

CENTERPIECE

Diverse army works to save vital remaining prairie

By KATHRYN EASTBURN The Daily News Feb 16, 2019



Tim O'Connell, preservation steward for the Texas City Prairie Preserve, talks Wednesday, Feb. 14, at a site in the preserve where marsh grasses have filled in the area between the breakwater marsh protects the shoreline from erosion and provides habitat for fish, crabs, birds and other wildlife. JENNIFER REYNOLDS/The Daily News

The coastal prairie once covered 6 million acres of Texas, including most of the land mass that's now Galveston County. Less than 1 percent of that prairie remains. Within it, prairie wetlands are embedded that filter pollutants, store and discharge groundwater, provide flood mitigation for surrounding areas and serve as habitat to thousands of species of wildlife.

These coastal prairies and the marshes they flow into are the wild lands of this part of North America, edging up to bayous, inlets and bays that wind their way to the Gulf of Mexico.

Before they were prairies, they were vast riverbeds, a reminder of the power of rivers to expand beyond their banks and claim the areas surrounding them.

The rivers have been tamed with dams and the prairie plowed over to make way for croplands, human habitation, roads and all manner of industry. Levees and water-processing plants hold back and clean water, but that doesn't mean we can thrive or survive with no remaining wetlands, either those contained in the coastal prairie or the marshes along the shore.

Wetlands scientists, like John Jacob of Texas Community Watershed Partners, say we can still save many essential thousands of acres of these lands, but if we don't do it now it will soon be too late. We will have lost too much to recover.

Around Galveston County, an army of conservationists, private landowners, land trusts, scientists, state and federal government agencies and nonprofit organizations have made it their business to preserve remaining coastal prairie wherever they can, to restore marsh along eroded shorelines, to save habitat for wildlife, to protect wetlands and water quality and, in the process, enhance human life.

A LIVING LABORATORY

The Texas City Prairie Preserve was a working ranch until 1995. It was heavily grazed and segments of its grasslands were decimated. The land also housed 12 working oil wells at one time, none of them functioning now. The owner, Mobil Oil Co., gave 2,303 acres valued at \$2.5 million to the Nature

Conservancy in 1995 and the conservancy turned that land into the preserve, a big patch of coastal prairie that borders state Highway 146 and Moses Lake.

Since then, the land has been managed and restored as closely as possible to its wild state by battling invasive species with controlled burns and targeted removals, taking out roads that crisscrossed the interior and restoring the property's eroded shorelines.

Creating the preserve returned this small prairie to its original purpose of serving as a natural buffer during storms and hurricanes, absorbing and dispersing water from storm surges and floods, filtering the fresh water that flows into Galveston Bay and providing nurseries and habitat for fish, crabs, birds and other wildlife.

It also serves as a living laboratory, said the preserve's project director for prairie management and restoration. Originally from Iowa, Aaron Tjelmeland came to Texas for graduate school and ended up here, developing prairie grass seed mixes designed to grow in the coastal Texas region.

"We're exporting methods to surrounding communities, developing specific blends of native grass seeds and determining optimal planting rates as well as good planting practices," Tjelmeland said. The Nature Conservancy hopes to expand the acreage it owns to reintroduce and cultivate native grasses in the coastal region and is working on several projects in Houston now, creating small pocket prairies.

Maneuvering an all-terrain, four-seater motorized mule across the preserve, Tjelmeland said Keurig Dr Pepper Inc. donated the vehicle to the Nature Conservancy to thank it for working to keep water clean.

"They gotta have it to make their product," Tjelmeland said, raising his big hand and an invisible bottle to Dr Pepper.

Tjelmeland swings the mule around a Jeep in which two women with binoculars barely look up. They are volunteers who come out to count birds on Wednesdays. Throughout the years, 289 different bird species have been documented here. Other wildlife include snapping turtles, leopard frogs, swamp rabbits, mice, raccoons, coyotes, river otters and even mink.

The mule pulls up to an undulating shoreline that extends for about 1.5 miles along the choppy waters of the lake. In the distance, oil and gas industry smokestacks line the horizon.

Tim O'Connell, a conservancy preservation steward, describes the process of restoring marsh grasses along the shoreline of the preserve where, previously, metal bulkheads were the only thing separating the land from the water. One small section of bulkhead remains in view, corroding and rusting. Beyond it, the water is murky and muddy, constantly beating against the land barrier.

Over the past 12 years, with the help of many partner organizations including the Galveston Bay Foundation, the Texas Department of Fish and Wildlife and hundreds of volunteers, O'Connell has overseen the construction of a living shoreline at the preserve — a marsh of smooth cordgrass planted between the prairie and an offshore breakwater. The new marsh serves as a nursery for fish and, in some spots, a predator-free nesting area for waterfowl.

O'Connell points to a section of the restored shoreline in its early phases, spotted with tall, pointed grass plugs planted just last year. A breakwater made of large chunks of rock, carried in by barge, stretches parallel to the shore, just beyond the grass plugs. The rocks absorb the wave energy of the wind-swept open water and keep it from being stirred up and cloudy on the other side, providing the plants more sunlight. The grasses

extend from the breakwater landward to a spot where it's obvious the land previously broke off from erosion, the exposed edge of the prairie.

"Around Moses Lake, we were losing 3 to 4 feet of land a year," O'Connell said. "The water was just busting off pieces of upland prairie."

As the new marsh grasses mature and reproduce, filling in the area between the breakwater and the prairie, sediment that washes over settles onto the grass beds, gradually accreting and raising the surface area of the marsh. Areas of shoreline planted 10 years ago have filled in and are now gently sloping upward to meet the edge of the upland prairie.

The lost shoreline at the preserve happened largely because of subsidence between 1930 and 1960, sinking land as much as 10 to 12 feet in the Texas City area, the result of excessive groundwater extraction. Subsidence has leveled off since then, but drowned marshes and eroded shorelines like this one have to be built back to meet the challenge of rising tides, frequent flooding and rising sea level related to climate change. Otherwise, land mass will continually be lost to erosion.

"I think we're a little ahead of the curve with sea level rise," O'Connell said.

O'Connell and Tjelmeland see preserves like this one, situated in the middle of encroaching development, as laboratories to test prairie and marsh restoration in a real-world setting.

"These properties face many of the same issues that local cities, conservation groups and landowners face, and are a model for how prairies and marshlands are an effective form of green infrastructure that can help protect communities, especially in the face of flooding," O'Connell said.

THE MOST ENDANGERED HABITAT

On Galveston Island, just a little over a decade ago, a huge section of the island's last remaining coastal prairie almost became a luxury housing development and marina. Instead, it became a significant prairie and marsh preserve, thanks to the work of Karla Klay and the nonprofit organization she founded, Artist Boat.

Klay, who came to Galveston in the late 1990s to study coastal ornithology at Texas A&M University, was raised in the Florida Keys. Her father was a shark biologist.

Klay started Artist Boat in 2003 with the intention of connecting people to Gulf Coast environments through exploring nature and creating art. Her mission expanded to preserving land about a decade ago, just after Hurricane Ike devastated the island.

Artist Boat Coastal Heritage Preserve, the land her organization has accumulated, now comprises 669 acres being restored and protected through purchases totaling \$9.5 million, funded by grants and private donations, and \$2 million in land donations for mitigation.

Klay had the foresight after Hurricane Ike and the economic downturn of 2008 to approach Marquette Land Development LLC of Chicago, the would-be developer of the luxury housing development, and negotiate a sale at prices more affordable than pre-hurricane and pre-recession.

Then she scrambled to pull together enough money to make it happen.

"Marquette was a willing seller and a great partner," Klay said. Klay and Artist Boat competed for federal and state grants to raise the bulk of the money for four large purchases.

On a January afternoon, the prairie was mostly brown, but Klay was careful to point out visible green stripes, indicating the dune-swale complexes within the prairie, where water collects along small ripples in the land. Of the 669 acres Artist Boat has acquired, about half are wetlands.

The largest part of the preserve lies between Lafitte's Cove and Spanish Grant subdivisions, north of Stewart Road, extending as far as Galveston Bay in spots, and can be recognized by fence posts, painted royal purple on top, bordering each tract.

"It's all biodiversity from the knee down," Klay said, sweeping a hand out toward a large stretch of prairie. "I call it the foot-high forest."

To restore part of the land, Artist Boat staff and volunteers have hauled out some 8,000 pounds of debris and work constantly at eradicating invasive species and getting rid of fire ants. The land is monitored regularly.

The education mission of Artist Boat is strong and growing, serving some 16,000 students over the past year through eco-art programs and kayak adventure programs designed to teach children about marine and coastal ecosystems. An outdoor classroom in a section just north of Spanish Grant is one of the few structures on the preserve.

"We need quick bridges to learning about our environment," Klay said. "There's more to think about than the color green. Kids need to know about this and adults need to get busy."

Klay said she's determined to continue growing the preserve by purchasing 700 remaining acres, including the remaining Marquette tracts and a proposed development called Anchor Bay, to preserve them in perpetuity. At today's prices, that will cost more than \$28 million.

The goal is to attain 1,400 contiguous acres from beach to bay.

"Saving the wetlands is not just about mitigation banks and what developers do. It's really about what all of us do," Klay said. "It's about patching together these little hand-made wildernesses."

Artist Boat hopes, ultimately, to establish the first nationally significant environmental education center on the Gulf Coast, according to a prospectus for potential investors. Programs conducted at the preserve would include kayaking and hiking adventures, science and art labs, overnight camping, service learning and "high-level engagement" with nature.

"The tracts proposed for acquisition are particularly important for conservation because of the presence of freshwater marshes," the prospectus explained. "Isolated freshwater marshes like the ones found on this property are not currently considered to fall under the jurisdiction of the U.S. Army Corps of Engineers and, as a result, they suffer the highest rates of loss of any habitat type in the region."

For Klay, preserving a large, existing swath of coastal prairie extending from Galveston Bay to the Gulf is more than a dream; it's a mission half-accomplished.

"What we really saved, and want to continue to save, the coastal prairie, is the most endangered habitat in North America."

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Low lands, high stakes

A six-part series — Low Lands, High Stakes — explores challenges and opportunities facing the wetland environment in Galveston County in context of historic flooding, sea rise associated with climate change, a booming population and threatened withdrawal of wetlands protections by the federal government.

Jan. 27: Part 1, The Burden of Flat Land, examines the historic loss of wetlands in this area and why now is the time to look closely at the purpose wetlands serve in Galveston County.

Feb. 3: Part 2, The Ebb and Flow Government Oversight, examines provisions of the federal Clean Water Act designed to protect wetlands; mitigation banking as a wetlands protection strategy; and perspectives from area scientists and government workers on the shortcomings and advantages of the system in place.

Feb.10: Part 3, A Legal Swamp, looks at legal efforts surrounding wetlands protection including U.S. Supreme Court decisions, Texas cases over the past decade and cases being filed by area activists in the face of the Trump administration's proposed changes to wetland protection.

Today: Part 4, A Wealth of Wetland Riches, explores wetland restoration and preservation efforts in Galveston County, what they have accomplished and the future of wetland protection.

Feb. 24: Part 5, Local Governments in the Gap, will examine the role of state and Galveston County municipalities in protecting wetlands while supporting development; what local governments can do to assist private efforts to protect wetlands; and why they should be involved.

March 3: Part 6, The Future is With Us Now, will explore creative strategies, including public policy, business and citizens' efforts aimed at a future that equally values economic development and protecting wetlands.

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