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Cottonwood Recovers From Deer Browsing

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Heavily browsed 1-year-old cottonwoods in a plantation near Greenville, Miss., grew rapidly in their second year, during which weeds were controlled and deer were excluded.

Eastern cottonwoods *(Populus deltoides* Bartr.) planted on good sites along the Mississippi River must be protected from deer browsing during their first year or heavy mortality and short bushy plants will result. But where protection has broken down, what are the growth prospects of the stunted cottonwoods? Without protection from deer and without weed control, we do not know. Observations in one plantation, however, indicate that the plants can recover quickly under second-year cultivation where deer are excluded.

A 100-acre tract on Archer Island near Greenville, Miss., was planted with cottonwood cuttings in February 1970. The site was considered good for the species and, with planned weed control, trees at least 10 feet tall were anticipated at the end of the first growing season. For 2 weeks in May of 1970, however, the lower portions of the area were flooded and the ridges were inaccessible to cultivating equipment. The fence of piled brush that was made to exclude deer was breached in places. Heavy browsing continued through the summer and contributed to high mortality.

In 1971, mortality was replaced by planting new cuttings, openings in the piled brush deer fence were patched, and weeds were controlled by cultivating. In two areas of the field, cottonwoods that had survived the first year were marked with wire pins and aluminum tags, and photographed. The first area contained 10 trees ranging in height from 0.6 to 1.8 feet. Eight newly planted cuttings were also tagged. In the second area, 20 1year-old trees ranging from 2.8 to 6.6 feet tall were similarly tagged. The trees were remeasured a year later in March 1972.

All 10 cottonwood trees in the first area survived that second growing season. Their height growth in that season ranged from 3.0 to 10.1 feet, averaging 7.2 feet. Five of the eight newly planted cuttings survived, and the heights of the trees they produced averaged 6.4 feet. One 1-year-old tree in the second area died. Growth of the other 19 ranged from 6.8 to 13.4 feet and averaged 9.7 feet. Most terminals were beyond the reach of deer. In general, growth of the 1-year-old plants was somewhat better than that of the newly planted cuttings.

Results indicate that cottonwoods, with help, can recover from first-year adversity. From the growth standpoint, there appears to be no advantage to plowing under a heavily browsed stand and replanting it completely. Where mortality has been extremely heavy, of course, plowing under may be the most practical solution in a highly mechanized operation. In the plantation that was observed, it was not possible to separate the value of weed control from that of protection from deer. Past experience has shown, however, that both are necessary.

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Figure 1.—Heavily browsted cottonwoods (top) recovered and grew rapidly during 1 year in which they were protected from deer (bottom).