

RIGHTS-OF-WAY RECLEARING USING THE MARDEN CHOPPER¹

by J. Dwain Bird

Georgia Power Company foresters are having problems with company rights-of-way as are all utilities now. One of our biggest problems is reclearing of transmission line rights-of-way. We often debate whether to spray with herbicides, selectively clear, plant grass, mow or a combination of two or more of these. The method I'm going to discuss is not a "cure-all", but I think that it can be used as an additional tool for reclearing.

Our basic equipment in reclearing rights-of-way for Georgia Power is a Ford 5000 tractor with a bush hog mounted on the rear by a three-point hitch. Almost all of our lines are cleared with this type of equipment. Some tractors have dual wheels for better flotation in swampy areas. Others have mounted a rotary mower, such as the Hydro Ax, up front on larger tractors, but for all practical purposes we are still mowing.

Our rights-of-way are mowed every three years and a helicopter is used to spray swamps, hilly or rocky terrain or any other inaccessible areas. This reclearing is done for about \$8.00 to \$10.00 per acre per year.

When reclearing in this manner we are merely removing three year's growth from the top and nothing is done to the root system. Within one week after bush hogging the resprouting has started again. This is due to a large root system which enables the sprouts to grow faster every year. This is one problem for which we hope to find a solution.

We have experimented on reclearing under a 115 KV line in the Piedmont section near Columbus, Georgia. The right-of-way is 100 feet wide with a 115 KV steel tower and a company telephone line on it. The brush was one of three types: 1) hardwoods (oak and hickory mainly), 2) pine, or 3) a mixture of pine and hardwood.

The height varied from six to 30 feet. Built in 1929, the line had been hand cut or bush hogged when needed since then.

One of the ways we hope to lengthen the reclearing cycle is with the use of a brush chopper. For two years we used a Marden L-5 brush chopper made by Marden Manufacturing Company, Auburndale, Florida. The "L" stands for "light brush" and "5" indicates the width in feet. This chopper is pulled by a John Deere 540 skidder with a dozer blade in front and a winch in the rear. The tires on the skidder are 28 inches wide or swamp tires which aid when cutting in wet areas.

Last year we used a chopper that was 7 feet wide, rather than 5. This extra 2 feet increased production and helped keep cost per acre down. The chopper cuts 3/4 acre for every mile per hour the tractor travels. With this chopper we used a Franklin 175 tractor. At an average speed of 4 mph, we can chop 3 acres per hour.

The chopper is effective because of the arrangement of the blades on the drum. The two drums have a 15° angle between them which makes an "X" pattern on the ground. Each drum has eight 7-inch blades spaced 15 inches apart on the drum. The blades are replaceable, reversible, and may be sharpened easily with a portable grinder. Sharpening takes about 15 minutes and can be done on location. In rocky terrain we sharpened the blades daily, but in sandy soil once a week was sufficient. These blades chop the brush, penetrate the soil, and cut the root system. By cutting the root system we disturb the brush enough to slow down their growth and thereby lengthen the reclearing cycle.

The use of herbicides in inaccessible areas also aids in lengthening the cycle. We added wheels to the chopper to make over-the-road

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towing easier. The drums may be filled with water for added weight. When filled with water the drums weigh around 7000 pounds.

By using a large skidder for pulling the chopper we found we were able to save time by staying on the right-of-way more than if we used a bush hog. The blade in front aids the skidder in crossing deep gullies. First the skidder is unhooked from the chopper, then the blade is used to push dirt into the gully. The skidder can then cross the gully and push dirt in from the other side, return to the chopper, hook up, and continue chopping.

The time required for this is about 15 minutes compared to a bush hog which requires from 30 minutes to 1 hour. This time is necessary to locate a way around the gully, load, transport, and unload the equipment. We can chop brush at speeds up to 15 mph and average more than an acre per hour. We have been able to negotiate a 40 percent grade or steeper and not have any nonproductive time.

To start with we are leaving some stubble that later died. To make the right-of-way look neater, we assigned one man with a bush axe to follow and cut the stubble. This man also applies Tordon 10K pellets in places that would require excessive hand cutting such as around towers and rocky areas.

We also experimented using a single drum pulled by a small tractor but the results were not very good. We found in a pine-hardwood area that two passes with a single drum were not as effective as one pass with dual drums with the 15° angle between them.

We began chopping in January while the hardwoods were dormant and the results are not as good when compared to a pine area. By observing the right-of-way shortly after chopping, we found almost all brush had been chopped and left on the ground to decompose.

My objectives in using this chopper were (1) to achieve at least 4 year's reclearing cycle, (2) to stimulate growth of natural weeds and grasses for improved game habitat, and (3) to decrease stems per acre on the right-of-way. After chopping we have had very little, if any, soil erosion. While not an objective in the beginning, this is a very important factor.

After one growing season we found that grasses had spread and there was very little brush resprouting. As an added benefit the property owner planted a garden on the right-of-way for which he did not request payment. (We have a game patch plan through which we pay property owners up to \$75.00 per acre to convert brush on our rights-of-way to crops or game patches.) We found that one farmer had planted a watermelon field that extended 2 miles down the right-of-way soon after we had chopped. This again was at no cost to Georgia Power. We encourage these plantings as it improves public relations and our cost of reclearing. I find that more acres are converted for similar purposes after chopping than after bush hogging.

After using the chopper on 800 acres the first year (1970) the cost per acre was about the same as bush hogging and the results looked almost the same. But 1 year after chopping (1971) the density of the brush was much less, and grass had filled in the gaps. Wildflowers had room to grow and the brush that did resprout did not grow as fast as similar areas after bush hogging. In the summer of 1972 we helicopter-sprayed the swamps and rock outcrops as usual. In our regular cycle the line would have been recleared the following year (1973). At that time we observed that the line wouldn't have to be recleared until this year (1974). This means control of four or five summer's growth at a cost of approximately \$4.00 per brush-acre per year.

We still have areas that cannot be cut by conventional methods, so we are using herbicides on rock outcrops, swamps, hedgerows, and towers. We were using Tordon 10K pellets but it wasn't offering the control we wanted. Lately we used Hyvar X-L and the results were more desirable.

In conclusion, I feel that the Marden chopper for reclearing is extending the cycle about 1 year at approximately the same cost per acre as bush hogging. There are also some side benefits. The grasses are growing and spreading and the density of regrowth is less. Now we can chop once, wait 4 or 5 years and chop again. Four or 5 years after this second chopping a

strong herbicide such as Hyvar or Tandex may be used to eliminate any large clumps of brush and ideally, this line would be easily maintained.

In closing, I would like to say that we chopped 1000 acres 5 years ago for less than \$18.00 per acre average. This compares to \$18.00 per acre for the cost of bush hogging for a 3-year cycle, or \$6.00 per acre per year. The chopping has lasted 4 years at a cost of \$4.50 per acre per year.

We have problems, but after chopping approximately 1000 acres per year, we have 1) eliminated some stems, 2) reduced the growth rate, 3) stimulated grass growth, and 4) aided in erosion control. We foresee that the future will show further improvement over what we have done in the past.

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NOISE POLLUTION FROM CHIPPERS AND CHAIN SAWS ¹

by Jack Brown

Noise, both in the environment and in the workplace, has long been recognized as a major health hazard, one that can impair not only a person's hearing, but also his physical and mental well-being.

Like air and water pollution, noise is often associated with productive activity. The sounds that offend may be those of transportation, of construction, or of people making their living. Noise, in fact, is one of the few hazards common to almost all industries. What is industrial noise to the operator of a bulldozer is environmental noise to the person who lives near the construction site. Noise pollution in the community and noise creation on the job site are undeniably linked. Noise is a problem for society as a whole.

The world is getting noisier, not quieter, and it will take the combined efforts of many groups: employers, legislators, citizens, to reverse the trend.

The current Occupational Safety and Health Administration standard is 90 dB as the maxi-

mum level for eight hours of noise exposure each day. The OSHA standards should be regarded as a guideline for the present.

Here is the claim of one chipper company. At operating speed, the noise level of the chipper will be less than 80 decibels at 50 feet. This level will be slightly higher when cutting and will depend on the material being chipped. The same hold true on either the 12- or 16-inch chippers.

I asked for information from other companies, manufacturers of both chippers and power saws, but they didn't want to give away any trade secrets concerning noise levels of their machines. Gentlemen, we have come a long way from the hand saw and the cross-cut saw, but it looks like we still have a long way to go to bring the noise of chippers and chain saws to levels acceptable to society.

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