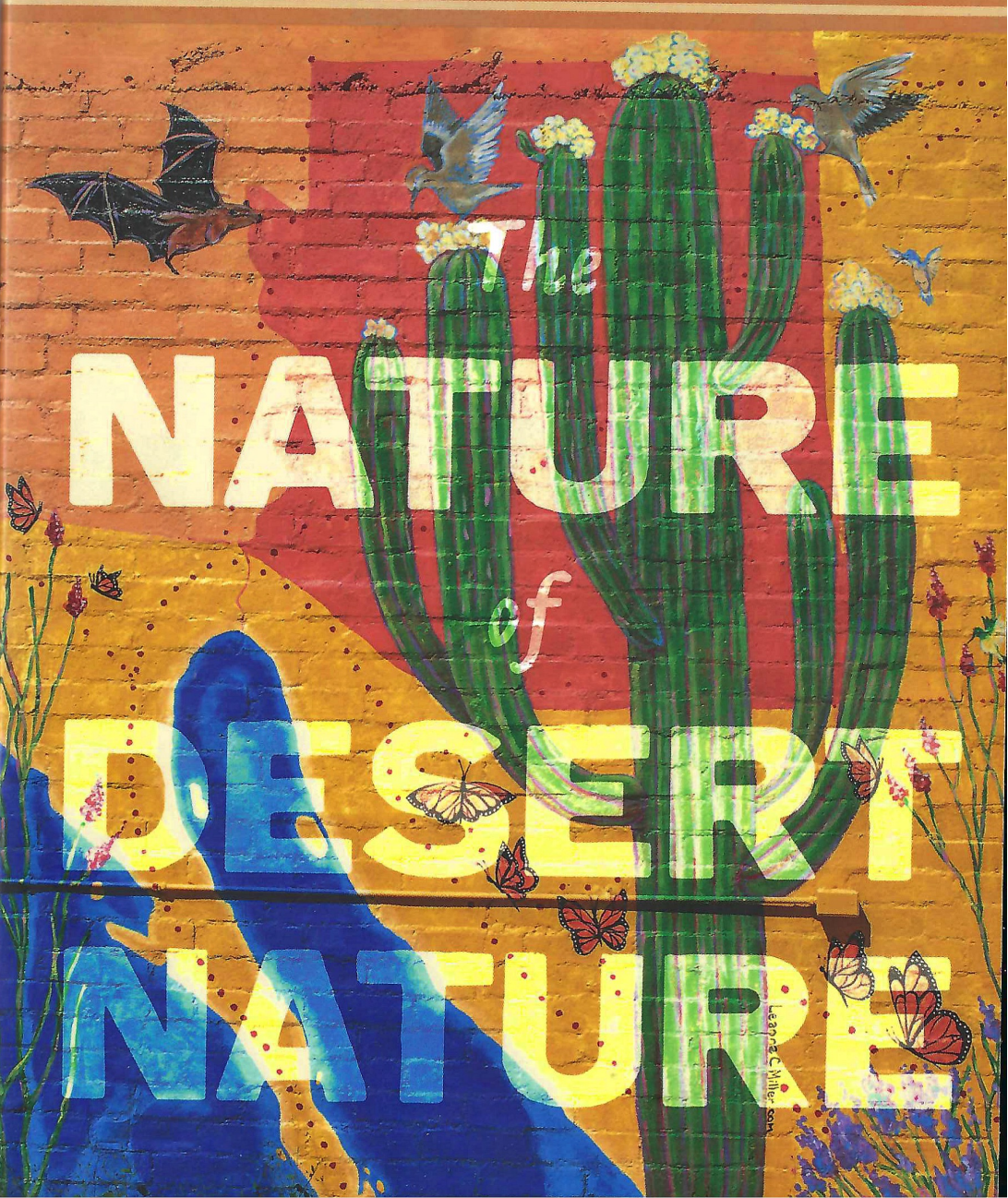
EDITED BY

GARY PAUL NABHAN



The University of Arizona Press
www.uapress.arizona.edu

© 2020 by The Arizona Board of Regents
All rights reserved. Published 2020

ISBN-13: 978-0-8165-4028-0 (paper)

Cover design by Leigh McDonald
Cover art: *Wild in the Plaza of Memory* mural [detail], by Leanne C. Miller, Ajo, Arizona.
Designed and typeset by Leigh McDonald in Arno Pro 11/15 and Cutright WF (display)

Ofelia Zepeda's essay on p. 51 originally appeared in *Interdisciplinary Studies in Literature and the Environment* 4, no. 1 (Spring 1997): 85–90. Francisco Cantú's essay on p. 105 originally appeared in *Territory* online magazine, no. 3 (2016). "A White Body Out in the Desert" on p. 116 is from *Eyes to See Otherwise / Ojos de otro mirar: Selected Poems*, by Homero Aridjis, edited by Betty Ferber and George McWhirther, New Directions, 2001.

Publication of this volume was made possible in part by the financial support of the Kellogg Foundation, Jim Hills, and the University of Arizona Southwest Center.

Library of Congress Cataloging-in-Publication Data
Names: Nabhan, Gary Paul, editor.
Title: The nature of desert nature / edited by Gary Paul Nabhan.
Other titles: Southwest Center series.
Description: Tucson : University of Arizona Press, 2020. | Series: The Southwest Center series
Identifiers: LCCN 2020011821 | ISBN 9780816540280 (paperback)
Subjects: LCSH: Deserts. | Desert ecology. | LCGFT: Essays.
Classification: LCC QH88 .E94 2020 | DDC 577.54—dc23
LC record available at https://lccn.loc.gov/2020011821

Printed in the United States of America
♾ This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).

AT THE DESERT'S EDGE

BENJAMIN T. WILDER

I was born and raised at the base of Mt. Wasson (a.k.a. Wasson Peak) in the Tucson Mountains, where the desert outside my parents' house beckoned me to explore from an early age. I made fort walls of saguaro ribs ringed by moats of prickly pear cactus. Packrat middens outside the garage were sprinkled with childhood toys, Lego men, and Playmobil parts. A graveyard of basketballs held victims of spines from shots gone awry. The desert was a constant backdrop, merging with my psyche.

As my interests gravitated toward natural history and better understanding the desert that encircled my childhood, I began to hear about vast desert regions to the south. Statements blurred into questions that begged for clarity.

More than two-thirds of the Sonoran Desert is in Mexico? The majority of the desert flora is evolved from tropical environments? The desert is a new thing, only appearing on the landscape several thousand years ago? Our desert has its own sea?

As I progressed in my studies and readings, it gradually set in that the saguaro- and palo verde–dominated desert world I grew up knowing was just a fraction of this biome. I clearly recall as an undergraduate the first time I saw Forrest Shreve's defining map: it plainly showed Tucson on the periphery, tucked into the northeast corner of the full expanse of this semi-arid biome.

Since this realization, I have been drawn to decipher how this desert originated and discover its many ways of being. And yet, I continue to ponder Shreve's words associated with that iconic map: "As a geographical entity the Sonoran Desert may be most simply described as the region immediately surrounding the head of the Gulf of California" (Shreve and Wiggins 1962).

I first saw the desert meet the sea where the massive sloping bajada of the east side of Isla Tiburón grades into the Canal del Infiernillo, a water-filled valley that separates Mexico's largest island. My mind was afire, and my heart was immediately rooted to where worlds come together.

Three years later, standing on the summit of Isla Tiburón in a quest to document its unknown flora, the full extent of the Gulf's Midriff Islands lay out in front of me (Felger, Wilder, and Romero-Morales 2012). The Baja California peninsula was to the west and Sonora on the east, with a chain of islands like an artisan belt linking the two. Yet, just as the picture began to come into focus, mysteries appeared. Questions beget questions.

Hiking up in elevation in the desert is walking back in time. The Sky Island Mountains that dot southeast Arizona and northeast Sonora hold remnants of ancient forests that not too distantly occupied the lowlands where the desert is today, forced up in elevation as the climate warmed.

Going up the nine-hundred-meter peak of Isla Tiburón is stepping into the unknown. When we reached the upper ridge, an enigmatic plant, one of the crucifixion thorns, *Canotia holacantha*, was there to greet us, hundreds of kilometers farther south than previously reported. Its presence instantly signaled that this island had an unexpected past. What was this temperate species doing at the center of the desert?

Ping-ponging across the Mogollon Rim of central Arizona, the northern edge of the desert, I found myself stopping in between populations of *Canotia*, here a dominant member of the landscape. Like a Plinko chip dropping through its spiny stems, I was there to collect its DNA to tell me the secrets of its past. Samples from throughout the species range and from its narrowly restricted sister species in the Chihuahuan Desert revealed high degrees of genetic diversity in the south, with evidence of recent expansion into the north, the opposite of what I expected.

It seems that, like me, this arid-adapted desert denizen had tracked the desert's edge—me out of a yearning to better know my homeland, the

crucifixion thorn as the climate warmed and other arid taxa expanded north and upslope.

The desert has come and gone throughout the past 2.4 million years of the Pleistocene, stretching its legs during the relatively brief interglacials, then retreating to pockets with stable aridity. Fossil packrat middens, time capsules of desert vegetation curated by those fastidious home makers, have revealed the individualistic nature of species in response to climate change.

Each species, and, as more data are signaling, genetically coherent population, shifts its range in its own way. Saguaros arrived before ironwoods, followed by palo verdes. The community we refer to today as the Sonoran Desert is a new thing, distinct from what was here before or what will be in the future.

How will the desert continue to shift and change? What does a warming climate with amplified extreme events mean to life in the desert? Doomsday scenarios loom, yet if any biota knows how to deal with a hot and variable environment, it is that of the desert. Certain traits will be favored over others, with a predilection for rapid adaptation.

Pick a piece of land, however large or small, to allow you to track the changes. Select a species or two. Map them, count them, draw them. Then do it again the next year, and again.

Teach your children to do the same. We—you and I, the saguaros, the doves, and the bats—are on this unknown trajectory together. The saguaros have seen it before, but at this pace? They may know a trick or two, which we can learn from if we know how to listen.

Searching for how the desert came to be and where it is going is like hunting for the snark. It is a magical path that takes one to the center of the desert, to its outer limits, and back again. I find myself chasing these secrets, staring into the edge.

References

Felger, Richard Stephen, Benjamin T. Wilder, and Humberto Romero-Morales. 2012. *Plant Life of a Desert Archipelago*. Tucson: University of Arizona Press.

Shreve, Forrest, and Ira Wiggins. 1962. *The Vegetation and Flora of the Sonoran Desert*. Palo Alto, CA: Stanford University Press.