

# TVA's Three Dimensional Program

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**T**HE Tennessee Valley Authority has approximately 17,000 miles of transmission lines that are routed through parts of seven states. About 60 percent of the transmission line right of ways are in areas that are visible to the public.

Brush control is a major and expensive recurring problem connected with the transmission of electric energy in the Tennessee Valley region because of the numerous species of brush and terrain, which varies from swamps and rolling uplands to high plateaus and rugged mountains.

The average annual rainfall is more than 50 inches, and the average annual temperature is above

60° F. These factors contribute to luxuriant growth of vegetation. The right of way width varies depending on the voltage and the number of circuits; however, the vast majority of right of ways are cleared 100 feet wide.

Chemical maintenance on TVA's right of ways began in 1949, and for the next six years hand clearing and power saws were gradually replaced by chemical methods. For two decades herbicides were used almost exclusively to control undesirable brush species on TVA's right of ways.

In addition to the scheduled maintenance program, extensive field testing and screening programs of

new herbicides and combinations of proven herbicides were conducted. During this era of an all-chemical program, TVA developed and used a variety of methods including foliage handgun, automatic nozzle, helicopter, basal, initial stump treatment, and pellet treatment by aerial and ground applications.

Although each of these methods was effective, TVA was never successful in controlling all of the species with any of these methods. It was more or less a process of elimination of species that were susceptible to the herbicides that were used, and fortunately the resistant species that remained on the right of ways were primarily the slow-growing types.

By 1968 these resistant species had reached a height where they were beginning to be a hazard to the line; therefore, we turned our attention to mechanical methods. Another factor which influenced our change was the increasing general anxiety toward the use of herbicides, especially in highly residential areas, croplands, etc.

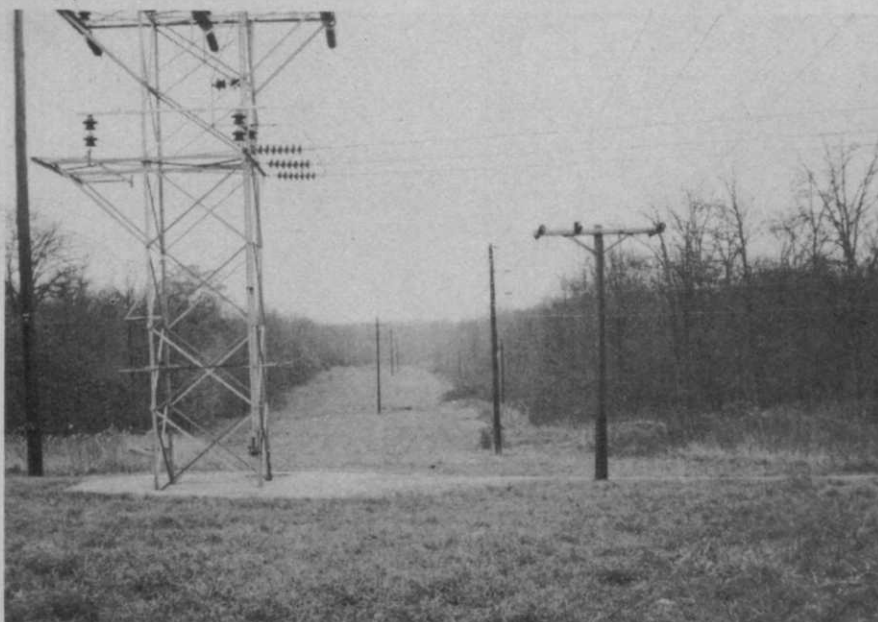
In 1968 TVA began to change from almost exclusively chemical methods to other methods which would not only be more desirable from an environmental standpoint but would also remove the resistant species that had remained on the right of ways in spite of repeated chemical applications.

For the past two years 70 percent of our scheduled maintenance has been by mechanical methods with the greater part of the right of ways being mowed with large rotary-type machines and the remainder shear-cleared. Mechanical methods have been fully accepted by property owners and the general public. The other 30 percent of our scheduled maintenance is by various chemical methods.

Our chemical maintenance is carefully planned, and its use is only in the more remote areas. Herbicides are not used near water sources, crops, or areas exposed to public view. Chemical maintenance is avoided also in areas where "brown-out" would be visible from interstate or U.S. highways or heavily traveled state or county roads. TVA strictly regulates the use of herbicides and complies in all respects with the Department of Health, Education, and Welfare restrictions. Also each year TVA's chemical program is submitted to the President's Working Group on Pesticides for review and approval.

The major portion of ground  
(continued on page 46)

A tractor-powered rotary cutter keeps this TVA power line right-of-way looking like a park.



## TVA'S 3-D PROGRAM from page 14)

chemical maintenance is by the basal method using 2,4,5-T esters and diesel oil mixtures. Tordon 10K pellets are used for spot treatment of small areas and are an excellent tool if their usage is properly planned. Tordon 101 was used in our helicopter spray program until 1972, and it was effective on most of the species with the exception of Ash and Red Oak.

We realized that these resistant

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This area is owned by a large landholder who cooperated in a game food project. One year after seeding, note ground cover of orchard grass, white Dutch clover, Korean lespedeza, brown top millet, scattered soybeans and bicolor lespedeza.

species would eventually present problems in areas not accessible to ground crews, so in 1968 we began testing helicopter spray applications of Tandex. We found that 15.2 pounds active material per acre would eliminate all the species remaining on the right of ways. In 1972 the greater part of our helicopter spraying was with Tandex using 19 pounds of 80-percent active Tandex in 20 gallons of water per acre.

Most of TVA's right of ways are easements which afford TVA the right to build, operate, and maintain transmission lines and the right to clear the right of way and keep it clear of brush, structures, and fire hazards. The property owner may make any use of the land that does not conflict with TVA's easement rights.

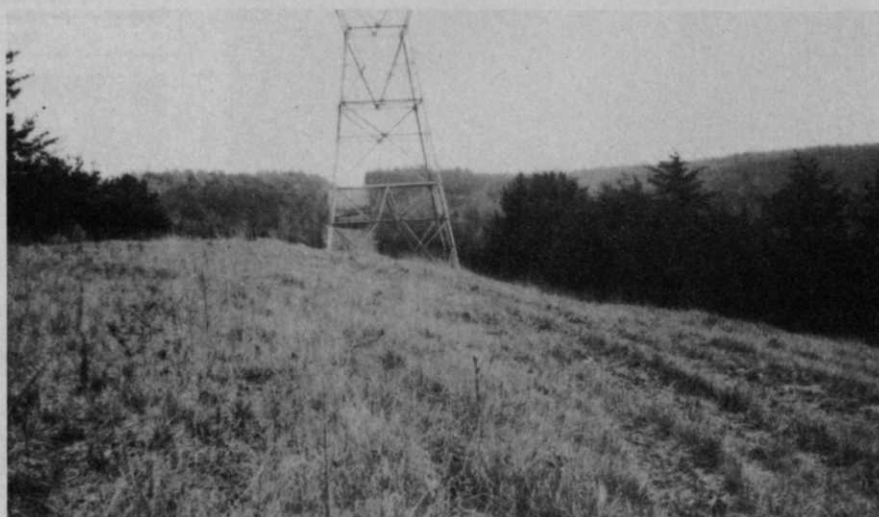
For many years we have encouraged property owners to make

agricultural and other compatible uses of the land; but in 1968 TVA developed cooperative arrangements in which TVA contributes to the clearing, seed bed preparation, fertilizing, and seeding in order to encourage the conversion of brush acres to compatible uses, such as grazing, agricultural crops, wildlife refuges, and recreational areas.

In this cooperative program the property owner may agree to perform certain work, such as clearing, seeding, and fertilizing, and TVA may agree to provide certain materials or labor, depending upon the resources of the property owner and upon the comparable costs to TVA of other right of way management alternatives. The plant mutually agreed upon is then confirmed in a letter agreement signed by the property owner and by TVA.

We believe that after he is stimulated to participate in making

This is Picket State Park near Jamestown, Tenn. where TVA cooperates in a seeding and maintenance program with the state of Tennessee. Resistant species of brush are controlled with Tandex.



compatible use of the right of way across his property, the owner is very likely to continue to use the right of way and that his use will, in effect, relieve TVA of further right of way maintenance across his property.

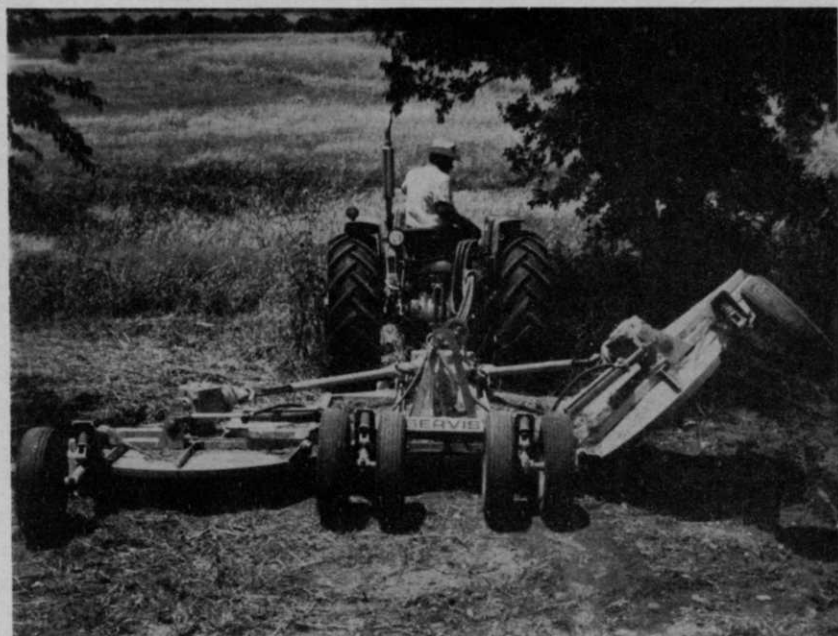
From 1957 until 1967 TVA's initial right of way clearing included stump treatment. However an analysis of the combined cost of stump treatment and "clean-up" operations after construction indicated that the right of ways could be prepared and seeded at approximately the same cost. In 1970 TVA began seeding all initially cleared right of ways where feasible. The areas of steep and rough terrain, which do not readily lend themselves to seeding, will probably be maintained by the use of herbicides.

Adoption of right of way seeding has not only promoted ideal transmission line access and security but has also produced aesthetically attractive right of ways and has assisted TVA's land buyers in negotiating with the property owners for easements. We have been very pleased to observe that many property owners immediately begin to utilize the seeded right of ways for livestock grazing.

Natural screens are left at all interstate and U.S. highways and at heavily traveled state and county roads regardless of the method of right of way maintenance that is used. Screen depths are determined by the locations of the line crossings and the general terrain features. Screen maintenance plans include removal of trees that grow tall enough to endanger the transmission line and encouragement of low-growing trees to take their places. In some cases tree trimming will be necessary, but we shall limit trimming to situations of absolute necessity.

Many of TVA's right of ways across Federal and state lands are being converted to game-management areas. In these cases TVA and the agency involved enter into share-cost arrangements similar to the shared-cost plans previously described between TVA and individual property owners.

We believe that our present right of way maintenance program is providing right of ways that are more attractive, more useful, and better for transmission line access and security than has any previous right of way maintenance program. The present program is good; but we are certain that there are ways to make it better, and we are dedicated to finding them.



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