· CITE 93 ·

ENVIRONMENTAL ISSUES

LEARN THE SONG OF OUR LAND

× IF YOU BELIEVE THE HOUSTON REGION IS A FLAT FEATURELESS LANDSCAPE OF LIMITED NATURAL BEAUTY, THINK AGAIN. NOW IS THE TIME TO PRESERVE THE REMARKABLY COMPLEX ECOSYSTEMS THAT RING OUR CITY.

BY JOHN JACOB

CATEGORIES OF HABITAT

Coastal Prairie: High Integrity

Prairies that have never been land leveled and, for the most part, have never been plowed. The full measure of landscape diversity is present.

Coastal Prairie: Moderate Integrity

Areas have experienced either no land leveling, but significant disturbance in terms of oil fields, very low-density development and the like, or moderate land leveling with no other complications.

Upland Forests

Undifferentiated forests, either hardwoods or pines, but are commonly coastal flatwood hardwood forests.

Bottomland Forests

Undifferentiated bottomland forests, mainly forests in 100-year floodplains.

Salt Marshes

Tidally influenced wetlands including marsh hay cordgrass and smooth cordgrass.

If we are to protect the world's multitude of places and creatures, then we must know them, not just conceptually but imaginatively as well. They must be pictured in the mind and in memory; they must be known with affection, "by heart," so that in seeing or remembering them the heart may be said to sing, to make a music peculiar to its recognition of each particular place or creature that it knows well. WENDELL BERRY, "LIFE IS A MIRACLE," 2001

Real sustainability has to be about *place*. It can't just be about consuming less. It's not even really about "the planet." It's about *us*, right here where we are. Is *this* place a sustainable place? Could our grandchildren or their grandchildren continue to live here and thrive? Sure, we can buy organic "sustainable" strawberries from the San Joaquin Valley now, but when it becomes too expensive to ship those strawberries 1,800 miles to Houston, will there be sustainable produce grown right here that we can buy? Just exactly what *could* we buy locally if skyrocketing fuel prices meant we would have to live off the land? Off our land, that is. What is there here that could sustain us?

But we need more than farmland to sustain us. We also need natural areas, both prairies and forests, to make sure we have enough clean air to breathe and enough clean water for both us and the rest of creation that depends on the waterways in this area. The farmlands, prairies, and forests that surround us can be thought of as our "agroecological" infrastructure. We can't do much without the "gray" infrastructure we are all familiar with—bridges, buildings, power lines, the Internet—but in the long run, we can't do *anything* at all without the green or agroecological infrastructure that sustains us and provides us with clean air and water. Unfortunately, we are about to lose the very best of what is left in terms of both farmland and natural areas, all in the next 30 to 50 years. We will consume at least 1,000 square miles of forests, farms, and prairies in this period if we continue building out in the same pattern and at the same density as we do today. What does this say about our long-term prospects for sustainability?

Incredibly, we do have a fair amount of agroecological infrastructure remaining in relatively good condition, even now, after all that sprawl has destroyed. There are still some large, very significant expanses of farmland and natural areas across the eight-county region centered on Houston. Our city could be a thriving, sustainable metropolis hundreds of years from now, with a vibrant and productive hinterland providing real, place-based sustainability for the foreseeable future. But our window of opportunity for putting that future into place is fast closing.

THE STORY OF OUR LAND

Place-based sustainability begins with understanding the makeup of our particular place. We have to learn the "song" of our place, as Wendell Berry suggests. But first we have to learn the notes of the song, the pieces that make up our landscape.

Just a few years ago, my grandson excitedly told me about a new program in his elementary school: "recycling for the rainforest." I was happy that he was learning about recycling, but for the rainforest? What about the coastal flatwoods of Texas? What about the coastal prairies? How is it that our children are learning about rainforests before they learn about *our* land? I argue below that landscapes on the upper Gulf Coast of Texas are extremely diverse and worthy of study by our best minds. It is a shameful travesty that our children are not learning about their own place on the planet. But the reality is that we have very few scientists studying the ecologies of our prairies or our forests. For so long, the Houston region has just been about developers making money and getting out. It is starting to be more than that, but we have so far to go.

-FIG. 1-

-FIG. 2-

-FIG. 3-

-FIG. 4-

PHOTOS COURTESY ANDREW SIPOOZ, GOOGLE EARTH, AND CLIFF MEINHARDT

-FIG. 5-

-FIG. 6-

COASTAL PRAIRIE: HIGH INTEGRITY

OPPOSITE

FIG. 1 *Shaped by wind, the small round white "dots" are "pimple mounds." The elongated and circular potholes (darker areas) are ancient river channel scar remnants.*

FIG. 2 *A spider lily rises from a prairie pothole.*

FIG. 3 *Abundant wildflowers bloom at the Deer Park Prairie.*

FIG. 4 *A prairie pothole at the edge of a woodland. A tightly packed mix of habitats is characteristic of many of our natural areas.*

UPLAND FORESTS

FIG. 5 *For some the soaring canopy of pines and hardwoods evoke a spiritual connection to nature.*

FIG. 6 *A native palmetto in the understory of an intact forest is a moment of small-scale beauty.*

PHOTOS BY RON BILLINGS

The surface of the entire upper Gulf Coast of Texas is made up of sediments laid down by rivers. This is the most important point to remember about how this land came to be. Whether the land today is a bottomland that is currently flooded by rivers, or whether the land is higher and no longer flooded, it was all laid down by rivers and was once part of a floodplain. All of these sediments began their trip to the Gulf high in the Rockies eons ago.

The most recent of the sediments that make up our land, the bottomlands along our rivers, bear very distinct scars left by the rivers that laid them down. Looking at an aerial view of any present-day floodplain, it is easy to see that the river has moved around on this surface: there are oxbow lakes, for example, which are easily recognized as former channels of today's river. Over time, the river might even have cut across the same area several times, leaving a rather complex record of channel scars.

Present-day floodplains are only a few thousand years old at most, and some might only be about 500 to 1,000 years old. In contrast, the higher surfaces that most of us live on are at least 30,000 to 50,000 years old, with areas that might be well over 100,000 years old. These higher landscapes started out looking like the Trinity River bottomlands, but a lot could happen over the next 50,000 to 100,000 years. The wind blew, the buffalo roamed and wallowed, and the mastodons stomped across the landscape, reshaping an already complex landscape in new and remarkable ways.

"Potholes" and "pimple mounds" are some of the more interesting features that have evolved on this older landscape. A"prairie pothole and pimple mound complex"consists of depressions which are remnants of ancient river channels, and are about a foot or so below the surrounding landscape, while the pimple mounds are small hillocks (a few hundred square feet to an acre in size), likely wind-blown features formed in dryer eras in the past, and are no higher than about two feet above the surrounding landscape. The overall difference in elevation is not much in this landscape, almost invisible in fact to the untrained eye, but the short-range complexity of this landscape is unsurpassed by just about any landscape in the world. In a matter of inches or a few feet, one can change from an environment inundated and saturated most of the year (the deeper potholes) to a semi-arid micro-environment (the convex, water-shedding surfaces of the pimple mounds), with every gradation in between. This reworked ancient landscape, a palimpsest of these many geomorphic processes writing over each other, is in a sense a "chance melody" wrought by nature—an irreplaceable mosaic of short-range complexity that supports an extremely diverse set of flora and fauna. A simplified diagram can hardly do this landscape justice. The many gradations of lightness and darkness on aerial photos do a better job of revealing the true complexity.

Ancient channel scars are found on paleo meander ridges of the ancestral Brazos and other rivers. These ridges are about 10 feet above the surrounding landscape, and anywhere from one to four miles across. These ridges represent the last courses of these ancestral rivers on this landscape, essentially the rivers and their natural levees.

Potholes and pimple mounds are found both on the prairies and under the forests, but because they are easier to see on the prairie, we mainly call these landscapes *prairie* pothole-pimple mound complexes. It turns out that there are not many forests left on these kinds of landscapes. Just a few patches near Lake Houston are about all that remain.

THE CURSE OF FLAT LAND

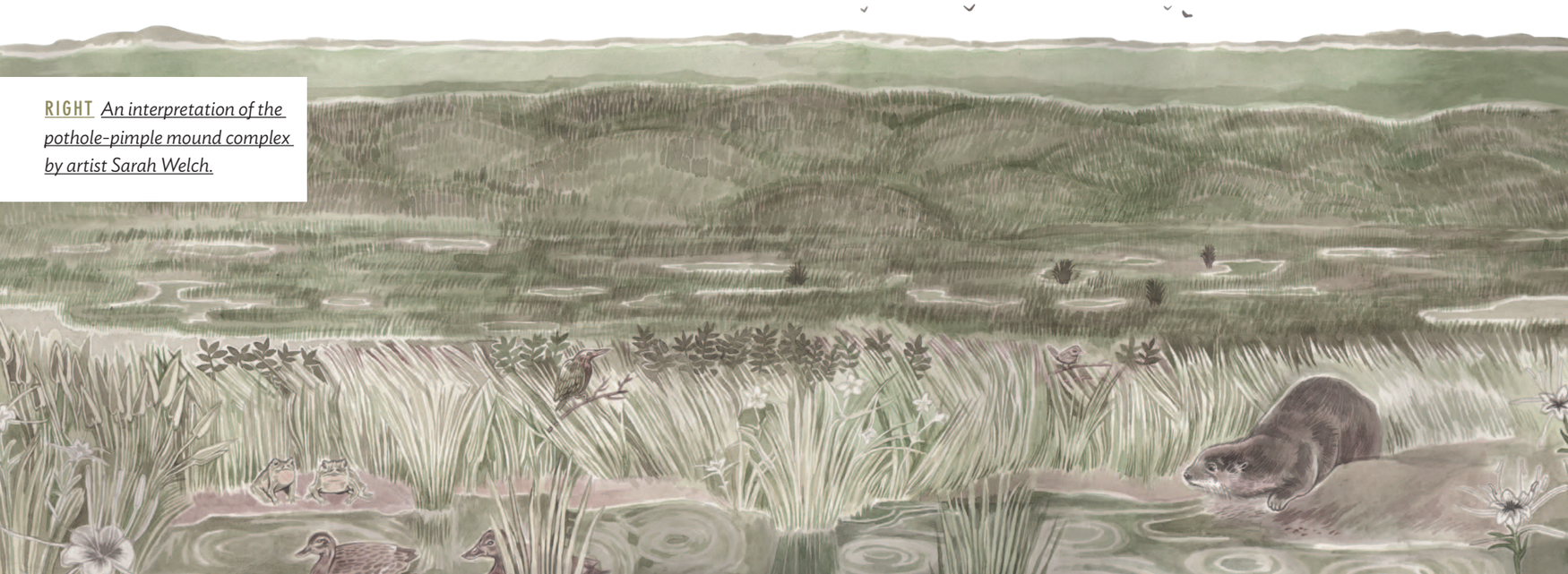
The Houston region does not have any grand mountain vistas—no Garden of the Gods, no Yosemite. We do, however, have a landscape of unparalleled diversity. But it is a diversity you can't see unless you have been initiated. To motorists passing by at 70 miles an hour, there is absolutely nothing there.

So who mourns at the loss of this landscape? Not very many so far. It is difficult to rally folks to protect a landscape they can't really see, much less understand. There is a beauty on the prairie—it is the beauty of the ocean, the beauty of wide open spaces—but that's difficult to appreciate when the prairie has been reduced to a small patch. Trees have a better time of it: most people can still appreciate the beauty of a small mott (grove) of trees. But for both trees and prairies, we need large unbroken expanses to guarantee functioning ecosystems. Ten-acre patches do not an ecosystem make.

WHAT WE HAVE TODAY—THE ECOLOGIC MAP

NATURAL HABITAT

The vast prairies and forests that greeted the first Anglo settlers almost 200 years ago are long gone, but they are far from *all* gone. Some very large and significant patches remain, but the threat of losing these surviving areas to development is now very high. Some of the very best of what's left on the entire coast is in the urban periphery, an area not yet reached by either sprawl nor intensive row-crop agriculture. This is precisely the area now most under threat in the next few decades.



RIGHT *An interpretation of the pothole-pimple mound complex by artist Sarah Welch.*