert panel of the National Research Council has issued what amounts to an indirect rebuke of the Reagan Administration over the issue of acid rain. Taking the opposite side in the current debate over amendments to the national Clean Air act, the panel concludes that the acid rain picture "is disturbing enough to merit prompt tightening of restrictions on atmospheric emissions of fossil fuels and other large sources." Emissions of sulfur dioxide, one of the precursors of acid rain, should be cut by at least 50 percent, the panel says, while emissions of nitrogen oxides, another precursor, must also be sharply cut.

The report is likely to assume considerable importance in the growing controversy over the Administration's willingness to seek only continued study of the acid rain problem. EPA Administrator Anne Gorsuch has justified this stance with a claim that the sources of acid rain remain uncertain and the extent of its damage unknown. The policy has been pleasing to the utility and coal industries, which the research council report says are responsible for 88 percent of sulfur dioxide emissions and a huge portion of the emissions of nitrogen oxides. The bulk of this pollution is generated in Ohio, Pennsylvania, and Indiana.

But the policy has greatly angered the citizens of Canada, who must endure the adverse economic effects of American-caused acid rain on their crops, lakes, and forests. Residents of New England are similarly upset, and their representatives in Congress have begun to agitate for changes in the law that would cost power companies in the Ohio River valley billions of dollars.

The research panel argues in favor of these changes, noting that "continued emissions of sulfur and nitrogen oxides at current or accelerated rates, in the face of clear evidence of serious hazard to human health and to the biosphere, will be extremely risky." But the Administration apparently wants to head in the other direction. Drafts of its clean air amendments that have been leaked to Capitol Hill include a host of provisions that will increase the precipitation of acid rain. Utilities, for example, would no longer have to install sulfur dioxide emissions controls on power plants that shift from oil to coal. Deadlines for compliance with existing sulfur dioxide and nitrogen dioxide standards would be extended. Provisions allowing New England states to force tighter controls on pollution generated outside of their region would be weakened.

One Administration proposal seems particularly remarkable in light of the details of the research panel's report. Gorsuch has proposed to double the statutory limit on emissions of nitrogen oxide from automobiles in 1983 and beyond. This reform can be accomplished "without significant harm to air quality goals," she says. The justification is that it will reduce the sticker price of a new auto by \$60, which will in turn supposedly help out Detroit. But the relaxation will undoubtedly accelerate the increase in nitrogen oxide emissions that is anticipated as the result of increased burning of coal. Ambient levels of nitrogen oxides have already tripled over the last 25 years, the report says. And in the absence of further controls, "their emissions will exceed emission of sulfur oxides by the turn of the century." Most of the increase is occurring in the

Boston to Washington corridor and in the Ohio region. Scientists are apparently less certain of the ecological effects of nitrogen oxide than they are of the effects of sulfur dioxide. But the panel says that in addition to boosting acid rain production, the pollutant could be causing runoff of nitrate from soils into drinking water in hazardous amounts.

The report generally highlights the relationship of coal-burning to the release of toxic metals into the environment—a secondary phenomenon of acid rain that has only recently attracted scientific notice. As the rain acidifies lakes and streams, for example, it leads to the release of aluminum from sediment and nearby soils. In the spring, when ice melts, the accumulated acid precipitate boosts aluminum concentrations so high that massive fish kills result. Manganese, zinc, nickel, lead, and cadmium also appear to be washed into lakes and streams as a result of acid rain, the panel says. Scientific models suggest that "in Lake Michigan both cadmium and zinc will reach concentrations toxic to zooplankton within the next 30 to 80 years."

The concern is that acid rain exacerbates the effects of direct emissions of toxic metals. It increases the amount and toxicity of mercury in fish, for example. "At present, there is no satisfactory technology for controlling large-scale emissions of mercury.... Its continued or accelerated release, especially in view of its synergism with acid deposition, may cause chronic problems in many areas in years to come" the panel says. On land, deposited nitrogen and sulfur may result in a short-term enhancement of plant growth, but "over the long term acid precipitation is likely to accelerate natural processes of soil leaching that lead to impoverishment of plant nutrients."

The utility and coal industries' response to such concerns is that others are responsible, and that the problem has not appreciably worsened in recent years anyway. William Poundstone of the Consolidation Coal Company told a congressional committee several months ago that "there is no good data or evidence linking sulfur emissions to alleged increases in acidity of rainfall in the Eastern United States. An examination of the amount of coal burned in this country during the same time span that acid rainfall allegedly increased—1955 to 1973—reveals very little change in the total sulfur dioxide levels."

The research panel, which was led by David Schindler, an American researcher at the Freshwater Institute in Winnipeg, Manitoba, challenges these assertions directly. "Although claims have been made that the direct evidence linking power-plant emissions to the production of acid rain is inconclusive, we find the circumstantial evidence for their role overwhelming," it stated.

The panel also casts doubt on the usefulness of a remedy to acid rain frequently suggested by the utility industry—the liming of lakes through airborne dumping of phosphorus and calcium carbonate. The procedure is too expensive and can cover only a small region, the report says. It concludes that "in the long run, only decreased reliance on fossil fuel or improved control of a wide spectrum of pollutants can reduce the risk that our descendants will suffer food shortages, impaired health, and a damaged environment."

*A copy of the last financial report filed with the New York Department of State may be obtained by writing: New York Department of State, Office of Charities Registration, Albany, NY 12231 or The Adirondack Council.

The Adirondack Council is funded solely through private contributions and grants.

If you are not yet a contributor, please consider lending us your financial support. Send contributions to the address at right. Please make checks payable to: The Adirondack Council.

*Contributions are tax deductible

**Any part of this Newsletter can be reprinted without permission.



The Adirondack Council

Box D- 2, Elizabethtown, NY 12932

A coalition of the National Audubon Society; The Wilderness Society; The Natural Resources Defense Council; The Association for the Protection of the Adirondacks; and other concerned organizations and individuals.

EXECUTIVE DIRECTOR Gary A. Randorf

OFFICERS

Chairman Frances Beinecke **Secretary** William T. Hord
Vice Chairman Arthur M. Crocker **Treasurer** Timothy L. Barnett

BOARD OF DIRECTORS

Timothy L. Barnett	John Ernst	John M.C. Peterson
Richard Beamish	Barbara Glaser	Clarence A. Petty
Julius G. Bede	William T. Hord	James Rogers III
Frances Beinecke	Harold A. Jerry, Jr.	Samuel H. Sage
Thomas Cobb	R. Courtney Jones	Paul Schaefer
Arthur M. Crocker	Richard W. Lawrence, Jr.	Gene Setzer
Marilyn Murphy Dubois	James Marshall	David Sive
		Breck Trautwein



The Adirondack Council

Post Office Box D-2

Elizabethtown, New York 12932

**U.S. Postage
PAID**

**BULK RATE
PERMIT NO. 40
Elizabethtown, NY
12932**

