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In a Biologist's Heart, Facts and Feelings

By CHRISTOPHER NORMENT

SIX desert animals that I've recently studied in the Death Valley area depend on the same desert waters that people desire, and so they are rare and mostly threatened. And because these animals—a salamander, four types of pupfish, and a toad—are small and live in a tough and inaccessible part of the world, they also are relatively obscure and carry little of the innate appeal associated with “charismatic megavertebrates” such as gray wolves, polar bears, California condors, giant pandas, and whooping cranes. And yet, in their own right, these creatures are as stunning and compelling as wolves and bears, and as worthy of our love and concern.

And because these animals are rare, and mostly isolated from their nearest kin, they also may teach us something crucial about what it is like to be alone in the world, and how to transcend this loneliness. I know that this has been true for me: Living with these rare desert creatures and coming to know their stories has helped heal some of the emotional wounds that I have carried with me out of my childhood.

To fully understand any story, you must begin with its setting—in this case the spare and aching Great Basin country running east from the Sierra Nevada, a land that rises and falls in an endless iteration of mountains and valleys. A march of desert, 200,000 square miles of it, back-lit crenelated hills stretching north and south: a touch of trees in the high places, a drift of luminous clouds across empty territory, of lonely highways through deep and lovely valleys. A threadbare blanket of ragged shrubs draped across the land, the scent of dust and sage in the afternoon air, two or five or 10 inches of rain and snow per year. Heat and light in the summer, cold and light in the winter, the waters of the land in pockets and pools, always rationed and rare, running onto saltpan playas, disappearing into the

great empty basins, draining into the gesso ground, alkaline wastes glistening beneath the noonday sun, held beneath the ragged strike and dip of the lost ranges.

I am drawn to this spare country, to its broad and treeless valleys, to the mountains rising from those valleys, to the long views of empty space and the longer views of time that rise from the land like the mountains themselves. I am drawn to the tiny, scattered archipelagos of watered grace, to those refuges where life has crawled, wriggled, drifted, flown, and swam as it sought shelter from the heat and drought.

For me there is something emotionally compelling about these islands of life, about the ways in which their inhabitants have become isolated from others of their kind. I am drawn to the refugees, the species that have hitched their fates inexorably—and now perilously—to the fate of the waters.

These waters pool in *tinajas* and cobbled creeks and wind their way through cottonwoods and willows before disappearing into sand and bedrock and huge empty basins, or before disappearing into another sort of emptiness as humans take what they believe they need and deserve. There are bulldozers and pipelines, pumps and wells, ditches and dams, lawns and lakes, fields of alfalfa and fields of houses, and the thousands and millions of people living a few miles or a few hundred miles away from the waters. We demand a tribute more than a tithe, seize what we will, and until recently have lived as though the waters were limitless, the opportunities for growth as vast and endless as the farthest horizon seen from the tallest peaks of the Basin and Range country.

ALTHOUGH I focus on a handful of animals, their stories encompass much of what is seductive about the country in which they live, the many reasons we should care about all rare

and endangered species, and what I call the “aesthetics of evolution”: its beauty, drama, contingencies, and magnificence.

In some cases their stories also tell of the difficult, frustrating, sad, and seemingly inexorable conflict between human appetite and animal (or plant) need. Finally, they offer up compelling stories about the complex borderland where science and art, the personal and the collective, intersect. There are the animals themselves, and perhaps they should be enough, but there are also the ways in which these creatures speak to me, of my own life and yearning, and of the sensual and sensuous world that is enhanced by, but lies partly beyond, the realm of facts and direct observation.

And yet I am a scientist, and so appreciate numbers and the inductive logic of science. It is in the particulars of this world, whether in data or poetry, that I find reason and resonance, beauty and desire. The architect Ludwig Mies van der Rohe, channeling Flaubert, once said that “God is in the details.” I'd add that beauty and understanding also are “in the details.”

I have watched the salamanders, toads, and pupfish and when I could, held them in my hands and measured them. My experiences were mostly focused on observation and being out on the land rather than on formal scientific research, but I also have read the technical papers and taken what stories I could from their numbers. I believe, passionately, that it is possible to use the particulars of metabolic rates, premaxillary bones, dehydration tolerance, osmotic regulation, mitochondrial DNA, and growth rates—mostly the adaptive outcomes of evolutionary processes—to help craft an aesthetic and ethical argument for the conservation and appreciation (or say it: love) of rare and beleaguered species everywhere. For as Ivan Illich wrote, “To consider what is appropriate or fitting in a certain place leads one

directly into reflection on beauty and goodness.”

In *Paterson* the poet William Carlos Williams makes the startling statement, “No ideas but in things.” It is a long way from the landscape of Williams's urban New Jersey to the Basin and Range country of Death Valley, but his argument is also my argument: It is in the particulars of place and being that we will take our meaning, the goodness of our lives, and the lives of others. And paradoxically we are brought into the larger world through particular places, and the ideas and emotions that they propagate.

The concluding lines of Kenneth Rexroth's “Toward an Organic Philosophy” quote the 19th-century physicist and glaciologist John Tyndall, who, in *The Glaciers of the Alps, and Mountaineering in 1861*, wrote about the Chamouni region of the French Alps:

“Thus,” says Tyndall, “the concerns of this little place Are changed and fashioned by the obliquity of the earth's axis, The chain of dependence which runs through creation, And links the roll of a planet alike with the interests Of marmots and men.”

“The interests of marmots and men” or of pupfish and people: linked by place and need and history, all of us spinning into an uncertain future with the roll of the planet, traveling through what has been, and I hope will continue to be, the fullness of time. ■

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