Midsummer Night's Dreams

Patterns of Life in an Urban Sea

Tempe, Arizona

At midnight, the heat radiates from the cement driveway under my feet. I stand in the white moonlight gazing up at twinkling stars. The dark outline of tall trees and rooftops forms a stage-drop where the city's glow breaks the blackness of night.

This is my summer ritual—stargazing in my pajamas. I' wake up through some consciousness that tells my snoozing brain I can open the doors and go out to a cool eighty-five degrees.

It's summertime in Phoenix, Arizona. Temperatures soar over 100 degrees. Yesterday was a crisp 116. In June, the heat island effect kicks into gear. Buildings and streets, especially asphalt surfaces, absorb the day's solar energy, then release it slowly throughout the night. Even though the sun goes down, the built environment is still hot. The hum of air conditioners is a constant auditory feature of summertime.

Here in Tempe, there is humidity from the old irrigation system still in use. Once a week, residents open aqueduct valves in their yards to allow water to flow. Encircled by raised berms, the water slowly soaks deep into the ground. This is an old way of life that came about to support large trees and grass lawns at a time when Tempe was a tiny agricultural town in the early 1900s.

People moved to Tempe to enjoy the dry, mild climate, and to escape allergy-causing vegetation. However, the eastern trees and plants people brought with them (mulberry and olive, for example)—and their love of grass—resulted in Phoenix becoming the asthma capital of the West.

Nearby Arizona State University is our land-grant university. My little house sits behind a friend's large art studio. It is a plum of a house, and only a short walk or bike ride to my workplace at the Center for Environmental Studies at ASU. In the hot afternoons, I swim in the Olympic-sized pool at the University along with bronzed co-eds and swim-team athletes. Then I retreat to my little house in the shade to write or read.

The house is surrounded by tall, drooping pines and a grass lawn that is maintained by groundskeepers. Old Tempe is a remnant of an outdated way of life in the desert: just add water and cultivate an oasis. This was what made sense to residents and developers when water was plentiful, and when temperatures were cooler and summers only four months long.

Over the last fifty years, the average low temperature has increased by ten degrees. The city's growth is exponential now. Since 1990, the population has increased by fifty-nine percent! This is unsustainable—even though, theoretically, there is much more desert to develop across the expansive valley floor.

City leaders are currently examining critical decisions Phoenix needs to make to sustain a livable future. How and what they decide to do to shape the city's growth will be an important example for metropolitan communities across the West.

In 1998, Arizona State University was awarded a major grant from the National Science Foundation (NSF) to act as an urban study site for a Long Term Ecological Research Study (LTER). Phoenix and Baltimore were chosen as the two cities—very different cities—to be studied. In Phoenix, we are growing outward by the process of sprawl, while Baltimore is an older city that has filled in its borders, and now grows inward and upward.

The NSF wants to know what is happening to the ecology of living communities in cities, since nearly eighty percent of the world's population now lives in or near an urban area. The study seeks to answer questions that indicate the health of ecosystem functions in urban areas. How are native animals and plants coping? How quickly is organic matter turned over—decomposed to become soil, elements in the air, and water again? What is happening to water and air quality?

The study began a twenty-year investigation into these factors along with human behavior patterns, such as where we choose to live and how we use water. Landscape affects human activity as much as humans impact landscape. These forces work together to shape urban environments.

There is loss of indigenous biodiversity on the mountains within Phoenix, which are surrounded by an urban sea of human activity. These habitats are essentially like islands, hosting small populations of isolated species that cannot relocate—and have consequently small gene pools. If prolonged, inbreeding weakens the biological fitness of species, and scientists believe this is happening to many types of plants and animals within the urban perimeters of Phoenix.

One of the most harmful assaults on native species diversity is the introduction of non-native plants and animals. Successful non-natives have no natural predators in the new environment; thus, they can out-compete native species for habitat and resources. European starlings are a good example. So is one species of tree—the tamarisk—which has reduced the numbers of native trees along Arizona's already-vulnerable riparian green belts.

For thousands of years, these riparian habitats supported the greatest species diversity in our state. Beavers and otters abounded in rivers and streams, and megafauna like deer found sustenance there. Today, one has to visit a museum or zoo to know what native species Arizona once supported. Many residents here are unaware of the difference between a native and a non-native due to the importing of exotic species. The cultural memory of the original landscape is being lost with each generation.

In many ways, what Phoenix does over the next decade to slow and manage growth, to clean up and use water more responsibly, will be rich learning opportunities for cities across the Southwest facing similar issues. A profound shift is happening in the West.

Tucson, Arizona

I now reside in Tucson, Arizona—120 miles south of Phoenix and 2,000 feet higher in elevation. We are called the Upland Desert. Tucson currently follows the Sonoran Desert Conservation Plan—a multi-agency and community-based initiative—to shape its growth. Although Tucson has its own sprawl (it has reached nearly one million people in the metro area), it is still known for its open space and residential landscaping that creates desert corridors. Native Tucsonans are desperately trying to hold onto this legacy.

Since I moved here seven years ago, I can still enjoy a cool summer night at the decent hour of seven o'clock, when desert soils release the heat of the day. This is the natural desert rhythm that Phoenix lost by asphalting over much of the valley floor.

On my morning walks in central Tucson, I see coveys of Gamble's quail running wild through alleyways and yards. Many people pride themselves on landscaping with desert flora, like the graceful desert willow with its lavender-throated blossoms and the uniquely shaped cacti placed like pieces of sculpture. People tend gardens where they grow heirloom vegetables native to the Americas that thrive with little water. On the nearby Tohono O'Odham reservation, the people still dry farm using monsoon rains to grow corn, beans, and melons.

Striking the balance between natural communities and human communities makes sense. We are in a new period of understanding the intimate and fine mesh of nature's interrelationships that maintain us physically, economically, emotionally, and spiritually.

It is an exciting time for Arizona; one filled with great potential to rework our plan for human habitation. How do we balance quality of life with quality of environment? How do we develop a way of life that is in sync with the natural communities that make this land such a fabulous place to live and work?

Gazing at the twinkling night sky above me in the Old Pueblo, I'm in awe to think that the Hohokam people once lay outside in the cool, moon-splashed night, just like me but thousands of years before I was born.

A gentle, cool breeze moves across the land as I doze off in my chaise lounge in an American desert town in my pajamas on a soft summer's night under the heavens.