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Common Treatments Used to Control Vegetation in Wetland and Grassland Habitats on Wildlife Management Areas in the Texas Central Coast

Plant	WMA	Conditions	Treatment(s) and Schedule	Suggested Herbicide ^a
Chinese Tallow Tree	Justin Hurst	Freshwater emergent wetland that is seasonally flooded with mature tallow trees over large area.	Fixed-wing aerial application of herbicide in September. If possible, perform a prescribed burn 4-6 months later. If substantial resprouting occurs the next growing season (i.e., May - August), a 2 nd aerial treatment may be necessary. If desired dead trees may be removed by bull dozer or chainsaw 6 months after second treatment or 18 months after initial treatment. Retreat area with herbicide using ground based spray rig as resprouting occurs.	<i>picloram + 2,4-D^{b,c}</i>
		Freshwater emergent wetland that is seasonally flooded with small resprouts and saplings occurring in high densities. Typically in disturbed areas (e.g., mowed, disked, hog-rooted).	Ground based broadcast application of herbicide in late summer or early fall (August-October). Use a 12-ft boom sprayer attached to tractor PTO. Apply to target species, and allow them to absorb the chemical. Do not mow or disturb treated plants for 6 months.	<i>picloram + 2,4-D^{b,c}</i>
		Freshwater emergent wetland that is seasonally flooded with small resprouts and saplings occurring in low densities. Typically in disturbed areas.	Two methods of individual plant treatments may be performed anytime the plant is actively growing (April-October), although JHWMA usually performs these treatments June through September. Use an ATV and a backpack sprayer. For small plants (less than 4 ft tall) use a high volume foliar treatment. Wet all leaves without excessive dripping.	Foliar treatment: <i>picloram + 2,4-D^{b,c}</i>
	Nannie M. Stringfellow	Forested land containing a mixture of mature tallow trees mixed with native hardwoods or forming the dominate canopy layer over a large area, adjacent to seasonally flooded wetland.	For plants taller than 4 feet, use basal spray method. Spray the bottom 12 inches completely around the trunk of each plant. For plants mature enough to develop rough bark, use a machete to "hack" a portion of the trunk within the bottom 12 inches, then immediately spray around the trunk.	Basal treatment: <i>triclopyr^b</i> mixed with bark penetrating oil
			Aerial application of herbicide in August or September. Clear dead tallow trees starting 6-8 months after chemical herbicide application. Push dead trees into piles to be burned later. Retreat cleared area with herbicide using a ground based spray rig 1 year (August-September) after the initial aerial application to control resprouts from stumps and saplings from germinating seeds. Consider a 3 rd treatment of herbicide the following year.	<i>aminopyralid + 2,4-D^{b,c}</i>
		Grasslands or forested areas with low densities of tallow trees taller than 4 feet.	Use basal spray method on individual trees. Spray the bottom 12 inches completely around the trunk of each tree without excessive runoff . For trees larger than 6 inches in diameter, use a chainsaw to girdle or completely cut down the tree 12-18 inches above the ground, then immediately spray around the trunk and outside cambium of the girdled tree or stump. Retreat area in subsequent years as needed.	<i>triclopyr^b</i> mixed with bark penetrating oil

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Cattail, Bulrush, Phragmites, or Cutgrass	Justin Hurst	Freshwater emergent wetlands containing large dense stands of cattail or bulrush that greatly reducing open water and plant diversity.	In spring the impoundments are dried. Once the soil is hard enough to support equipment a tractor is used to mow the area. Disk the area approximately 2 weeks after mowing. Cross-disk the area approximately 2 weeks after the initial disking treatment to thoroughly break up roots and rhizomes. The impoundment is left dry throughout the summer. In August, disk the impoundment again, and allow to flood. This method may need to be repeated a second year for severe cases.	NA
		Small stands of cattail or bulrush in freshwater impoundments or seasonal freshwater wetlands.	There are two approaches for this situation. Herbicide can be applied using a ground rig if the soil is firm enough or mounted in an airboat if area is still flooded. The alternate approach uses mechanical methods that require firm soil in freshwater. The area is either roller chopped or disked. Timing of this mechanical treatment depends on the situation. It is often used to create small pockets of open water for hunting.	<i>glyphosate</i>
	Guadalupe Delta	Dense stands over a large wetland area.	Treat dense stands by applying herbicide with a fixed-wing aircraft. Apply herbicide in late summer or early fall when plants are actively growing and in full bloom. Then use a prescribed burn in winter to reduce dead plants and introduce cattle to graze any new sprouting plants. If located in an area where a managed drawdown is possible, mowing and disking of plants can help as well. Multiple treatments may be necessary to maintain control.	<i>glyphosate</i> or 2,4-D ^c
	Mad Island	Dense stands over a large wetland area.	Treat dense stands by applying herbicide with a fixed-wing aircraft. Apply herbicide when plants are actively growing and in full bloom. Then use a prescribed burn in winter to reduce dead plants and introduce cattle to graze any new sprouting plants. If located in an area where a managed drawdown is possible, mowing and disking of plants can help as well. Multiple treatments may be necessary to maintain control.	<i>glyphosate</i>
Large dense stands in impoundments where water levels can be easily manipulated.		In spring the impoundments are dried. Once the soil is hard enough to support equipment the area is disked with a tractor. Cross-disk the area approximately 2 weeks after the initial disking treatment to thoroughly break up roots and rhizomes. The impoundment is left dry throughout the summer. In August, disk again then allow to flood. This method may need to be repeated a second year for severe cases.	NA	
Water Hyacinth	Guadalupe Delta	Plants widely dispersed over a large or small area.	Treat infestation of plants by applying herbicide with a fixed-wing aircraft in large areas or a hand-held nozzle and high-pressure tank sprayer for small areas. Apply herbicide when target plants are actively growing and at or beyond the early bloom stage of growth.	<i>glyphosate</i> or 2,4-D ^c
Spiny Aster, Wolfweed	Guadalupe Delta	Dense stands over large, open floodplain area.	Shred plants and let new growth reach 10-12 inches in height with good leaf coverage before herbicide application in spring. In areas where controlled flooding can occur, shredding and disking prior to flooding for an extended period can help control plants. Multiple treatments may be necessary to maintain control.	<i>glyphosate</i> or 2,4-D ^c

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Sesbania, Rattlebox	Mad Island	Large dense stands in impoundments where water levels can be easily manipulated.	In spring the impoundments are dried. Once the soil is hard enough to support equipment the area is disked with a tractor. Cross-disk the area approximately 2 weeks after the initial disking treatment to thoroughly break up roots and rhizomes. The impoundment is left dry throughout the summer. In August, disk the impoundment again, and allow to flood. This method may need to be repeated a second year for severe cases.	NA
Baccharis	Justin Hurst & Mad Island	Areas of varying densities usually found in Gulf cordgrass flats adjacent to coastal marsh.	Prescribed burns are used to control Baccharis densities. A 4-year burn cycle prevents Baccharis from reaching heights greater than 3 feet. Winter fires will suppress Baccharis and prevent its spread, thus maintaining its current density. Grazing cattle on freshly burned Baccharis will help in reduce its density as cattle will feed on the fresh resprouting Baccharis. However, the success of cattle grazing often depends on the lack of other preferred forage. It may take several treatments to reduce Baccharis densities using winter burns and cattle grazing. Summer fires are usually more successful at reducing density of Baccharis.	NA
Macartney Rose	D. R. Wintermann	Individual plants on levees and high sites within seasonal wetland areas and adjacent grassland.	Treat individual plants with herbicide using a high-pressure spray rig to wet all foliage without excessive dripping . Apply herbicide in spring or fall when fresh flowers are not abundant. Repeat annually as necessary. Wait 1 year to treat plants disturbed from mowing as herbicide may not be as effective under these conditions. Use prescribed burns every 3-4 years for control.	<i>picloram</i> + 2,4-D mixed with <i>triclopyr</i> ^{b,c}
Huisache	Justin Hurst	Low density young or mature plants in grassland habitat that may be seasonally flooded in some years.	Use an individual plant treatment. Basal spray the bottom 12 inches completely around the trunk in late September through mid October. Mature plants with rough bark should have the trunk "hacked" with a machete immediately prior to spraying.	<i>aminopyralid</i> + <i>clopyralid</i> ^b
		High density of mature plants that were mowed repeatedly over several years, creating multi-stemmed shrubs with extensive root systems occurring in grassland habitat that may be seasonally flooded in some years.	Older plants are difficult to kill and will require several treatments. Broadcast herbicide over huisache in mid September through mid October, either aerially or with a ground rig depending on shrub height. Avoid herbicide application when plants are drought stressed, as there will not be enough leaf area to absorb the chemical. Wait 12 months and assess shrub mortality. If shrub mortality is unsatisfactory, another application may be necessary. Conduct a prescribed burn approximately 24 months after the 1 st herbicide application.	<i>aminopyralid</i> + <i>clopyralid</i> ^b
	Guadalupe Delta	Mature plants dispersed over a large area that has not been repeatedly disturbed (cut or mowed).	Treat area by removing trees with a bulldozer and put debris in piles to be burned later. Treating area when good soil moisture is present aids in removal of tree and root system. Disk treated area when clearing is complete. In summer, when plants resprout and mature leaves are present, individual plants can be treated with chemical herbicide.	<i>triclopyr</i> ^b

^a Always consult herbicide product labels and apply using recommended rates and application methods. Some herbicide products are restricted and can only be purchased and applied by a licensed applicator.

^b The suggested herbicide cannot be applied in or near flooded habitat. Apply when area is dry or consult a chemical herbicide specialist for alternative products that can be applied over water.

^c Application of herbicide products containing 2,4-D are restricted in certain counties at specific times of the year. Consult Texas Department of Agriculture for more details.