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ON THE WATER

Texas Aquatic Plant Management Society Newsletter

This issue:

A Message From the President

WESTON JORDAN

Dear TAPMS Members, Friends, and Colleagues,
I hope this message finds you well and you are enjoying the summer season.
I wanted to provide you all with a summer update on TAPMS.

Aquatic Insights Workshop — A Success in Waco!
On June 13th, we hosted our first Aquatic Insights Workshop in Waco, TX, and we're thrilled with the turnout and engagement from participants across the state.
I want to extend a heartfelt thank you to our presenters, board of directors, and attendees for making the day such a success. Your energy and collaboration continue to drive the mission of TAPMS forward.

Save the Date: 2025 TAPMS & MidSouth Joint Annual Conference
Registration is open for the Joint Annual Conference with MidSouth APMS, November 3–6, 2025 in Hot Springs, Arkansas.
This will be a fantastic opportunity to network across regions, share research, and learn from experts!
Registration can be found on MidSouth Aquatic Plant Management Society's website, or this link below:
MSAPMS-TAPMS 2025 Annual Conference

A Fresh Look: Our New TAPMS Logo
We are proud to unveil the new official logo of the Texas Aquatic Plant Management Society! This design represents not only our identity as a society but also our commitment to stewardship, science, and the aquatic ecosystems we serve.
You'll begin to see this logo on our materials, website, social channels, and events moving forward, so share it widely!

Thank you for your continued support and dedication to aquatic plant management in Texas. I look forward to seeing many of you this fall in Hot Springs!

Registration for the Joint TAPMS & MidSouth APMS in Hot Springs, AR is open!

"Effective management of such species requires frequent monitoring..."

JIM CALDWELL

Photo Credit: EAA

Managing Undesirable Aquatic Vegetation in Wetland Mitigation Projects

By Jim Caldwell
Regulatory Specialist-Ecologist
Resource Environmental Solutions (RES)

Efforts to manage the prevalence of invasive and other undesirable aquatic plant species play a vital role in all phases of compensatory wetland mitigation projects. From reducing or removing plant coverage during the pre-construction phase to intercepting emergence of new populations in a project's final year of monitoring before transition to long-term management, maintenance of native aquatic vegetation communities is at the forefront of planning and management efforts.

Compensatory mitigation serves to offset unavoidable adverse impacts to aquatic resources under the jurisdiction of Section 404 of the Clean Water Act; known as "Waters of the United States" (WOTUS). The United States Army Corps of Engineers acts as the primary regulating federal agency over compensatory WOTUS mitigation.

MITIGATION SITE
JIM CALDWELL

During a project's planning and review process, a set of measurable success criteria are agreed upon to serve as performance standards for achievement through the maintenance and monitoring period. In addition to performance standards relating to restoration of hydrology, hydric soils, and native hydrophytic plant communities, performance standards for wetland mitigation commonly include maximum thresholds for areal coverage of invasive plant species to ensure that restored vegetation communities achieve and maintain their targeted state to completely offset, or mitigate for, wetland functions and values lost.

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Managing Undesirable Aquatic Vegetation in Wetland Mitigation Projects- cont'd

The historic Texas Coastal Prairie region has experienced widespread agricultural, urban, and industrial development over the last two centuries. With this transition from historic prairie and wetland habitats came an influx of exotic species from around the world which have taken hold in present-day vegetation communities region wide. Sites chosen for wetland mitigation often contain heavy infestations of exotic plant species at baseline; species that can outcompete keystone native plants relied upon by invertebrates, birds, and other wildlife. Effective management of such species requires frequent monitoring to identify emerging populations, prompt implementation of treatment or removal methods to control further expansion, and follow-up monitoring and management efforts to maintain restored conditions.

HERBICIDE APPLICATION AT MITIGATION SITE:RES

At RES, EPA-approved herbicides labeled for use on aquatic sites serve as a cost-effective tool for long-term management of undesirable species on wetland mitigation sites. Chemical compounds function by interrupting normal biological processes and pathways within the plant, thereby suppressing growth or inducing mortality. Herbicides can either be non-selective with a broad spectrum of plant species controlled, or selective for certain targeted species. Applications can be made to individual targeted plants as a spot-treatment or applied as a broadcast application to large areas. Volunteer invasive species commonly targeted on coastal prairie wetland mitigation sites include alligatorweed, torpedo grass, Chinese tallow, Macartney rose, and deep-rooted sedge. Herbicide active ingredients often employed include triclopyr amine, triclopyr choline, aquatic glyphosate, imazapyr, and imazamox. Components of herbicide products labeled for use on aquatic sites will degrade in water and not persist long-term, thereby reducing risk of harm to aquatic habitats and ecosystems. Herbicide applications are made when growth stages and weather conditions are favorable for herbicide efficacy. Wind direction and speed are monitored to prevent drift onto desirable vegetation or neighboring properties.

Herbicides are effectively used to manage nuisance vegetation across large scales, but long-term control of stubborn species often requires multiple applications, alternative herbicides, and/or integrated management strategies. Through such efforts, mitigation performance standards corresponding to invasive plant coverage can be achieved and maintained.

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Taming the Giant Reed: Managing Arundo donax

By Alexa Salinas and Dr. Angela England
Texas Parks and Wildlife

Arundo donax, commonly called giant reed or carrizo cane, is among the most destructive invasive plants in Texas riparian zones. Resembling bamboo and capable of reaching 30 feet in height, it was introduced to the Americas over 200 years ago and has since spread throughout the southern United States and Mexico. Although its plume-like seedheads look similar to those of Phragmites australis (common reed), they produce no viable seed. Instead, new stands arise when fragments of cane and underground rhizomes break off and are carried into moist habitats by water flow or mowers.

Ecologically, Arundo's dense monocultures outcompete native vegetation, reducing plant, invertebrate, and bird biodiversity and weakening the system's ability to recover from disturbance. The displacement of deep-rooted native riparian species accelerates bank erosion and degrades water quality. By narrowing and simplifying channel structure, Arundo further diminishes instream habitat diversity and exposes juvenile fish that rely on complex refuge. Its straw-like root network also uptakes large volumes of water to sustain rapid growth, significantly lowering downstream flow. Thick stands block recreational access for anglers, swimmers, and other river users. They provide cover for other invasives species such as Norway rats, feral hogs, nutria, and cattle ticks. Finally, high concentrations of volatile compounds found in Arundo make it exceptionally flammable, enabling wildfires to jump riparian corridors that would otherwise serve as natural firebreaks and fueling rapid post-fire regrowth.

"The displacement of deep-rooted native riparian species accelerates bank erosion and degrades water quality."

Salinas and England

Photo Credit: TPWD


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Taming the Giant Reed: Managing Arundo donax - cont'd

In 2015, the Texas Parks and Wildlife Department (TPWD) established the Healthy Creeks Initiative (HCI), a science-driven, multi-partner program dedicated to restoring riparian corridors by targeting Arundo donax and other invasive plant species. Supported by the Hill Country Alliance (HCA), The Nature Conservancy, local river authorities, and others, HCI grew out of the Nueces River Authority's "Pull Kill Plant" Arundo control efforts led by the late Sky Lewey. Today, the initiative extends across 8 counties, 5 watersheds, and 300 miles of river, with permission from 382 landowners to access, survey, and treat invasive species on their properties. HCI's mission is fourfold: equip landowners with best-management practices for invasive removal; implement and monitor Arundo treatments on enrolled properties; advise on seeding, planting, and broader habitat-restoration activities; and survey additional invasive species to shape future management strategies.

THE PROPERTY ON THE TOP HAS RECEIVED TWO ROUNDS OF TREATMENT THROUGH HCI. SMALL RESPROUTS REQUIRE RETREATMENT. THE ONE ON THE BOTTOM HAS NEVER BEEN TREATED.

At the heart of the initiative is an Integrated Pest Management (IPM) strategy that blends biological, mechanical, cultural, and chemical approaches. The most effective method for controlling Arundo has proven to be the targeted application of aquatic-approved herbicides, typically administered from mid-summer through fall. These treatments are carried out by licensed and insured professionals, with all costs covered by TPWD.

Taming the Giant Reed: Managing Arundo donax - cont'd

Each herbicide application typically kills about 75% of the Arundo, with follow-up treatments required for full eradication. Arundo begins browning from the base within 3–4 weeks of spraying, and large patches may take multiple years to fully eliminate. Landowners are encouraged to leave dead Arundo canes standing, as they can help shield emerging native plants from being browsed by hungry deer. This natural barrier offers a simple yet effective way to support native vegetation recovery.

DEMONSTRATION AREA AT FRANTZEN PARK IN FREDERICKSBURG, TX BEFORE HERBICIDE TREATMENT. ARUNDO WAS TRAPPING SEDIMENT, NARROWING THE STREAM CHANNEL, AND CHANGING THE NATURAL FLOW.

While biological controls, such as stingless wasps, have shown limited success, early manual removal can be effective. If you spot young Arundo plants before their roots are well established, pulling them up can help prevent spread. However, once Arundo becomes established, mechanical methods like mowing or dozing often worsen the problem. These techniques can scatter cane fragments or rhizomes, which readily take root in moist environments and form new colonies.

This year, the HCI is expanding its efforts to protect native streamside habitats by managing two additional invasive species—both types of elephant ear plants, *Colocasia esculenta* (taro) and *Xanthosoma sagittifolium* (arrowleaf)—on participating properties. Like Arundo, these aggressive plants can form dense stands that displace the diverse native vegetation essential for healthy fish and wildlife communities. For more information on Arundo management or to get involved in local efforts, visit http://tpwd.texas.gov/healthycreeks or contact Dr. Angela England at Angela.England@tpwd.texas.gov.


THE COMPLETE FLEET FOR AQUATIC WEED CONTROL
UPL's Aquatic herbicides and algaecides provide versatile and effective control against nuisance invasive plants and algae, giving native plants the freedom to thrive. Our complete list of products are designed to control weeds and algae in all types of waterbodies, including ponds, lakes, streams, rivers and more.
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Grazing for Good: Managing Riparian Plants with Grazing to Protect and Improve Watersheds

By Leanne Wiley
Program Specialist III
Texas A&M AgriLife Extension

Healthy riparian zones—those green corridors of vegetation along rivers, streams, and creeks—are vital to Texas' water resources and working lands. These transitional areas between upland and aquatic ecosystems filter pollutants, stabilize streambanks, reduce erosion, provide wildlife habitat, and support biodiversity. With all the great benefits, it's surprising to see areas that are mismanaged or just overlooked leading to degraded ecosystem, increased flooding and poor water quality.

Photo Credit: Leanne Wiley

The latest Texas Land Trends by Texas A&M Natural Resources Institute states that grazing lands still make up 72% of working lands (a constantly decreasing number) in Texas. More ranchers are interested in appropriate grazing management, including in and around riparian areas. Effective riparian plant management can help landowners and communities protect these valuable ecosystems. Many practices can be implemented, and grazing can have a positive effect if carefully managed.

> "Cattle are more likely to have extended stays while sheep and goats visit for a drink, they typically avoid water."
>
> LEANNE WILEY

Switchgrass, Prairie Moon Nursery

Grazing for Good - cont'd

Although grazing livestock are seen typically in the upland feature of the watershed, they are commonly found hidden under the shade of the riparian areas taking a cool dip (thermal regulation) or getting a sip (hydration). Cattle are more likely to have extended stays while sheep and goats visit for a drink, they typically avoid water. Cattle can consume 2-3% of their body weight per day. It's crucial to note this and be aware that timing, duration and frequency greatly impact sustainability grazing a riparian area. In addition, knowing which plants improves the streambanks and which are most desirable by grazing livestock.

Switchgrass (*Panicum virgatum*) (the stabilizer grass!)
A native warm-season grass with deep, fibrous roots and superior strength for holding soil on a streambank and filter runoff. It grows well near water or in drier locations. Switchgrass provides cover for wildlife and desirable forage for cattle.

Eastern Gamagrass (*Tripsacum dactyloides*)
This robust grass grows in moist riparian soils, forming clumps that slow water, trap sediment, and suppress invasive weeds. It can produce large quantities of forage and is highly palatability to cattle but can be easily overgrazed. Consider enforcing a restful rotation program and if already overgrazing provide some grazing rest and allow this plant to make a notable comeback.


EASTERN GAMMA GRASS, RYAN O'HANLON


INLAND SEAOATS, RYAN O'HANLON


FRAGRANT FLATSEDGE, RYAN O'HANLON

Inland Sea Oats (*Chasmanthium latifolium*)
This native grass thrives in shaded streambanks and floodplains. Sea Oats can expand rapidly in a couple years and can aid in reducing soil erosion. It provides good forage to livestock but can not sustain long-term heavy grazing.Its attractive seed heads adds visual to riparian areas. It is poor forage for deer but fair fawning cover.

Flat or Nut Sedge (*Cyperus* spp.)
Several sedge species thrive in moist soils along Texas riparian areas. While aggressive if unmanaged and possibly invasive, they can be riparian colonizers, and indicators of stored soil moisture, but it's root system is not ideal for long term stability. While not palatable to cattle, some producers say they will graze it when it's immature. Cattle trampling while grazing other desirables could impact sedges.

Grazing for Good - cont'd

Cherokee Sedge (*Carex cherokeensis*)
Cherokee Sedge is a clump-forming native sedge well-suited to shaded, moist riparian zones. A more fine-textured foliage but fibrous root system holds soils, reducing erosion. An identifying characteristic is its drooping seedhead. Cherokee sedge is a desirable livestock forage and is most sustainable with careful grazing and regular rest periods.

Buttonbush (*Cephalanthus occidentalis*)
This native shrub also a strong rooted plant and is common in wet riparian soils and pond edges. It produces distinctive white balls that attract pollinators and birds. Buttonbush will grow under the shade of larger trees filling out a riparian buffer strip. It is palatable and can be heavily browsed by deer or livestock impacting the root mass and reducing its reproduction.

CHEROKEE SEDGE, PEGGY ROMFH

More information is available in print, online, or at in-person courses. A few recommended materials are "Your Remarkable Riparian", and AgriLife's Riparian Restoration on Farms and Ranches in Texas.The Texas Riparian and Stream Ecosystem Education program by Texas Water Resources institute is available online or in-person, please contact the program for upcoming workshops.

The Natural Resources Conservation Service offers conservation planning and financial help through programs like EQIP and CRP, which can cover native planting, erosion control, fencing, and more. Local Soil and Water Conservation Districts connect landowners with cost-share funds, watershed plans, and local partners. Texas Parks and Wildlife Department provides habitat management advice for riparian and aquatic wildlife.