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Wanted: Water Rustlers

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Water Rustlers

At this very moment water rustlers are stealing the state's most valuable resource and squandering it on inedible or unusable growth. Plants with little or no value consume 37 percent of all the rain which falls on Texas each year. They use more water than all the state's cities and industries combined.

They snatch water from streambeds and prevent it from reaching downstream cities and industries. They pilfer water from ponds set aside to sustain cattle or catfish. To satisfy their ravenous desire for moisture, these water rustlers send roots farther and deeper into the soil, robbing water from more beneficial plants.

These plants, called phreatophytes, send their roots into the water table and remove large quantities of water from shallow underground aquifers below or adjacent to the surface water. Most of their water rustling takes place in dense stands of brush growing along streams or reservoirs.

Other water-guzzlers thrive on rangelands where they steal as much available soil moisture as possible, leaving little for more desirable plants such as forage grasses.

Water-wasting plants presently cover more than 85 million acres in Texas. By far the two worst offenders in the state are saltcedar along streams and reservoirs and mesquite on rangeland. Other species include huisache, retama, juniper, live oak, shin oak, cactus, post oak, elm, whitebrush, persimmon, sassafras, Macartney rose, blackjack oak, yaupon, and sagebrush.

"Most Wanted"

Because of the 56 million acres it covers in Texas, mesquite usually heads the "most wanted" list of Texas water rustlers. Mesquite provides shade for livestock, but it causes serious digestive disturbances and even death when horses and cattle eat too many mesquite beans. Mesquite is also a profit robber because it competes strongly with desirable forage for water, nutrients and space. Presently more than 75 percent of the 100 million acres of Texas rangelands produce less than half their potential. Little improvement in grass production can take place on many of these acres, say range scientists, without reducing mesquite and other brush now infesting the rangeland.

Botanists have found that grasses generally require one-third to one-half less water than woody vegetation. Rangeland with good grass cover, therefore, uses less moisture than rangeland filled with mesquite and other woody plants.

Known as a luxury water user, mesquite is a high water user in areas where soil moisture is available, but it can survive on very limited soil moisture during drought or in low rainfall areas. Mesquite's dual root system allows it to thrive in parts of Texas where most plants struggle to survive. Its taproot often penetrates the soil for 16 or more feet while its extensive lateral roots spread as much as 50 feet from its trunk.

Mesquite grows in drainage ways in the desert with less than 6 inches of rainfall annually and in well drained areas of East Texas where rainfall exceeds 30 inches annually. Its geographical range has changed little during the last 150 years in Texas, but its density has increased dramatically. Range scientists disagree over whether the increased density is from heavy livestock grazing or from control of range fires. It is most likely, however, a combination of these factors.

Saltcedar Increase

Saltcedar is the most widely and evenly distributed phreatophyte in Texas. It forms an almost continuous band of vegetation along both sides of many Texas rivers and streams.

Saltcedar in stream beds not only consumes large quantities of water, but also chokes river beds with vegetation and sediment, thereby increasing flooded areas and peak flows. The spread of saltcedar and other high water-using plants along the streams in the western part of the state dictates continued research on the location, exact species and densities of phreatophyes as well as the control of these plants.

Range scientists at Texas A&M University, W. H. Blackburn, R. W. Knight and J. L. Schuster have conducted such research in a study of saltcedar expansion along the Brazos River above Possum Kingdom Dam. Prior to 1940, according to their study of aerial photographs of the river section, saltcedar occurred in scattered stands away from the river channel and adjacent to the mesquite growth. Sandbars separated the small, scattered stands from the river channel.

By 1959, however, saltcedar had spread rapidly from the floodplain into the river channel. Much of the increase was on the sandbars and sandy river channel. Saltcedar

invaded new areas more slowly over the next ten years, but the stand density increased on all areas occupied by saltcedar in the Brazos River. By 1979, saltcedar covered 57 percent of the original Brazos River channel between Seymour and the river's confluence with the Clear Fork River. The saltcedar stands, according to Blackburn, have caused sediment deposition and enlarged the area inundated by flood waters. He says that although control of saltcedar is difficult, effective control could (1) reduce the amount of land inundated by flood water, (2) reduce the sediment trapped in the river bed, and (3) save two to three acre-feet of water for every acre of saltcedar removed from the river bed.

If Texas is to make the best use of the water nature supplies each year, efforts to control the spread of saltcedar, mesquite and other water guzzling plants seems imperative.

Some local organizations and water districts in the state have already established control and management measures as a means of conserving water. Research to improve existing measures and to develop new techniques to control undesirable vegetation continues to be a high priority research area for range scientists.

Additional research could determine the potential locations for control programs and could predict the quantities of water savings expected from control. Mesquite growing on a dry site, for instance, may not consume very much water, therefore control or eradication would not increase soil water significantly. Mesquite eradication in many areas, however, conserves water by holding the water in the soil profile or by making it available for more useful plants. Phreatophyte eradication actually releases water which can be used further downstream.

Any control program, scientists caution, must consider the effects that a change in vegetation would have on wildlife and the aesthetic values in the areas as well as the effects on water supply. Certainly some of the brush infested areas are valuable in their present natural condition for the wildlife habitat they provide, for their contribution to the natural beauty of the countryside, and for their recreational value.

Replacing a large percentage of brush with desirable grasses would, however, benefit the state economically.

Experts with the Texas Department of Water Resources estimate that the largest source of reclaimable water in Texas is that moisture now pilfered by saltcedar, mesquite and their likes. They estimate that more than 10 million acre-feet of water could be saved annually by a well-planned and well-managed brush control program. Such a program would involve eradication of mesquite and saltcedar in 70 percent of all medium and densely infested areas in the state.

Stealing water in this water-short state is a serious crime. For those plants which take water away from more beneficial uses and then waste it, the penalty should be eradication.