FALL/WINTER 1990

NEWSLETTER

THE EDMUND NILES HUYCK PRESERVE, INC.
& BIOLOGICAL RESEARCH STATION
P.O. BOX 188, RENSSELAERVILLE, NY 12147
(518) 797-3440

LARGE SCALE ENVIRONMENTAL CHANGE

Richard L. Wyman, David W. Steadman
and
Marilyn F. Walters-Wyman

(This is an excerpt from the upcoming book "Global Climate Change and Life on Earth" edited by Richard L. Wyman scheduled to be published by Chapman and Hall late this fall.)

Introduction

The natural world is to an unknown degree at risk. Increasing atmospheric concentrations of greenhouse gases threaten to change global climate, over population and over consumption despoil remaining habitats, air pollution and acid rain damage our forests and waterways, ozone depletion threatens our health and vitality of ecosystems, a massive wave of extinction is reducing the genetic library of the planet, and the destruction of habitats worldwide is reducing the ability of the earth to support life (Fig. 1). We face perhaps the greatest threat to life on earth since the extinction of the dinosaurs.

Sir Crispin Tickell, Ambassador to the United Nations from Great Britain, during a presentation on "Climate Change and Global Politics" at the NYS Museum, offered an analogy that may be useful for putting the issue of climate change into perspective. He called the analogy, "The case of the boiled frog." He said, "If you were unkind enough to put a frog into boiling water, he would jump out if able to do so. If you were to put him into cool water and then gradually heat the water, you would end up with frog soup." In many ways, this analogy serves to illustrate how humans perceive and respond to environmental problems. We do not usually react to things that take more than two or three human generations to occur, and we can not grasp great distances such as those measured in light years. However, for the first time in the history of civilization changes are taking place rapidly, and thanks to the mass communication media, we can see those changes occurring all over the world. Our perception can now begin to grasp global environmental problems because both time and space have shrunk.

(continued on page 3)

1990 SCIENCE SYMPOSIUM

Laura S. Carter

Dedicated scientists investigating environmental changes and natural systems at the Huyck Preserve shared their discoveries at the 1990 Science Symposium on Saturday, August 11. The Detritus Food Web Team is continuing to gather evidence that documents the intricate workings of forest systems - systems that may be in danger. An other researchers have been studying plants, insects, and other animals as well as long term climate changes. These projects have been supported by research grants awarded by the Huyck Preserve.

From left to right - Ms. Carolyn Wilczynski, Dr. Richard Wyman, Mrs. Katharine Elmore, Mr. Paul Wilson, Dr. Nancy Elliott, Dr. William Elliott, Mr. Brent Ybarrondo, Mr. Drew Major, Dr. Jerome Thaler, Dr. Malcolm Frisbie

Detritus Food Web Team

William and Nancy Elliott, John Blair, Malcolm Frisbie, and Robert Parmelee, along with Preserve Executive Director, Richard Wyman, make up the team studying the detritus food web. This food web, responsible for the decomposition of forest litter (i.e. leaves, twigs, and logs) that ends up on the forest floor each year, is essential for the recycling of nutrients and minerals that keep forests healthy.

"Without this system, forests would fall apart," Wyman said. He added that there is some evidence this may already have begun to happen.

The team is detecting subtle changes that may be caused by acid rain and other environmental factors. While their findings may seem undramatic, they are important indicators of things to come.

(continued on page 2)

FORUM ON THE NATURAL HISTORY OF WOMEN

July 21, 1990 marked the first of what we hope will become an annual event. On that day, twenty-eight women (and a few men) attended a day-long forum organized by Marilyn Walters-Wyman featuring three speakers who addressed three aspects of how and why we function as women.

Dr. Nancy Elliott (Siena College) discussed the evolution of female social behavior, that is how we behave and why we respond as we do. From an evolutionary perspective, human females are not so very different than females of other species. While the behavior may differ between species, we are similar in purpose and drive in that we react to stimuli of biologic origin with the intent of perpetuating our genes. Dr. Elliott provided fascinating background which clearly touched a chord in the audience, judging from the discussion which followed the presentation.

After the break for lunch, Dr. Joan Schulz (SUNY Albany) addressed current economic and social trends of women. This was one lively presentation. It was clear that the audience and Dr. Schulz had a lot to talk about...and the discussion took on a momentum all its own. When she finished her presentation, the group felt as though they had just begun to scratch the surface of what a woman's "place" is and what it ought to be. It was the general consensus that, while we have made advances in the area of equality during the past three decades, women's issues lost the momentum they had built over the first twenty years, thereby losing ground in areas such as pay equity, reproductive rights and living standards.

The final speaker of the day, without a doubt, enlightened

(continued on page 5)

SYMPOSIUM 1990 *continued*

Dr. William Elliott (Hartwick College), studying microbes (fungi and bacteria), has found that acidic soil may have an adverse affect on nutrient cycling because it limits the contribution of bacteria in the decomposition process. His work has mostly focused on the rate at which decomposition takes place in the different types of forests on the Preserve. Decomposition is fastest in the mixed deciduous forest, slowest in the hemlock forest, and somewhere in between in the red pine and beech forests. He wanted to know whether the litter itself or the type of forest determined how fast the stuff decomposes, so he put little mesh bags of each type of litter into each of the forests. It seemed it was the litter itself that determined the rate regardless of the forest it was in. But, in the hemlock forest, everything, except hemlock litter, decomposed fastest. Now he's challenged to find out why.

While Bill is studying the litter, Dr. Nancy Elliott (Siena college), Dr. John Blair (Ohio State University), Dr. Robert Parmelee (Rutgers University), in separate projects, are looking at the microarthropods (i.e. minute insects) and worms that feed on the litter and decomposers. There are as many, if not more, of these tiny creatures in the hemlock forest than anywhere else on earth – 1.9 million per square meter. This is because there is so much food to munch on. Fewer microarthropods live in the mixed deciduous forest where the litter pickings are slim. Bill and Nancy Elliott have also found that less moisture in the soil, as in the drought of 1988, means slower decomposition and fewer microarthropods. The work of these four researchers confirms that more acidic soils affect the structure of these insect communities. It is too soon, however, to tell what that might mean to the overall health of the forests.

Dr. Malcolm Frisbie (Eastern Kentucky University) has been studying red backed salamanders and their vulnerability to acid soils. The semipermeability of salamander skin makes them more susceptible to environmental changes. Acid soils may upset the salamander's sodium balance. When too much sodium is lost by osmosis through its skin, the salamander dies. Frisbie's work in the laboratory and in the field confirm that salamanders do not survive in soils with pH of 3.7 or lower (acid conditions). But he has found that they do survive in humus at the same pH. He is trying to find out whether the humus is ameliorating something that is normally toxic (such as aluminum) to salamanders in acidic soils.

Other Studies

Andrew Major, the Preserve's Research Assistant, reported on long-term studies taking place, including animal surveys and a continuous forest survey. Jerome Thaler (Hudson Valley Climate Service) is compiling climate history for Albany County and for the Huyck Preserve area, so that Preserve research can be correlated with appropriate climate data

Carolyn Wilczynski, a graduate student at the University of North Carolina, noted that her interest in ecology was sparked by her childhood visits to the Preserve during summer vacations. She is studying competition, or lack of it, among five species of hawkweed growing in the same field. It's unusual for closely related species to co-exist in close proximity because they tend to compete for space and nutrients.

Paul Wilson, a graduate student at the State University of New York at Stony Brook, is interested in flowers and the animals that pollinate them. His research questions just how beneficial bees are to the pollination of some flowers. He has found that honey bees and sweat bees may actually limit the ability of certain flowers to sire seeds, because they remove more pollen and deposit less than bumble bees who remove less pollen and deposit more.

(continued on page 5)

ENVIRONMENTAL CHANGE *(continued)*

The Environmental Awakening

During the past 20 years humans finally began to understand what was happening to their environment. Change is not new. Humans have been changing the natural environment since the end of the last glaciation (some 8 to 10 thousand years ago). Since then we have been straining the natural environment, but the changes were slow enough so that humans could not see or understand them. Several civilizations collapsed apparently because of accumulating environmental degradation. As Sir Crispin put it, "The frogs were being boiled, but they were being boiled pretty slowly."

The Industrial Revolution strained natural systems to a greater degree than human activities of prehistory.

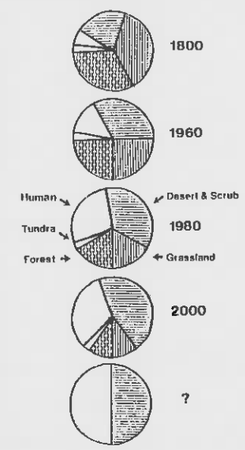

Fig. 1
Pie diagrams representing the proportions of the terrestrial earth covered by major ecosystem types for the past 200 years. Human means land dominated by human activity including agriculture. In 1800, grasslands and forests each represented about one-third of terrestrial ecosystems. By 1960 grasslands and forests each represented about one-quarter and by 1980 they each represented only abou one-sixth of terrestrial systems. By the year 2000, they are projected to each represent only about one-eighth to one-tenth. If the world's human population is not stabilized, greenhouse gas emissions continue to grow, and natural habitats are increasingly destroyed; sometime in the next century natural habitats will disappear. We can work to prevent this scenario from occuring. (based on data in the Global 2000 Report to the President, Council on Environmental Quality, 1981).

People once believed that natural systems were indefinitely tolerant. No matter what we did to them, they would repair themselves. Now we know that this is not so.

We face three kinds of environmental problems that may be distinguished by scale: acid rain, ozone depletion, and global climate change. Acid rain is a local, waste disposal problem that with good will and scientific effort can be solved locally. The depletion of the protective ozone layer is a global problem but with a narrow cause. Again, scientists and politicians should be able to solve the problem with local solutions. Climate change, however, is a global problem with global dimensions and requires a global response. What is that response to be? The main problem is that there are over 5.3 billion people on earth, with different socio-economic, linguistic, religious, educational, and political backgrounds. How do we reach them all?

Now What Do We Do?

As Stated by Brown et al. (1989) there is a little or no precedent for action on the scale called for during the next decade. The environmental threats now facing the world have so much momentum that unless we act now to reverse them, they will soon overwhelm our ability to respond. The effort must be concerted, rapid, and clearly directed. Our first environmental and social priority must be stabilization of the world population.

Currently about one-quarter of the world's population is malnourished, between 10 and 20 million people die each year of starvation, malnutrition, and malnutrition related diseases. Education must demonstrate that life would be better if families were limited to two or fewer children. Unfortunately this goal is very difficult to accomplish for at least two reasons. First, people who are chronically malnourished or starving do not make good students. Second, many people in the Third World must use their remaining natural resources, regardless of scarity, just to stay alive. How do we overcome these obstacles?

The human animal possesses at least two fundamental behavioral tendencies that complicate any attempt at creating a world that will continue to support us. These are the tendencies to be territorial and to form hierarchically organized systems. Territoriality gives rise to the feeling that 'we' are somehow different from 'them'. We fight wars because our territory (including our ideals, goals, social values, economies and political and religious philosophies) is threatened. We dichotomize peoples of the planet into friend and foe, and resources then become 'ours' and 'theirs'. Thus we feel little genuine concern when 'they' are starving, or 'they' are ruining their environment. Because of their environment is our environment, this kind of thinking has to change.

The tendency to organize ourselves into hierarchically organized systems in another fundamental attribute of humans (and many other animals as well). Our religious, political, military, and educational institutions are examples. Someone has to be the boss and someone else the worker. This tendency may be at the root of sayings such as "striving to succeed," "climbing to the top," and "the struggle for power." Those that win in this game do so through the accumulation of material wealth. Those that do not win have little or nothing at all. The status-conscience, greed-ridden persona of the 1980's exemplify how our reward system for doing well in a hierarchy can go astray. We must recognize and control these basic tendencies in our behavior, because on a finite planet with shrinking natural resources (Fig. 1), over consumption by some individuals denies those resources to many others.

Our economic system and our nationalism must be flexible and responsive to the needs of all the world's people, not just to those who are fortunate enough to live within our borders. This is because we all need sufficient protein for normal development of neural systems and processes so that education can be affective. What else but the tendencies to be territorial and hierarchically organized can explain the facts that millions

(continued on page 4)

EDMUND NILES HUYCK PRESERVE AND BIOLOGICAL RESEARCH STATION 1990 RESEARCH GRANT SUMMARY

1. **Angell, Diane.** Brown Universtiy. Ecology and evolution of caching behavior in red squirrels.
2. **Blair, John.** Ohio State University. A comparison of forest floor microarthropods and selected soil properties in four forest types at the Edmund Niles Huyck Preserve.
3. **Elliott, Nancy.** Siena College. Influence of litter leaching and soil pH on invertebrates in litter bags in four forest types on the Huyck Preserve.
4. **Elliott, William.** Hartwick College. Influence of litter leaching and soil pH on decomposition rates in four forest types on the Huyck Preserve.
5. **Frisbie, Malcolm.** Eastern Kentucky University. A comparison of forest soils: physiologic effects on a salamander.
6. **Parmelee, Robert.** Rutgers University. Nematodes and enchytraeid worm abundance, biomass, vertical stratification and distribution across pH gradients in four forest types of the Huyck Preserve.
7. **Sheffer, Sonja.** SUNY-Stony Brook. A preliminary study of host plant use patterns in leaf-mining agromyzid flies.
8. **Thaler, Jerome.** Hudson Valley Climate Service. Albany County climate history, summary and trends.
9. **Wilczynski, Carolyn.** University of North Carolina. Studies of the competitive hierarchy and spatial scale of coexisting congeneric species.
10. **Wilson, Paul.** SUNY-Stony Brook. The effects of floral characteristics and pollinator community on pollen movement in *Impatiens*.
11. **Ybarrondo, Brent.** University of Vermont. Respiratory physiology and diving performance in two species of water scavenger beetles (Coleoptera: Hydrophilidae).

HUYCK PRESERVE JOINS IN MARCH FOR PARKS AND EARTH DAY

During the month leading up to Earth Day, the Preserve was busy getting the word out and participating in a variety of events.

On Sunday, March 21, 1990, the Preserve participated in the nationwide kick-off for Earth Day known a March for Parks. We had a better than expected turnout of singles, couples, families and even a couple of family dogs. Channel 13, the local NBC affiliate, was on hand to interview participants and film the walk around Lincoln Pond which aired on the 6:00 and 11:00 news. We look forward to doing it again next year.

Marilyn Walters-Wyman made nature sculptures with the early elementary age kids at the Rensselaerville Library from items which do not negatively impact the earth. The kids were very proud of what they made and what they learned.

She also held an Earth Day contest for the Greenville Elementary School children. The youngsters submitted posters, poetry, and themes about the environment. It was tough to select the best from each grade because there were many entries which showed keen awareness of the planet and the problems we face. The winners received T-Shirts and several entries were displayed.

We had a great time at the 20th Anniversary of Earth Day held April 22 in Albany. 12,000 people were there and I think between the four people manning the Huyck Preserve booth, we talked to every one of them!

(continued on page 5)

BREADLINES AND BILLIONAIRES

Every night I pedal home past a van from Martha's Table, a downtown Washington charity that hands out sandwiches to the homeless. For years now the line on the street corner has been growing steadily. This winter, for the first time, I saw mothers and small children.

The lengthening que is a personal reminder of forces that are splitting humanity into haves and have-nots. The statistics are cold and appalling: The world today has 157 billionaires, perhaps 2 million millionaires, and 100 million homeless. it has half a billion who eat too much, and an equal number who eat scarcely enough to stay alive.

At the global level, as in the United States, equity of income distribution is worse today than at any time since records have been kept. The richest billion people consume at least 20 times the goods and services that the poorest billion do.

The reasons are imbedded in the structure of the international economy. For almost a decade, the global marketplace has been acting like Robin Hood in reverse: each year poor nations are paying rich ones $50 billion more in debt payments than they receive in new funds.

Worsening this regressive financial flow is the plummet in prices for Third World exports. U.S. import limits on sugar during much of the past decade, for example, have created a situation in which Americans pay several times the world market price to sweeten their coffee with beet sugar from Minnesota while cane cutters nearly starve for lack of work in the Philippines.

Militarism, meanwhile, adds it's own trillion dollar drain. We humans spend $200 a year for each man, woman and child on the means of warfare, but we cannot seem to find the $1 it would cost each of us to save 14 million children who die each year from simple diseases like diarrhea.

Ending poverty is an environmental priority, too, because those at the bottom of the world's economic ladder are driven by hunger into clearing forest, overgrazing rangeland, and exhausting soil. Saving the earth will remain little more than a pipe dream unless a floor is put under the poorest.

The necessary steps are straightforward: bold debt relief, demilitarization, reduction of import restrictions, and rebuilding social service sectors-both at home and abroad-caught between spiraling needs and shriveling means.

In exchange for a few of our worldly comforts, we the fortunate can gain a planet that is more peaceful, more sustainable, and more humane.

Alan Durning, Senior Researcher

(Reprinted with permission from World Watch Magazine)

ENVIRONMENTAL CHANGE *continued*

of people die in our world for lack of food and other basic needs, while at the same time in the U.S. we are producing millionaires at a record rate and grocery stores are stocked as never before?

Women and Children

On the average, some behavioral characteristics of male humans differ from those of females. Males tend to be more aggressive, think about short-term success, and how to move up the hierarchy. Females tend to be more cooperative, at least among the extended family unit, long-term thinkers, and show a tendency to be less hierarchically organized. In a primitive (and ancient) societies, males are the hunters and females are the

(continued on page 5)

ENVIRONMENTAL CHANGE *continued*

gatherers. These differences are reflected in how the sexes interact with their environment. Traditionally men go out and conquer their environment, while women have had to work with theirs to insure its continued productivity. With the coming of the agricultural and then industrial revolutions, women have lost much of their personal interaction with the earth, that is they are no longer in control of what happens to it.

Historically, women and children have held a lower position in society than men, and in most cultures they still do. Because of that position they have suffered discrimination in income, prestige, and power. Because of the likliehood that global climate change coupled with an exploding human population will reduce further the global average standard of living, those people in the poorest economic position and lowest in the hierarchy will bare the bulk of suffering. These will be women and children.

The already grim realities women and children face will worsen considerably as the stresses on existing natural areas intensify. Food production and distribution are already inadequate, considering 40,000 children die daily due to starvation , malnutrition and malnutrition related diseases. Per capita grain production has been declining since 1970 in Africa followed by Latin America in the 1980's. The U.S. failed to produce a surplus of grain in 1988 and 1989, and the global grain store is down to about 50 days supply.

Even in developed countries women have not attained equality in pay and insurance rates, employment and housing opportunities, and politics. Fourteen other industrial nations have lower infant mortality rates than the U.S., yet the highest standard of living is enjoyed in the U.S. The U.S. lags far behind many other industrialized countries in development and implementation of new birth control methods. Legislation affecting child care and education come in second to defense in the U.S. As is the case virtually everywhere, men comprise the majority of politicians who enact legislation affecting women and children.

Because the main problem is human overpopulation, the solution to the environmental decline depends, in part, on women taking charge of their lives, especially their reproductive responsibilities - an issue that affects all others. Individuals must overcome cultural, social, and religious trainings that prevent them from making environmentally realistic decisions about the number of children they will have. This is a tremendous challenge in many countries. In Zimbabwe for example, men forbid women to practice contraception because they believe women that do will become promiscuous, contraceptives cause infertility, and users produce disabled offspring. This could be deadly because a womans chance of dying during pregnancy is already a frighteningly one in twenty.

All Governments need to provide funding for family planning, and yet the 1989 budget for U.S. international population assistance was the lowest since 1983. The funding needs to address social, cultural, and economic issues which prevent the status of women from rising. We face a moral problem involving the way we view each other and all life on earth. We suggest that if a different global perspective is to develop concerning the natural world, a change in our sattitude toward one another, regardless of sex or age, must lead the way.

(To be continued in the next Newsletter)

1991 MEMBERSHIP APPEAL

As a not-for profit membership corporation, we rely on our members' contributions for about one-third of our operating budget. The programs and activities that you have read about in this newsletter would not be possible without your help. For 1990 we are operating on a substantial deficit because, like everyone else, we are faced with rising costs and a shrinking income. We will have to cut some programs if we can not generate sufficient support from our members. You can help by either becoming a new member or by renewing your membership now for the 1991 membership year. We also need your help to recruit new members. Our records indicate that about 3000 people visit the Preserve each year, yet we only have about 250 members. You can help by recruiting people you know who visit the Preserve but who are not members. Thank you.

PRESERVE JOINS MARCH *continued*

The culmination of Earth Day took Marilyn and Rick Wyman to the Greenville Elementary School, again... This time they gave a tree seedling to each student. The program was a phenomenal success. There are now over 600 new trees planted in the Hilltown area that local kids are nurturing. The epitome of sweet success.

FORUM ON WOMEN *continued*

many of us who considered ourselves "enlightened". Margaret Craven, M.D., an obstetrician and gynecologist, provided us with a deeper understanding of female biology by addressing the myths, realities and responsibilities as they relate to female health and reproductive capabilities. At times controversial, Dr. Craven proved to be a wealth of knowledge regarding myths we thought were facts, facts we thought were myths, and truths we were not aware existed or at least never gave much thought to.

Suggestions for future forums are welcome. Send them to Marilyn Walters-Wyman or Cheryl Elkins at the Preserve.

SYMPOSIUM 1990 *continued*

The respiratory physiology of diving beetles is the focus of Brent Ybarrondo's research. This beetle, after surfacing to breathe, dives with an air bubble which it uses until it is time to resurface. Brent, a graduate student at the University of Vermont, has found that these beetles are most abundant in the shallow waters of Lincoln Pond where the aquatic vegetation is dense, probably because the buoyant beetle needs to crawl along the vegetation to stay submerged.

Researchers who were unable to attend the Annual Science Symposium are Diane Angell (Brown University), studying red squirrel caching behavior, and Sonja Scheffer (Suny-Stony Brook), looking at leaf mining flies.

Scientists interested in applying for research grants should write to Dr. Richard Wyman, Executive Director of the Preserve.

THE EDMUND NILES HUYCK PRESERVE & BIOLOGICAL RESERCH STATION
P.O. Box 188, Rensselaerville, New York 12147

Membership Application

Junior (17 years or younger).....$5.00
Active.....$10.00
Supporting.....$25.00
Contributing.....$50.00
Sustaining..... $100.00
Patron.....$1000.00

Membership Dues Enclosed $_____

Please make your tax deductable contribution payable to the E.N. Huyck Preserve, Inc. Annual report is on file and available through the N.Y.S. Department of State, Charities Registration Section, or the Preserve.

Tee Shirts Sweat Shirts

Adult tee shirts ($12) and sweat shirts ($16) available in small, medium, large and extra large. Child tee shirts ($10) and sweat shirts ($14) available in sizes 6-8, 10-12, and 14-16.

Publications

1987 Annual Report $10.00 _____
1988 Annual Report $12.00 _____
Occasional Paper $10.00 _____

Shipping and handling:

Publications $1.50
Sweatshirt $1.50 Tee Shirts $1.00

Name: _____

Address: _____

THE EDMUND NILES HUYCK PRESERVE, INC.
& BIOLOGICAL RESEARCH STATION
P.O. BOX 188
RENSSELAERVILLE, NEW YORK 12147

BULK RATE
NON-PROFIT ORG.
U.S. POSTAGE
PAID
RENSSELAERVILLE, N.Y.
12147
PERMIT NO.5