

Turning back the tide

The afternoon tour that I'm leading at the Elkhorn Slough Reserve is not off to a promising start.

Although it's midsummer and we're standing at an overlook that usually offers panoramic views of California's second-largest salt marsh, a stubborn blanket of fog shrouds the Reserve. The eight visitors in my group pull their jackets tighter against a bone-chilling wind. No one looks very happy.

Even the slough's most conspicuous landmark, the twin 500-foot stacks of the Moss Landing Power Plant on the Monterey Bay, is sheathed in white. Thinking it's best to start moving, I lead the group down the trail. Along the way, I tell them how the 1,400-acre Reserve — if they could only see it — is one of the West's most significant birding areas as well as habitat for several rare plant communities and more than a dozen threatened or endangered species.

I point out some barely discernible low-lying islands surrounded by the slough's slate-gray water. It's the water — and the tug of the tides — that I most want to talk about today. That seemingly placid water poses a hidden threat to Elkhorn Slough.

Estuaries like Elkhorn are among the most productive natural systems on earth. But unless something is done to slow widespread tidal erosion caused by human alteration of the slough, within our lifetimes this rich marshland will disappear, joining the 90 percent of California's tidal wetlands that have already been dammed or diked or paved over.

IN MAY 2003, I stood for the first time at the Elkhorn Slough overlook. It was twilight, and I was early for the initial meeting of a summer-long docent-training program. I had wandered out to the overlook to view the hundreds of acres of tidal marshes and mudflats that stretch to the horizon. From a distance, I could hear the *cur-lee* calls of a long-billed curlew.

Boyhood memories of ranger-led talks around evening campfires had left me with a long-held desire to become a volunteer naturalist. On a whim, I called the slough and asked about their docent program. By coincidence, the only docent training of the year was starting in five days. There was one space left. Would I like it?

So there I stood, breathing the salt air, when a powerful rumble came from the north end of the slough. A half-mile-long freight train appeared, chugging over the water across a series of levees. *How strange*, I thought. *Why build a railroad track through a wetland?*

From the overlook — if you can ignore the train track and the towers of the Moss Landing Power Plant — the slough appears natural. But for thousands of years humans have altered this estuary. During docent training we heard from historians who described how indigenous tribes fished the slough's waters and set fires to keep the grasslands open for hunting. When Europeans arrived, they stripped the oaks from the nearby hills and planted fields of wheat and barley. In 1872, the Southern Pacific Company built a main rail artery through the slough

that is still in use today. As time passed, a complex system of dikes and levees spread across parts of the marsh, and some of it was converted to farmland.

After World War II, what is now California's largest power plant was built at the slough's entrance. Every time I come here, I am struck by the incongruity of this natural gas-fired behemoth at the entrance to a vital estuary. The Escher-like maze of the plant's pipes and towers are a monument to the days when wetlands like these were viewed as useless swampland that ought to be "reclaimed."

Then came the Army Corps of Engineers, who changed the slough profoundly. In 1946, they bulldozed a channel through the sand dunes at the slough's entrance to create Moss Landing Harbor. Breaching the dunes opened the slough's quiet brackish lagoons to the power of the tides. The new harbor mouth allowed "tidal scour" to begin to erode away the salt marsh that is crucial habitat for more than 200 bird, marine mammal and fish species. By 1979, when Elkhorn Slough became part of the National Estuarine Research Reserve system, the marshland was degrading at a rapid rate.

In seven years of leading tours at the slough, I've watched as the water's daily ebb and flow has deepened and widened the channels, causing the tidal currents to run faster. Tidal creeks that prior to the dredging of the harbor averaged eight feet in width have expanded to more than 40 feet and are wearing away vital roosting and nesting areas. The reclusive California clapper rail, which once lived in Elkhorn's marsh, has not been seen here in 30 years. A number of other threatened species are also imperiled by erosion, including the western snowy plover, Santa Cruz long-toed salamander, tidewater goby, California brackishwater snail, and California red-legged frog.

Currently, the equivalent of 10,500 truckloads of sediment sluice into the Monterey Bay *each year*. Half of the slough's tidal marsh has already been lost. If nothing is done, the rest of the marshland will be gone within 50 years.

ILEAD MY GROUP closer to the deceptively tranquil water, still hoping that the sun will burn through the cold fog. I turn to my main subject: the force of the water and the scour of the tides. Through the mist, we can see a stretch of mudflats and marsh.

"It hasn't always looked like this," I say, and pass around a black-and-white photograph taken 70 years ago on the very spot where we stand. The change is startling. Where willets and marbled godwits now thrust their bills into the mud searching for invertebrates, the picture shows cattle grazing on a broad expanse of pastureland.

"In the early '80s, this area became part of the Reserve. The levees were breached, and the land returned to a more natural state." I point to a low railroad bridge that allows the only tidal flow to this 460-acre portion of the slough. After years of study, it is here that a first attempt will be made to turn back the tide.

Bryan Largay has been working to make this happen. Largay directs the Tidal Wetland Project, which seeks to conserve



and restore estuarine habitats at the slough. He described to me plans to build a giant, horseshoe-shaped underwater sill of steel pilings at the railroad bridge. Largay's team hopes that the \$2 million construction project, which is funded by federal stimulus money and scheduled to begin in the fall, will decrease the volume of water entering this part of the slough. He says that slowing the tidal flow here should also help to alleviate some of the scouring elsewhere.

Despite sophisticated modeling projections, predicting changes in the slough's complicated hydrology is like one of those math problems with so many parts that it makes your head hurt. The underwater sill is the first cautious step in trying to slow the erosive tides. What is learned from this project will help guide future restoration plans.

BY THE END OF THE AFTERNOON, I'm once again standing with the tour group at the overlook. The sun has finally dissolved the fog and filled the air with warmth. As the slough's stillness seeps into us, the group finds an easy camaraderie. No one is in a hurry to leave.

They gather around me, and I tell them a final story: "Those of us who work at the slough sometimes jokingly call it the 'cosmic center of the universe.'" I smile, then gesture toward the mosaic of deep-green oaks and amber grasslands rolling down to a nearby marsh where a great flock of sandpipers wheel and flash in the sun. "I guess the cosmic center could be anywhere you want it to be. But if you had to pick a place. ..."

After the group wanders back to the visitors' center, I linger at the overlook. A pale crescent moon softens the sky, and the tide follows the silent lunar traction. Another mud bank crumbles, another truckload of marsh slips into the sea.

Despite all the human alterations to the slough, I know there's an even darker, shadowy history of what might have been. During the 1960s and '70s, bitter battles were fought to stop developers from lining the slough's shores with condominiums and boat docks and from constructing a major oil refinery and a nuclear power plant.

I've come to believe that preserving and restoring the slough's former private pastureland as a public nature preserve represents more than a physical transformation. It embodies the radical idea promoted a century ago by John Muir, Theodore Roosevelt and Gifford Pinchot, Roosevelt's chief forester, to set aside great tracts of land as reserves and refuges for the public and for the wildlife that live there. It's what *New York Times* environmental writer Timothy Egan describes as "the West of possibility versus the West of possession."

I look across the braided channels of water and marvel that it's been seven years since I first stood here. The tides rise, the tides fall, the years pass. When I am an old man, I want to be able to return to this overlook, to bring my grandchildren here to breathe the air fragrant with salt and sage and to have them hear the curlew's call.

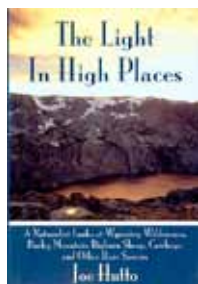
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Peril in paradise



The Light In High Places: A Naturalist Looks at Wyoming Wilderness, Rocky Mountain Bighorn Sheep, Cowboys, and Other Rare Species

Joe Hutto
256 pages, hard-cover: \$24.95.
Skyhorse Publishing, 2009.

To Joe Hutto, a “romantic scientist,” it seemed that the vast grandeur of Wyoming’s Wind River Range existed “in spite of us,” that “human civilization and technology had proven impotent against an apparently irresistible force of nature.” But that was before he scrambled up Middle Mountain to spend his first summer observing a large herd of wild mountain sheep. His assignment was to gather information that might help scientists discover why Rocky Mountain bighorn lambs were dying of a strange neuromuscular disorder.

The statistics he gathered that summer reversed Hutto’s old notions about environmental damage: “One would logically expect any threat to a remote twelve-thousand-foot alpine habitat to come from below. ... Ironically, something mysterious is occurring that seems to affect the highest elevations most dramatically.” That mysterious something turns out to be acid rain.

The Light In High Places chronicles Hutto’s experiences during the bighorn sheep study, as well as time he spent working as a Wyoming ranch hand. His first book, *Illuminations in the Flatlands*, recorded the months he spent raising a brood of wild turkeys. In *The Light In High Places*, he walks us through alpine wilderness to show us



Frontier Trail, COPYRIGHT © CATHY KEENE

that “it is not the greed of multinational corporations with their vicious bulldozers, chain saws, and oil rigs” consuming the earth’s resources and polluting our environment, “but rather individuals like you and me” — via our daily consumer choices.

But this is (mostly) not a preachy book. The narrative is taken from Hutto’s journals, written while he had an abundance of solitude and time to observe, investigate and reflect. The roughly three dozen color and black-

and-white photos in the book add clarity and perspective. Hutto shares plenty of personal stories, introducing us to old-school ranchers and authentic Wyoming cowboys. Bears, mountain lions, hawks, wolves — even a wolverine — make cameo appearances in this wilderness drama. And we get to be privileged voyeurs to the author’s discoveries, without even having to lace up our hiking boots.

BY CHÉRIE NEWMAN

An example and an antidote



Imagination in Place

Wendell Berry
196 pages, hard-cover, \$24.
Counterpoint, 2010.

Wendell Berry, the author of 50 books of poetry, fiction and nonfiction, is a farmer who has lived his life in service to “local geography and local culture.” By chance and choice, he tells us in his new collection of essays, *Imagination in Place*, he has lived “nearly all (his) life in a place (he doesn’t) remember not knowing.” He has “farmed as a writer and written as a farmer.”

Berry’s life and his books provide an antidote to one of the problems that plague our nation: a haunting sense of exile. He puts it this way: “The modern American version of exile is a rootless and wandering life in foreign lands or (amounting to about the same thing) in American universities.” The university system has come to regard students as “customers” and degree programs as “products.” Such a system graduates employees, not citizens. And a nation of employees is a corporation, not a nation at all. The one hope for America, Berry has been telling us for most of his life, is to come to know *who* we are as a people by coming to know *where* we are. For that, he counsels, we need imagination. You’ll need to read the book to truly understand what Berry means by this, but try this on: “(Imagination) is the power

that can save us from the prevailing insinuation that our place, our house, our spouse, and our automobile are not good enough.”

Other topics include fundamentalism and literature. In the essay “God, Science and Imagination,” Berry takes on the argument for and against the existence of God, calling it “a piece of foolishness and a waste of time.” We cannot know, he says, so why have we long been pretending that we do? And in “The Uses of Adversity,” a beautiful, deep reading of Shakespeare’s *King Lear* and *As You Like It*, he asserts what we all know in this post-9/11 world: “There is nothing more disorderly and disordering in civilized life than the selfishness of people of power.” *Imagination in Place* is also a book about writing and writers, an homage to Berry’s “literary mentors, exemplars, teachers, and guides,” among them Mark Twain, Jane Austen, Henry David Thoreau, Dante, Shakespeare, Milton and Blake. Other essays center on writers whom Berry counts as friends: Wallace Stegner, Hayden Carruth, Jane Kenyon and Donald Hall. These essays are sometimes critical, but they are not literary criticism. Berry writes about

literature as a member of a reading and writing citizenry, not as a theorist or critic.

“Sweetness Preserved,” the essay about Kenyon and Hall, poets who married in 1972, celebrates the beauty possible when two people bring together their lives and work, and so become one story:

Two poets entered into it together, consenting to its foretold cost, lived it out, met its occasions, and made, separately and together, a life and a body of work, that for some of us, the world is now unimaginable without. ... And what are we friends and beneficiaries to say? Well, finally, maybe no more than “Thank you.”

There is no American writer with a more complete intelligence, a more honest wisdom, than Wendell Berry. *Imagination in Place* is filled with deep thoughts and big ideas, but Berry writes with such grace and clarity that you will not be left behind. Page after page, essay after essay, you will want to offer Berry the same grateful response he extends to his own friends: Thank you.

BY KURT CASWELL

