Additional Reading

Hays, B. K., M. Wagner, F. Smeins and R. N. Wilkins. 2004. *Restoring native grasslands.* Texas Cooperative Extension Publication, L-5456, The Texas A&M University System, College Station, TX, USA.

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The authors wish to thank Hayden Haucke, Dan Jones and Dr. Matt Wagner of Texas Parks and Wildlife Department and Dr. Billy Higginbotham of Texas A&M University for reviewing and editing this document.

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Management Options for Reducing Yaupon

in the Post Oak Savannah Ecological Region of Texas

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Historical Description of the Post Oak Savannah Ecological Region of Texas

The Post Oak Savannah Ecoregion (POSE) in Texas, roughly 8.5 million acres in size, is a long and relatively narrow region which extends from the Red River in Northeast Texas to Victoria in South Texas.[1] The Pineywoods, Blackland Prairies, Coastal Prairies and South Texas Plains ecoregions bound the POSE to the east, west and south, respectively. Early Anglo settlers described the POSE as being dominated by waist high grasses, while trees were typically large and scattered throughout the savannah.[2] The open grassland savannah appearance was historically maintained by frequent naturally occurring wildfires,[3] allowing early settlers to see deer for several hundred yards across the landscape.[2]

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An increasing number of roads and fences in the POSE during the late 1800s and early 1900s allowed man to better extinguish range fires.[2] Furthermore, livestock that once were free-ranging became confined by fences, resulting in prolonged grazing, which reduced fuel loads, and thus wildfires.[4] These factors and others led to timber and brush encroachment,[5] and a complete canopy closure in the POSE by the 1930s.[2] Today, wooded thickets limit the visibility of observers in the POSE.

Yaupon: A Component of Dense Wooded Thickets

Yaupon is an evergreen native plant and is a multi-stemmed shrub or tree.[6] Yaupon is a slow-growing species but it can attain heights of up to 25 feet if left unchecked.[6] Yaupon grows in a range of environments including low, moist woodlands,[6] dry upland sites[7] and open areas. From March through October, yaupon grows best where soil water is sufficient in sandy soils and permeable subsoils,[8] often forming dense thickets. Fruiting yaupon produces shiny red berries[6] about the size of a pencil eraser, and in open areas will produce high fruit yields during alternate years.[9] Yaupon also reproduces by root and basal crown sprouting.[9]

Benefits

Fruit of yaupon is available from late fall and throughout the winter, and is used by deer, quail, turkey, dove, squirrels, raccoons and songbirds.[10] Deer consume the leaves and twigs of yaupon during the fall and winter, and year-round when browse availability is limited on heavily stocked ranges.[10] In fact, yaupon may be the only common evergreen browse species[10] that contains significant protein for deer maintenance and antler development within certain regions of the POSE. In eastern Texas, yaupon is classified as a first-choice browse species for deer,[11] and is a second-choice browse species in the POSE.[12]

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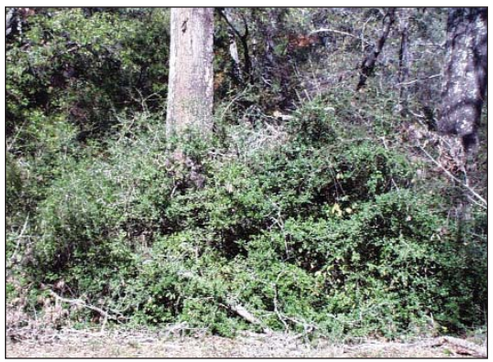
Yaupon is more than just a food source for wildlife. A number of bird species build nests in yaupon, and it also provides protective cover for many vertebrates,[13] including one listed as threatened in Texas, the canebrake (timber) rattlesnake.

Though beneficial in moderation, thick stands of yaupon are detrimental to livestock and most species of wildlife.

Detriments

Given its multi-stemmed characteristic[6] and ability to reproduce from seed, roots and basal crown,[9] yaupon has the tendency to form dense, impenetrable thickets.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In portions of the POSE, yaupon has encroached to the point of reducing or excluding other vegetation (i.e., native grasses and forbs [weeds]) in the understory,[14] by out-competing other plants for sunlight, nutrients and soil moisture.

Achieving diversity in the number of different plants and their growth structures should be a primary aim of wildlife and habitat managers. A reduction in native grasses and forbs is not only detrimental to livestock but may also limit the viability of upland game bird populations. Quail and turkey, for example, depend on the presence of native bunch grasses such as little bluestem as nesting substrate (see TPWD publication entitled "Vegetation of Gus Engeling Wildlife Management Area"). Without the ability to reproduce, populations of these birds will decline. In fact, bobwhite quail populations have declined 75% since 1980, and decreasing quality and quantity (i.e., an increasing density of yaupon) of habitat are the main culprits.[15] If bobwhite quail and eastern wild turkey populations ever thrive in the POSE, it will partially be the result of a large-scale reduction of dense, wall-forming woody species such as yaupon.[16]


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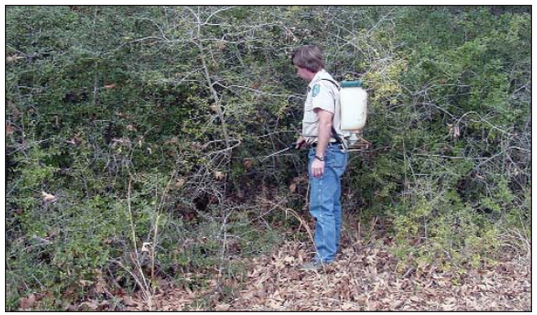
Management Options

Yaupon can be top-killed by burning; however, fuel loads beneath yaupon thickets are usually not sufficient to maintain fires, and plants that are top-killed quickly re-sprout.[14] Also, shredding is not recommended for controlling yaupon because plants will re-sprout from the shredded basal crown. Research conducted from 2001-2003 on the Gus Engeling Wildlife Management Area (Anderson Co., TX), located in the central POSE, indicates that individual plant treatment (IPT) is a viable management option for controlling yaupon.[14]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This method uses diesel only or concentrations of triclopyr (i.e., Garlon 4) herbicide mixed with diesel which is applied to the base of individual plants.[14] Depending on your management objectives, several treatment options are available for optimum results. For example, if your goal is to remove all of the yaupon in an area where you are building a fence, cutting and spraying the stumps with diesel or 5% triclopyr kills 96-100% of yaupon.[14] In this situation, you would cut the plant 6-12 inches above the ground and spray the stumps. If cutting is prohibitive and you do not mind leaving standing dead trees, spraying the base of plants with diesel or 5% triclopyr is effective.[14] If using the spray-only method, the highest yaupon mortality (92%) from diesel application occurs in March, whereas a 5% concentration of triclopyr is most effectively applied in June (96% yaupon mortality). **Overall, the cost* for killing one yaupon plant using the spray-only option is $0.18 and $0.26 when using diesel only and 5% triclopyr, respectively** (*assuming $2.05, $90, and $13, per gallon of diesel, triclopyr, and per labor-hour, respectively).[14] Once yaupon is killed with IPT, native grasses and forbs will respond favorably providing additional forage and nesting habitat. Maintain treated areas with prescribed burns (see TPWD brochure entitled "Prescribed Burning Associations in Texas") every 3-5 years to keep down the cost of management, while producing habitat capable of supporting increased numbers of wildlife and livestock. Follow-up treatment with prescribed burning will suppress sprouting yaupon and consume dead-standing yaupon stems.

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