

THE MEANING OF HUMAN EVOLUTION TO CONSERVATION
by Hugh H. Iltis

In an age when it is fashionable to glorify technology, when machines, we are told, will liberate man from all the limitations of his animal nature, when atomic physics promises to produce for us all we shall ever need, to discuss the meaning of human evolution to conservation may seem out of place. Yet evolution, that most wonderful of all phenomena, not only produced the lilies of the fields and the lowly earthworm amongst their roots, but also that king of all beasts, the human animal. It is obvious, therefore, that the study of evolution is a passport, the only passport, to the understanding of man and man's place on earth.

Evolution, like history, does not repeat itself. Nevertheless, in both, the series of changes or revolutions, one on a geologic, the other on a cultural timescale, do have value for man. By understanding his past history and biologic evolution, man can hope to adapt to change and thus control his fate. Failure to adapt on the other hand will mean extinction! The more rapid the changes, and the more violent the revolutions, the greater the danger of evolutionary or historical disaster. Since modern scientific man, who generally dies in bed and of old age, is the only animal that has to adapt through will rather than through fate (since for him natural selection has all but ceased to operate)* it is important that he understand the rules by which to play the game. Thus, whether man shall remain the "darling of the gods" or become extinct is strictly up to him. He may wish to remain happy without being good, but evolution will never let him. For evolution and history are littered with the fossils of extinct species and the ruins of vanished cultures. Conservation, whether of species, biotic communities, or of man, thus becomes highly meaningful only with evolutionary understanding.

Now we, in the 1960's, are living in a period of unprecedented revolutions, rapid, violent revolutions in the relationship of man to his environment. Of these, there is, first of all, the revolution of rising expectations that is sweeping the underdeveloped countries of the world, and even parts of the United States, a revolution dependent on increased productivity through increased technology. Thus, there is, secondly, the allied revolution in the methodology of exploitation, in the tremendously increased and often blind efficiency in the use and destruction of resources, living or dead.

Revolution in American Conservation

Third and last, important for all of us in its healthy if rather late beginnings, there is the Revolution in Conservation, which, forced upon us by the alarming destruction of our wildlife resources, we finally have to face. In this revolution, the "shot that was heard around the world" was fired by a quiet studious lady biologist, Rachel Carson. In exposing man's deliberate pollution of his environment through pesticides, her brilliant book *Silent Spring*, published in 1962, drastically and probably for ever changed our optimistic faith in Science, and, as Garrett Hardin recently pointed out, forced scientists and technicians alike, for the first time in history, to recognize and accept their awesome and inescapable social responsibilities.

The year 1964 and the second session of the 88th Congress, called rightly not only the "Civil Rights Congress" but also the "Conservation Congress," with its (alas partly gutted) Wilderness Bill, Land and Water Conservation Act, National Seashores, and the Ozark River bills, represents a milestone in American conservation.

Now, all revolutions are giant battles for the minds and feelings of men. If we are to win a revolution in man's view towards his environment, and win we surely must if human culture (yes, even the human species) is to survive, we must understand what we are fighting for and what we are fighting against. For only by having a clear understanding ourselves, can we change the understanding of others, understanding that will eventually result in intelligent conservation, in responsible agriculture, and in a new land ethic, in short, in the new, ecologically - oriented human society of the future.

*The geneticist Sewall Wright, now emeritus professor at the University of Wisconsin, commented on this in a letter: "I doubt whether natural selection has all but ceased to operate in man, but I am afraid that it is operating to produce a type that flourishes in a slum environment that will hurry man's progress to destruction or at least to a tolerance of overpopulation under which human life would seem to lose most of its value."

Without discussing at this time the two most pressing and terrible problems life is facing, namely atomic war and the population explosion, there are only two points of view which I wish to touch on here. The first of these views is commonly held in most human cultures: It is the nearly ubiquitous, nearly absolute and religious faith that man always has had in the unlimited wealth of nature, the view that there is no end to natural resources, not only of food and minerals, but also of wild nature, of plants and animals, of mountains, seas, and rivers. To modern man, whatever his civilization, "Nature" is still the great earth-mother, ever-forgiving, ever-providing, the self-healing mother symbol of all times!

Let us remember again how universally this view is held by humanity! Let us read the proverb of the Maoris of New Zealand: "The LAND IS A MOTHER THAT NEVER DIES!" Or, says Ralph Waldo Emerson: "NOTHING IS RICH BUT THE INEXHAUSTIBLE WEALTH OF NATURE. SHE SHOWS US ONLY SURFACES, BUT SHE IS A MILLION FATHOMS DEEP. " Or let us ponder this lovely optimistic and affirmative poem, full of man's faith in nature, written by the German poet Theodor Storm, - his "Octoberlied:"

Der Nebel steigt, es fillt das Laub;
Schenk ein den Wein, den holden!
Wir wollen uns den grauen Tag
Vergolden, ja vergolden!

Und geht es draussen noch so toll,	(No matter how mad the crowds
Unchristlich oder christlich,	Be they heathen or Christian
Ist doch die Welt, die schone Welt,	Is yet the world, the beautiful world
So ganzlich unverwiistlich! etc...	So wholly indestructible!)

Indestructible indeed! The prairies and passenger pigeon have gone the way of the Dodo; the whales, the Redwoods, the Bald Eagle, and the tropical forests are on their way to extinction. Though Storm's lovely sentiments may have appeared to be valid 100 years ago, we know that TODAY THEY ARE FALSE, MISLEADING AND DANGEROUS. Nevertheless, such cornucopian views underlie the idea of "freedom from want" and the ideas behind the Peace Corps. They underlie, in part, as much the 5 year plans of the Soviet Union as they underlie American ideas of Free Enterprise and an Expanding Economy. Finally, they underlie the thoughtless abandon with which we destroy our resources to wage war.

Some Philosophic Bases of Environmental Destruction

Much of even the most modern thinking in American planning is thoroughly imbued with such philosophies. For example, John Friedman, a planner at the Massachusetts Institute of Technology, writes in the May 1964 issue of the Bulletin of the Atomic Scientist:

"Our national wealth, growing year by year, is gradually removing resource restraints on social choice . . . Prudence no longer dictates that we 'maximize' returns in the use of resources. We are indeed moving with great speed into a realm of freedom in which experiment, play, and impulsiveness will come to dominate our ethos. . . . And since external standards are unlikely to be found, we shall have to search within ourselves for the direction we wish to give our efforts."

We may take this quote as an example of one of the most prevalent and forceful views in American culture. Propped up by Jeffersonian myths of superabundance, we are exporting it to the rest of the world. And while we may lead in conservation, perhaps because we still have something left to conserve, we likewise lead in ruthless exploitation and in the methodology of destruction. To justify our appetites, grim Calvinistic doctrines are applied to our living world, and the ideas that idleness is sin and everything on earth must be used (i.e. exploited) is well reflected in this incredible "Leitmotif" of a current university conservation course: "Nature is not sacred nor is it to be venerated, but is here solely to be used for the benefit of man." Even savages have more sentiment and sense!

It is abundantly clear, then, that one of the most important jobs of the conservation movement today is to expose the fallacies of the indestructibility of nature.

To Plan for a Human Environment: No Standards?

My second point is best introduced by quotes from the same review by Friedmann, which emphasizes the "Neutrality of the environment" in relation to man, and the futility to find any guidelines for human planning. Remembering Friedman's phrase: ". . . . And since external standards are unlikely to be found, . . ." we may ponder with alarm these additional quotes:

“Does it really matter, we may ask, what form the metropolitan region of the future may take ? I think the answer will have to be no. . .” “If planners assert specific values, they will become simply another special interest group pleading for a hearing. And planners, politicians will be quick to point out, can rarely deliver a vote.” “What this suggests for the planners' role supports the position that custodial view of planning should be buried. The planner is not the guardian of the public interest, because the public interest does not exist.”

and, continues Friedmann, “It becomes increasingly clear from reading the contributions to this volume, there is abysmal ignorance concerning the relationship between environment and values. What environment maximizes (optimizes, satisfies) what values, individual or social? Frankly, we do not know, and probably we shall never know.”

Now, is it really true that we cannot find any standards by which to plan? That we will never be able to plan for a human environment? Does it matter, then, if we set aside Natural Areas, National Parks, open spaces, wild lands and wild rivers, or is it all a waste of time?

Man Needs Nature!

To this nihilistic view we need, and can find, a positive answer: Namely, that to plan in a biologically (i.e. scientifically) sound way, we must be guided by the acceptance of THE BIOLOGICAL NATURE OF MAN AND THE BIOLOGICAL RELATIONSHIP OF THE HUMAN ANIMAL TO HIS ENVIRONMENT. Man, after all, is an intellectualized, clothed ape. We must therefore accept man as a part of, and the result of, evolution, and as an inseparable part of the nature that produced him. This, then, we can use as the absolute standard, by which we can plan cities, and states, and human lives! Man needs nature as part of his very existence, because this need is part of his adaptational inheritance, the result of his long biological evolution. Like all living things, man is a complex bundle of biological adaptations. His eyes and ears, his brain and heart, even his psyche, are the evolutionary adaptations of the human organism to nature. Remove these adaptations from their environment, from nature, and sick modern man is the result. The modern city man in particular, far removed from nature in his asphalt jungles, has to pay the price in neurosis, delinquency and despair.

Many sensitive citizens, especially those who are “birdwatchers and flower-lovers,” though often scorned by professional biologists and ridiculed by segments of the public, are among the most dependable allies in conservation battles, for these are the very people who often instinctively understand man's inherited need for beauty and diversity, man's inherited need for nature.

Human Need for Natural Beauty

I wish to stress that one of the reasons why we have to save and preserve natural areas is to save their beauty. HUMAN NEEDS FOR NATURAL BEAUTY, LIKE HUMAN NEEDS FOR LOVE, ARE VERY LIKELY INHERITED. Their overpowering force alone suggests evolutionary origins. This will be questioned, but I see no reason why we should not consider the ability to get pleasure from beautiful colors, views, and sounds, as well as from peaceful landscapes, in short, the ability to respond with pleasure to beauty, as an evolutionary adaptation, produced over hundreds of millions of years by natural selection. Thus, Tennyson's lines, “NOTHING IN NATURE IS UNBEAUTIFUL,” takes on new and deep significance.

If our generalized need for natural beauty is an ancient evolutionary adaptation, need we not natural areas—not only for teaching, for research, or for economic reasons, but also to give our ears rest from the noisy cities, to give our eyes relaxation in green fields and blue skies, to give our brain a chance to function in the very environment which originally produced it, an unhurried, quiet, peaceful land. The needs of healthy, happy humans for natural beauty are founded in the obligatory evolutionary relationship of man to nature. Nature could well live without man, but man cannot long live without nature. While man cannot change his physical, physiological and psychological evolutionary adaptations, since evolution is a geologic process measured in millions of years, man can rather easily modify his cultural view of his environment and thus stop its destruction. Unbridled human destructiveness is part of human culture. And human culture, as history has shown us time and again, can be modified in a life-time.

What Guidelines for Highway “Beautification” ?

It is glibly easy to pontificate about “beauty” and the inherent dependence of man on nature. But “Beauty is in the eye of the beholder!” And what if that beholder prefers cornfields or parks to prairies or flowers? Thus, there is always the immense danger of impressing our own

personal, often city-conditioned ideas of what constitutes "beauty" on a helpless landscape. How should we, indeed, implement present efforts of the First Lady and others to beautify often despoiled roadsides? Is removing of junk yards and planting of trees enough?

It seems to me that there are two major alternatives, one, the construction of manicured park-like roadsides, expensive to plant, expensive to maintain; or two, the encouragement of the local native vegetation, be it Oak-savanna in Central Wisconsin, Hemlock-White Pine forest in Northern Michigan, tall grass prairie in Illinois or Kansas, short grass prairie in Texas, or desert vegetation in Arizona. Not that parks do not have their time-honored place! But for the vast USA, native vegetation types would seem superior. As in other cases, what is cheapest is also best, and here for the following reasons:

1) Natural plant communities are diverse, integrated and beautiful in many ways, give shelter to native animals, and, since next to nothing needs be planted, are cheap and save the tax-payer money. On the other-hand, one artificial well-kept landscaped roadside is like any other, whether in Maryland, Wisconsin or California. Once you have seen one, you have seen them all: mowed grass, scattered conifers or shrubs, very pretty, very expensive, very dull!

2) Certain natural communities and many of its species, especially in Wisconsin and the Middle West are getting to be rare, and in the case of the once waving oceans of prairie grasslands, are all close to extinction. Indeed, some of our last remaining prairie communities are along unsprayed railroad right-of-ways and country roadsides. There, any and every new road "improvement" program and "weed" control spraying destroys miles of hedgerows and innumerable beautiful and now rare flowers. Here again, the cheapest "beautification" would at the same time be the best. In many roadsides, which now are covered with acres upon acres of neatly mowed and sterile lawn grass, one could artificially reestablish prairies, needing only an occasional spring fire for maintenance. It should always be remembered that prairies contain no agricultural weeds.

3) Natural plant communities are preferable to parks since no two of them are ever alike. Thus one of the main attributes of natural beauty (and indeed of a healthy landscape) is its immense diversity. And this we need to maintain wherever we can. Thus it is important to remember that the beauty of Kansas or the Dakotas or parts of Southern Wisconsin lies in its prairies and vast open skies, and thus in the absence of trees! Our vacation-minded visitors from the big city would much prefer that our "beautification" offer him something different from the parks of Chicago or the New York Thoroughway. In the prairie regions of the Midwest, at least, widespread re-prairiefication would be cheap, beautiful, and sensible.

We need, then, to be highly suspicious and critical of even the best-intentioned traditional roadside beautification programs, for they may turn all our highway roadsides into strips of neatly mowed blue-grass lawns interspersed with artistic clumps of lilacs, dogwoods, pinoaks, or Junipers, boringly homogeneous from New York to California. Not only will this imminent landscaping orgy cost immense sums of tax moneys, but it will destroy what could be biologically valuable, esthetically stimulating environmental corridors of native plants. And in a state like Texas, where preservation of its truly magnificent flora and fauna barely exists, this chance must not be missed.

If money we must spend, let us buy small or large roadside parks of native vegetation, fifty or one hundred acres where we and our children can learn while we rest, and where wildlife will find a haven. It will take a wise highway beautification program indeed, free from vested interests and leaning heavily on advice from modern biological science, to choose for America the ever-varying diversity of our vanishing native plant communities.

The New Land Ethic

The Conservation Revolution is based on the knowledge that man can master his cultural destiny, but not his evolutionary heritage. The Land Ethic, the result of this revolution, considers man not only as an integral part of nature, but nature as an integral and necessary part of man.

One immediate and urgent aspect of the new land ethic is the preservation of remnants of undisturbed nature, of man's evolutionary environment. Wisconsin, in one way, is a very appropriate place to discuss conservation. It was here that University of Wisconsin Presidents Van Hise and Chamberlain worked, two of the earliest and most influential conservationists in the United States.

John Muir, who spent his boyhood near the lily-filled meadows of Ennis Lake in Marquette County, came to this campus of the University of Wisconsin, where apart of Bascom woods was recently dedicated to him (a smokescreen to delude the public and destroy a large portion of the woods!). Aldo Leopold worked, wrote, and died here, and his noble spirit is yet with us. Norman Fassett, inspired by the enthusiasm of his teacher Fernald at Harvard University, came here in 1925, and jointly these men, close personal friends, and some of their many associates,

students and friends, including John Curtis, Albert Fuller, Joseph Hickey, Walter Scott and others, worked towards the establishment of nature preserves, of a "State Board for the Preservation of Scientific Areas" (the first of its kind in the nation) and the creation of the University of Wisconsin Arboretum. Much more important, however, they instituted anew tradition in conservational thinking and feeling, and trained a generation of students in the philosophy of the "Land Ethic" and "Conservation Conscience," in which the saving of Natural Areas, Wilderness Areas, is of prime importance.

On the other hand, Wisconsin is singularly inappropriate as a place to discuss Natural Areas. Wisconsin and the whole Northeastern and Midwestern United States is a region of heavy human disturbance, with much conservation activity, but with the relatively low biological complexity so characteristic of glaciated lands.

Land for Learning: Who Will Save the Tropics?

So let me close with one more thought. Though we live in Wisconsin, in this heavily glaciated land, let us resolve to a heightened desire to preserve "land for learning" and "land for the living" in the areas of biologically greatest value--in the lands where the biota is wild in its exuberance, incredibly rich in species and long in history, --where every mountain has endemic plants and animals, organisms irreplaceable and therefore invaluable--and where the land is cursed with ever-increasing destruction. So let us think of the Blue Ridge, the Appalachians and the Cumberland Plateau; let us preserve the limestone flats of the Nashville basin and the clear rivers of the Ozarks; let us remember the Edward's Plateau and the prairies of Texas, and the Pitcherplant flats and Pine Savanas of the Carolinas and southern Alabama; let our concern wander to Mexico, Peru, and Brazil, not only to its long-suffering people, but also to its virgin forests and wonderful animals which, because of need, greed, and ignorance, are so terribly threatened with irrevocable extinction. Let the New Land Ethic reach to the lands of the Gorilla and the Rhinoceros, and to the homes of the Orangutan and Birds-of-Paradise, animals whose survival need be considered, not as the sole responsibility of the under-developed countries in which these animals make their last desperate stands, but as the responsibility of the whole world, in particular the rich western world, which not only has the knowledge and incipient philosophy but also the means to preserve man's rightful biological heritage. It is here, in the exercise of the Conservation Conscience and the Land Ethic, that science and the humanities could bridge the gap between the "Two Cultures," for the survival of both is at stake.

Let us find, then, human solutions to the three monumental problems that today make biotic preservation all but impossible and meaningless--Let us urge Birth Control to halt the Population Explosion, peaceful settlement of conflict to stop war, and training of more ecologists and biologists, to decrease our ecological ignorance.

Let all of us read and study "Natural History," and walk in what is yet left of nature. Let us become biologically educated, so that as voting citizens we can help to make the ecologically sound decisions which our times demand. Let us, as parents, teach our children by example a deep respect for nature and a reverence for life.

Let us here today again reaffirm the proposition that in agriculture, in forestry and in any other land use, only by a new and biologically responsible "Land Ethic," by an ecologically sound philosophy can man preserve and maintain an environment in which a continuing, full and rewarding life is possible for his species, not only in a material sense, but in a physiological, emotional and spiritual sense as well.

Let us become not only personally committed to an ecologically sensible use of our living world, but financially committed to the preservation of undisturbed natural vegetation, for time is indeed running out.

Let our voices be loud and clear--"the world need not and must not be turned into a biotic desert!" And since conservation is now fundamentally a political problem, let us carry our voices to City Councils, to the State Legislatures, and to Congress and the United Nations, so that we, the concerned citizens, and not only the despoilers and exploiters, will have our say; so that, even if we are successful only in a limited way, our children will inherit a world well-prepared for the conservation revolution. Let us, who are just "passing through," leave our grandchildren a human world remaining rich in diversity of life and in harmony with nature.

Note for Preservation and Conservation-Minded Wisconsin Citizens: The following are some of the many active organizations which deserve your support and are listed here for your information and as an invitation to join.

Nature Conservancy, Wisconsin Chapter, c/o Mrs. Fan Taylor, 1213 Sweetbriar Rd., Madison, Wisconsin 53705. Membership \$5.00.

Wilderness Society, 729 Fifteenth St., NW, Washington D. C. 20005. Membership \$5.00.

National Parks Association, 1300 New Hampshire Ave., NW, Washington D. C. 20036.

Membership \$5.00.

Sierra Club (John Muir Chapter-Wisconsin), c/o C. C. Werner, 2020 Chamberlain Ave., Madison, Wisconsin. Membership \$9.00.

Citizens Natural Resource Association of Wisconsin,

c/o Carla Kruse, Loganville, Wisconsin. Membership \$5.00.

Audubon Society, 1130 - 5th Ave., New York, N. Y. Membership \$8.50.

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Prof. Iltis was born in Brno, Moravia, Czechoslovakia on April 7, 1925, the son of a botany professor. He acquired his botanical interests from his father, whom he accompanied on many scientific excursions in Europe while growing up.

His family immigrated to Virginia in 1939. Prof. Iltis attended the University of Tennessee, and received his B. A. in 1948. His studies were interrupted from 1944-46 by service with the U. S. Army as intelligence specialist and interrogator. He did his graduate work at Washington University and the Missouri Botanical Garden in St. Louis, and received his M. A. in 1950 and his Ph.D. in botany in 1952.

Prof. Iltis became Instructor of Botany at the University of Arkansas in 1952, and was later promoted to assistant professor. In 1955 he accepted appointment as assistant professor at The University of Wisconsin, and in 1961 became associate professor.

Prof. Iltis has published widely in scientific journals and is a member of several scientific societies. He has a great personal liking for the out-of-doors and is very active in the conservation movement, working especially for permanent preservation of native plant communities. His hobby is photography, and he is noted for his extensive collection of color slides of plant species from several parts of the world. (Photo: UW Photo Lab)

“... . It is imperative to maintain portions of the wilderness untouched, so that a tree will rot where it falls, a waterfall will pour its curve without generating electricity, a trumpeter swan may float on uncontaminated water-- and moderns may at least see what their ancestors knew in their nerves and blood.” --Bernard de Voto