KANSAS STATE UNIVERSITY | Extension Wildcat District

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When trees move in, grass moves out

Woody plant encroachment is a growing problem. From 1990 to 2019, tree cover increased by more than seventeen million acres across the Great Plains, at a cost of nearly three hundred fifty million tons of forage production.

The most invasive of these encroaching species is the eastern redcedar. Seed dispersal from a *single* cedar covers a two-hundred-yard area beyond the tree, affecting twenty-six acres of grassland.

Controlling redcedar can have a positive economic impact for producers by creating more usable acres. Because redcedar invasion occurs gradually over time, noticing the loss of forage can be hard. Trees less than 2 feet tall have little impact on grass productivity, with forage growing right up to the tree stem. However, as the tree grows, the forage loss becomes more pronounced. As the amount of available forage decreases, grazing intensity needs to be adjusted downward; using fewer animals or a shorter grazing period, or both. Failure to cut grazing pressure as tree cover increases leads to overgrazing. Overgrazed rangelands suffer side effects expensive to correct. There will be a flush of undesirable plants, a loss in water infiltration, heavier soil compaction, exposure to wind and water erosion and an absence of wildlife habitat. These direct factors don't even consider the reduced performance of grazing livestock.

Control of small redcedar trees, less than 6 feet tall, can be economically achieved by prescribed burning as long as there is adequate fine fuel loads and proper burning conditions. Cedars larger than 6 feet are often more difficult to regulate with prescribed burns. Fires only scorch and kill lower branches of big trees because there is insufficient plant material to generate the heat and flame length needed to ignite the uppermost parts of larger trees.

Control of large trees can be achieved by timing prescribed burns with periods of low leaf moisture during dry or drought conditions, but those conditions intensify other risks. Land managers can cause more damage to large cedars by creating ladder fuels. Ladder fuels are flammable plant materials strategically positioned to allow ground fire to climb into the tree canopy. Using a strategy dubbed "cut and stuff," land managers cut smaller redcedar trees and stuff them into the understory of larger trees, thus increasing fire intensity and the overall effectiveness of prescribed burns.

Where fire poses a safety hazard, trees can be handled with more dollars and a dozer or tree clipper. The cost of tree removal can be offset by the financial return from more grazing acres.

Complacency and procrastination regarding woody species encroachment can lead to income loss, not only through decreased stocking rates but also through the ever-rising cost of tree removal.

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