

## National Elk Refuge News – June 17, 2009

### *Experimental Project Tests Willow Regeneration Technique*



*Above: Workers assemble logs around newly-planted willows, securing the logs in place to reduce movement. Below: A clump of willows near Flat Creek shows the effects of heavy browsing.*

This past weekend, the banks of Flat Creek saw more activity than just rushing water from recent rains. Representatives from the Wyoming Game & Fish Department, Sportsmen for Fish & Wildlife, the Wyoming Wetlands Society, and Trout Unlimited converged along the creek to begin a small experimental project aimed at restoring willow communities on the National Elk Refuge and improving both fish and bird habitat.

Excessive ungulate browsing over the years has dramatically changed the face of the woody plant communities on the National Elk Refuge. A 2002 study (Dobkin, D. S., F. J. Singer, and W. S. Platts) concluded that although willow habitat is influenced by a number of factors, their decline on the refuge is most directly related

to heavy browsing by ungulates. A historical perspective and research on plant community conditions on the refuge, including effects to cottonwood, willow, and associated shrub communities, was also the basis of the 2004 book *Imperfect Pasture, A Century of Change at the National Elk Refuge in Jackson Hole, Wyoming* by Smith, Cole, and Dobkin. Their research indicates the decline of willows along Flat Creek in the southern portion of the refuge has exceeded 95%.

Saturday's working group planted approximately 150 willow stems along a quarter-mile stretch of Flat Creek. To protect the stems from later being browsed, the crew hauled in logs and placed them among the willows. The haphazard horizontal and vertical arrangement of the logs will make for unstable



footing for ungulates moving through the area, a condition that is expected to deter elk from approaching the young stems. The technique is called "jackstraw," named after the children's game

where a set of straws or thin sticks is dropped in a heap, with each player in turn trying to remove one at a time without disturbing the rest.

The willows, provided by the Wyoming Wetlands Society, are Booth's Willow (*Salix boothii*), a species very palatable to elk. Because it's a preferred browse, the elk will likely be more drawn to the potential food source, thus substantially testing the experimental jackstraw barrier.

The jackstraw technique has been previously used in northern areas of the National Elk Refuge to promote regeneration of aspen. The technique was modified for this project. Whereas the aspen in earlier jackstraw projects were felled and left lying to regenerate on their own, this project including actual underplanting of the willow shoots. In order to improve fish habitat and feeding, the logs

were laid overhanging above Flat Creek, providing an overstory cover for trout. An increase in willows may also benefit nesting and feeding habits of passerine birds (songbirds), though the small scale of this test area will likely not provide substantial benefits to bird habitat.

The three-year trial project is comprised of three small sample areas: underplanted willows with the jackstraw technique; willows planted without jackstraw (control group); and jackstraw in an existing browsed area to measure future use of the site and regeneration. Biologists from the Wyoming Game & Fish Department and National Elk Refuge will take measurements again in September and compare the information with the data recorded this past weekend to test the success of the technique. The study areas are all located north of the bridge utilized by the sleigh ride concession.



*Norma Winder, representing Sportsmen for Fish & Wildlife, plants willows near the creek.*

The cost of the test project was shared among the cooperators, including in-kind labor. The working group incorporated recycling efforts by using logs from an old dismantled hay stackyard located in Buffalo Valley.



*Biologists measured the height of the newly-planted stems. Each willow was tagged so its growth and survival can be later recorded.*