



Prescribed Burn Control of Red Cedar on Rangelands



10 Common Questions and Answers for Ranchers

(Answers compiled from South Dakota NRCS and South Dakota State University Rangeland Management Specialists and Ranchers experienced in prescribed burns to reduce red cedar.)

Q: Why do we see red cedars invade South Dakota?

A: “Cedar trees, or woody encroachment, began as an issue in the southern plains, moving north like a green glacier,” according to Rod Voss, Rangeland Management Specialist with the USDA Natural Resources Conservation Service (NRCS) in Mitchell, SD. Red Cedars are slowly, but steadily moving northward, especially along the Missouri River, and along other South Dakota river corridors.

Pasture encroachment also occurs due to seed spread by wind and birds. Red Cedars make effective shelter belts, or windbreaks to protect ranches and provide shelter for livestock and wildlife. However, unless carefully managed, ranchers may lose 30 to 75 percent of grazing capacity, damaging the resiliency of livestock, birds, and ranches.

Q: When should I consider a prescribed burn to reduce red cedar?

A: “Fire will manage two to three-foot Red Cedars for eight to ten years, and is much more cost-effective than trying to clip them mechanically,” says Sean Kelly, South Dakota State University (SDSU) Extension Range Management Field Specialist at Winner, SD. While fire is still a relatively new management tool in South Dakota, prescribed burns have been used effectively in Texas up through Nebraska to keep red cedar in check. Kelley says fire is a vital tool to help keep pastures, ranches, and cattle resilient.

Q: What type of pasture damage is caused by red cedars?

A: Eastern Red Cedar encroachment is often overlooked because it slowly overtakes pastures. Once established, this juniper species can reduce forage for livestock and wildlife by 75 percent or more. Profits for ranchers decline, upland game animals and grassland birds are displaced, and the highly flammable red cedars increase wildfire risk. Pastures with high amounts of eastern red cedar are also more likely to have erosion issues and reduced soil health due to the displacement of fibrous-rooted grass species.



Eastern red cedar has completely taken over rangeland on some land along the Missouri River in southern South Dakota.



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Q: How do landowners and operators become comfortable with using fire as a management tool?

A: Fire should be respected, not feared. It is a natural means of suppressing invasive plant species, such as Red Cedar, Smooth Bromegrass, and Kentucky Bluegrass, and rejuvenating native grasses. While it is human nature to suppress wildfires and protect trees, Red Cedar removes valuable forage used by cattle and wildlife as it overtakes pastures. A Prescribed Burn Management Plan, the right weather, and trained fire management personnel will reduce risks and fears.

Q: What is the purpose of a Prescribed Burn Management Plan?

A: The main purpose of a prescribed burn management plan is to reduce invasive species safely and effectively.

When formulating the plan, many factors are considered: terrain, fuel loads, the necessary intensity of the fire, and favorable weather conditions to safely and effectively execute the burn plan. SDSU's Kelly advises a plan may take up to a year to develop. Three to four site visits may be necessary to GPS-map the burn area, identify hazards and escape routes, and develop an ignition plan and fuel needs. Locations of gates and water sources, as well as wind and weather must also be carefully considered.

Q: What kind of prep work is involved in getting a pasture ready for a burn?

A: A completed prescribed burn plan will outline needs for a successful and safe burn, along with the purchase of liability insurance. Ranchers usually defer grazing a pasture for one to two years before the burn to allow ignition and ladder fuels to grow, becoming a necessary fuel

source for the burn. An optimum of 4,000 to 5,000 lbs. of biomass per acre can create the needed fuels to accomplish certain burn objectives. Heavy populations of tall (>8 ft.) Red Cedars may require mechanical clipping of some trees, and the placing of clippings into the bases of larger trees to provide additional ladder fuels for a fire to effectively burn these more established trees. Firebreaks should also be planned well in advance of a burn.

Q: What kind of results can be achieved with a burn?

A: Results vary given the size of red cedars and fuel load available for the burn, but experienced ranchers say they have doubled or tripled their grazing capacity following a burn and recovery. Three to four-foot red cedars are much easier to control with a regular burn. As well as preventing further growth and spread of the Eastern Red Cedar prescribed



April 2011 prescribed burn of red cedar invasions along the Missouri River.



Burns of invasive red cedars in 2011 near Chamberlain in Brule County.



burns are also effective tools for controlling invasive grasses, such as Smooth Brome grass and Kentucky Bluegrass. Along with preventing the growth and spread of invasive red cedars, a prescribed burn can also be used to control invasive grasses like smooth brome grass, Kentucky bluegrass and other species.

A spring burn, properly timed, will also improve the renewal of native grasses while removing thatch to help cycle nutrients and improve soil health and water retention. Pheasants and other birds have improved nesting habitat with increasing native grasses like switchgrass and bluestem. Find more information in the SD NRCS Tech Note “Burn Plan Objectives.”

Q: Will a one-time prescribed burn take care of my red cedar problem?

A: Unfortunately, no. Research shows red cedars spread their seeds up to 100 yards away, and in the first four to five years after a burn, cedars are small and manageable. However, if left uncontrolled past eight years, cedar growth is exponential and soon becomes a forest—which becomes expensive and hard to manage. NRCS’s Voss says a good range is five to ten years between burns, depending on regrowth.

Q: What other control tools are available besides burning?

A: Mechanical control (digging, cutting or mowing) of red cedars does eliminate small areas of small trees, but unfortunately, this management tool also spreads seeds that develop into many more trees. For best success, follow mechanical treatment with a prescribed burn. Chemical control can be effective on <1-ft. tall trees, but control declines rapidly on taller trees.

Q: What kind of help can I get to write a plan and conduct a prescribed burn?

A: Your local NRCS office can help link owners and operators with local resources to assist with prescribed burns. For land in Gregory, Charles Mix, Brule and Lyman Counties, the Mid-Missouri River Prescribed Burn Association can provide direct assistance. It was established in 2015, as a South Dakota

rancher-led organization to help landowners develop detailed burn plans and conduct the prescribed burn. Locally led efforts of neighbors helping neighbors and community support is the most successful approach including development of local prescribed burn associations.

For More Information:

[South Dakota Prescribed Burning Plan Example and Template](#)

[Mid-Missouri River Prescribed Burn Association](#)

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[Great Plains Fire Science Exchange](#)

[Integrated Management of Eastern Red cedar](#) (University of Nebraska-Lincoln)



Reclaimed grassland in Gregory County

