Many rights-of-ways have practiced blanket spraying to control unwanted vegetation. The opportunity to create environmental diversity by encouraging the growth of a variety of low shrubs has been wasted. The transmission lines above would be little affected by low growing species of ornamentals. The 50 million acres of rights-of-ways have great wildlife production potential. There is no need to condemn all woody vegetation as brush. Herbicides, properly used, are an important tool in vegetation maintenance. Rational and intelligent use of herbicides is all that the future asks.

RIGHTS-OF-WAY MAINTENANCE — THE FUTURE

The Public View

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Editor's Note: *No issue is worth discussing unless all sides are presented. While we believe that many readers are familiar with the side of the utilities, less is known about the views of the ecologist and those of the public. We have presented the comments of Mr. Clement as the public view to provide a broader perspective from which to make an opinion. Publication of this article in no way constitutes an endorsement. The National Audubon Society continues to be instrumental in creating increased interest in wildlife preservation and conservation practices.*

THE analysis of trends called for in the title of this discussion calls for recognition of the fact that current projections for supplying electric demands involve some 197,000 extra miles of right-of-way by 1990[1].

However, I am interested in changing these trends because I believe that such growth projections are suicidal. Whatever the ultimate acreage we commit to rights-of-way, we can begin by recognizing that the existing 50,000,000 acres now so committed represent a nationally important open space in a diminishing pool of national open space.

In short, we have already committed to rights-of-way an area the size of New York State, or ten times the size of Connecticut. The revolution in environmental awareness we are witnessing calls for giving this land use much more thoughtful consideration than it has had in the past.

As a wildlife conservation specialist, I call your attention to the fact that these 50,000,000 acres have a great wildlife production potential. Since these are mostly private lands, you need to be sensitive to the fact that wildlife includes several hundred species in addition to the pheasants and quail equated with wildlife in the past. The non-hunting general public is more interested in the scores of bird species that might utilize the rights-of-way than they

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are in pheasants. And the general public doesn't shoot up transformers on high-tension lines.

In addition, in many suburban areas of the northeast there are unexploited opportunities for building good public relations by developing hiking trails along these rights-of-way, something most local conservation commissions would be glad to help with.

You have, however, three problems to overcome before your services will be widely accepted outside the utility industries which have so far been captives of unimaginative vegetation management techniques.

I predict that the utilities will not remain captives very long, however, because they are about to feel the crunch of justifying increasing electric power costs for the first time in their history. This will lead to new budget scrutiny that should favor more economic and more socially sophisticated programs of right-of-way management.

The first broad problem mentioned above is that associated with your credibility as scientists; the second has to do with the acceptability of your tools, the herbicides; and the third involves the acceptability of the effects of your practices in an increasingly sophisticated ecological age.

The question of credibility, like it or not, is entangled in the abuse of herbicides by our military in Vietnam. It is psychologically inevitable that the abusive use of a tool by one group will involve all other users of that tool in the public mind.

The way out of this dilemma is not to accuse the public of emotionalism, but to make sure no one abuses a good tool and that the public is educated to the realities of the case. This is not a passing fancy, because the concern of the American Association for the Advancement of Science dates back all of five years.

The Department of Defense's attempt[2] to answer its critics by having the Midwest Research Institute "assess the ecological effects" of herbicides only made matters worse among knowledgeable audiences because MRI was not competnt to assess ecological effects. As Frank Egler[3] pointed out, this MRI review succeeded mostly in showing that there is very little science in Weed Science.

Let me elaborate on this last point to avoid insulting those of you who consider yourselves scientists. I refer here to the fact that science is necessarily reductionist. Science analyzes environmental reality on a piecemeal basis. This makes the scientist an expert in a very small area of the total reality that must concern us as citizens, and the trouble is that science, having dismembered reality for analytical convenience, is seldom interested in putting things back together again. What is required is an ecological point of view, but very few people have developed such a point of view as yet.

A generation ago Alfred North Whitehead[4] pointed out that a proper profession is "an avocation whose activities are subject to theoretical analysis, and are modified by theoretical conclusion derived from that analysis." We've all been in such a hurry to keep up with the Joneses that we haven't done much philosophizing, which is what theoretical analysis is.

As a result, the Mrak report[5] to the Secretary of Health, Education and Welfare caught everyone by

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surprise, and Theodor D. Sterling[6] pointed out that the questions of 2,4,5-T's toxicity and teratogenicity will not be soon settled because no one has yet put together a satisfactory experimental design to assess the effects of 2,4,5-T at low doses. This is certainly something you practitioners should have insisted the chemical companies do for you.

Perhaps the worst effect of past right-of-way management with herbicides has been the wasted opportunity to create environmental diversity by encouraging the growth of a variety of low shrubs by spot treatment with judicious herbicide applications instead of the wasteful blanket spraying that has been the rule. The electric utilities are even more to blame here for having allowed you to waste company funds that should have gone into environmental protection. This is where the real opportunities exist.

For over a decade, beginning in 1946, Frank E. Egler[7] published a long series of scientfic and popular articles advocating spot control of woody vegetation by 2,4,-D and 2,4,5-T, a methodology completely rationalized in his 1953 Smithsonian Institution Report, "Vegetation Management for Right-of-ways and Roadsides". William A. Niering of the Connecticut Arboretum repeated many of these studies and spoke to early Northeastern Weed Control Conferences about them.

In 1963 Niering and Richard H. Goodwin produced a homeowner's guide, "Creating New Landscapes with Herbicides[8]".

In 1961 the U. S. Forest Service[9] accepted Egler's vegetation management concepts in a publication of its own. And in 1966 the methodology was put into a popular book, THE WILD GARDENER IN THE WILD LANDSCAPE, by Warren G. Kenfield[10].

The crux of my message is that the science of right-of-way management is in print, but that few of you have used it.

I acknowledge that some of you have accepted *some* of these ideas and tried to apply them, with more or less success; but I feel safe in saying that blanket spraying has been the rule. Too many of you have been concerned with "killing brush" rather than manipulating vegetation. The first approach is negative, the second both positive and dynamic.

The times call for working with Nature by adapting our technology to environmental dynamics. Herbicides, properly used, are an ingenious tool for molding the landscape by selecting out those few species that have a tendency to get in the way of growing into overhead wires, or otherwise interfering with our objectives.

There is no need to condemn all woody vegetation as "brush," as too many chemical company advertisements have done. There is no need to oversell herbicids; it is time to use them rationally, as the valuable tool they are when used sparingly and intelligently. This is all the future asks of you and me.

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Grounds Management Society Schedules September Meeting

The Professional Grounds Management Society has announced the dates of their 1972 annual meeting. The Society will meet at the Twin Bridges Marriott Hotel, Washington, D. C., September 13-16. Registration will begin on the morning of the 13th. Members and non-members of the Society and all people interested in gardening and grounds management are urged to attend.