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SAGE

A PUBLICATION of the YALE SCHOOL of FORESTRY & ENVIRONMENTAL STUDIES

DEGREES ^{OF} SEPARATION

Collective Resilience in a Changing World



SAGE

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This photo is part of the photo essay "Hardwater." See page 37 for story information.

A SHARED STORY

Far beyond the borders we draw, stories of strength connect us.

WHEN I TURN on the news at night, it can be difficult to process the seemingly insurmountable challenges and overwhelming struggles that flash across the screen. More often than not, these problems seem untenable—a constant reminder of a tipping point that has long since been passed. But between these bouts of defeatism, I inevitably encounter stories of individuals and communities fighting back; stories that give me faith that the future is not yet defined, that our story can still be written.

This year's edition of Sage is dedicated to these moments of strength.

Despite the continued failure of our leadership to act, accounts of courage and innovation bring us hope that change and progress can come from the unlikeliest of places. Whether

it's James Souder's vivid documentation of drought-stricken farming communities in Burkina Faso or Emily Dolhansky's first-hand account from the frontlines of the California wildfires, there are no shortage of stories that inspire action and demonstrate the innate connectivity of our world. While Penn Chan ventures to the edge to capture the beating heart of an isolated fishing community in Maine, Emily Almendarez looks closer to home to find inspiration and strength—her own family and upbringing in Los Angeles. British Columbia sets the scene for the photojournalist team of Courtney Sexton and Michael Snyder where they follow the science community's struggle to maintain the iconic salmon fisheries vital to a city's lifeblood. From coast to coast, our borders and politics tell different stories, but these authors show us resilience and triumph know no boundaries.

In drawing attention to these stories, we hope to expose the unwillingness of nature to abide by the lines of separation we draw between us. Rachel Gulbraa's trek through the Rwandan mountainside paints an intimate portrait of the human-wildlife divide, while Elizabeth Garcia takes a contemporary look at the implications of a heartless wall on the landscape of South Texas. These barriers aim to draw distinctions between the hardships and experiences we share as inhabitants of this changing world; at Sage, we seek to challenge these divisions.

Through these shared moments of resilience, we aim not to minimize the threats we face nor diminish the need for immediate action. Instead, we hope by celebrating the power and fortitude of our neighbors, we can impart their strength to those who have yet to take a stand; that the determination found within these pages can serve as an example to us all. It is my hope that you join us, speak out, and share your own story with the world. 🌱



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MICHAEL O. SNYDER is a photographer and filmmaker whose work focuses on the intersections of social justice and environmental sustainability and has been featured in magazines and galleries by *National Geographic*, *High Country News*, and others. He holds a Master of Environmental Science degree.

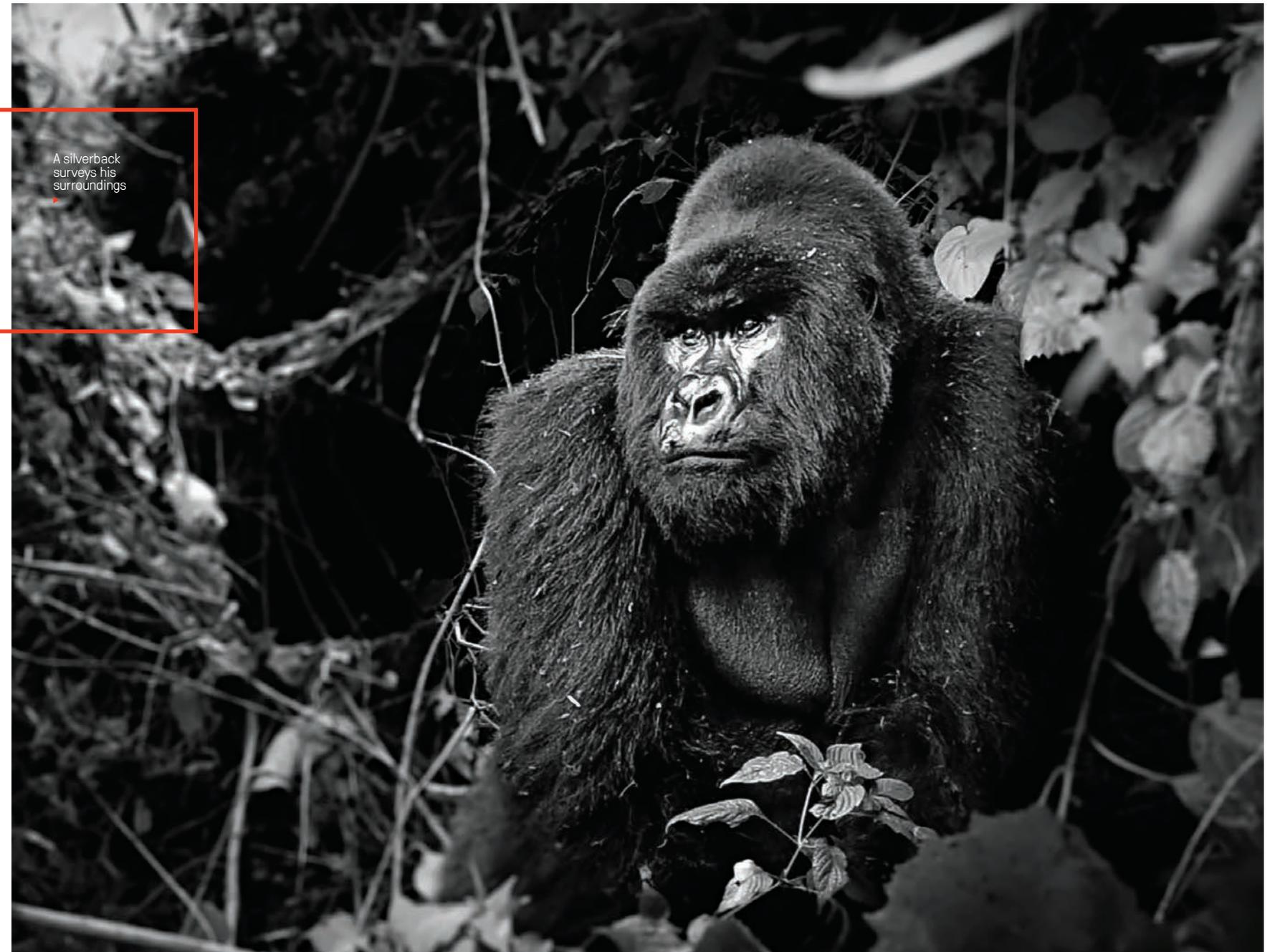
A MOMENT IN THE MIST

Student researchers come face to face with wildlife in the Rwandan mountains.

• By RACHEL GULBRAA

WE HAD PUT on the rain jackets to protect against the stinging nettles, but were beginning to sweat through them in the heat. Every once in a while, we stop to unstick the fabric from our skin and wave our hands about to cool down, but not for long: the ants gather round quickly to bite the motionless. Still, our excited chatter echoes down the slopes as we slip and slide our way through the mud along the mountain pass. Occasionally we lose our guide, François, among the tall brush. We freeze as we scan the horizon, suddenly aware of the stillness of the vast landscape surrounding us, until we hear him again, his laughter punctuating the silence and our uncertainty, steering us onward.

As we approach a forested gully about three hours in, François raises his arm suddenly. We stop dead in our tracks and suck in our breaths, peering over each other's shoulders. And then we see her—eyeing us deliberately, but unconcerned, her infant cradled in her arms: the first of the mountain gorillas we had hiked so long to see.



A silverback surveys his surroundings

Amy Vedder, who has worked with these gorillas for over 30 years, has a slight grin starting on her face, like she is beginning to recognize an old friend. She now shares her experiences as a professor and leader of the field course that has brought our small group of students, all studying various aspects of conservation, to Rwanda. We are able to visit Volcanoes National Park as tourists— and more

PHOTOGRAPH: RACHEL GULBRAA

specifically, able to view the mountain gorillas—largely because of the work of Amy and her husband, Bill Weber.

AMY AND BILL first came to Rwanda in the 1970s: she studied gorilla foraging behavior, while he became interested in local perceptions of conservation. At the time, a growing market for natural insecticide made from pyrethrum, a type of chry-

santhemum, was leading to intense pressure for agricultural land. Demand for the crop, spurred partially (and rather ironically) by the US ban on DDT, meant that parklands were being cleared for planting. Deforestation of the tri-country Virunga massif, the only remaining mountain gorilla habitat in the world, became an imminent threat to the species' survival.

Amy and Bill were quite young when they began their work, entering the landscape at a time when many leading conservation organizations had dismissed mountain gorillas as beyond saving. They recognized that with conservation success, the heaviest of any subsequent burdens— from restrictions on forest use, to wildlife damage to crops adjoining park borders—



would be shouldered not by NGOs, the government, or the international community, but by local people. Any ethical conservation strategy would need to include the people it impacted most. With this in mind, they conceived of a conservation model based around tourist visitation of groups of gorillas that had been carefully habituated to human presence, hoping that a tourism enterprise could generate enough revenue to economically justify the preservation of the forest— and therefore, the gorillas themselves.

What began as a bold and perhaps outlandish proposal is now a trilateral agreement between the Democratic Republic of Congo, Uganda, and Rwanda, and the largest source of foreign revenue in Rwanda. In the intervening years, despite the unthinkable challenge of rebuilding after the atrocities of the 1994 genocide and subsequent unrest, the Rwandan government has made prolific gains in conservation and economic development.

This is largely due to the presence of a strong, top-down government able to propose and implement projects with rigid efficiency. Nevertheless, tourism in Rwanda's national parks fund the preservation of the parks and their biodiversity, generate national wealth, and support local communities through profit-sharing plans, microloans, cooperatives, and compensations.

I'M DRAWN FROM my reverie as François gestures for us to step back. We are a little too close to the animals— visitors must stay at least seven meters away, a rule proposed for the safety of both gorilla and human parties, particularly to avoid human viruses being passed to gorillas.

To give the mother and child ample space, we attempt to pass through a hollow tree to observe from the other side of the gully. I trail behind my peers only to see them turn quickly back, gesturing urgently for me to turn as well: they had entered the hollow tree only to find the

space occupied by a pair of amorous gorillas, who cried out at the boorish intrusion. We retreat, but find the path we came from occupied by an agitated juvenile male pacing back and forth, back and forth. I'm surprised at the silence of his step, and how quickly he appeared. He must have been close to us. To avoid him, we climb over a fallen tree and walk down the gully to watch the gorillas upslope at a proper distance. By now, two females have emerged and are feeding on the bark of the dead tree we just climbed over. A baby plays a game of climb up the log and fall back off it, climb up the log and fall back off it, on to mom, over and over again. We are still slightly closer than ideal, but our guide indicates for us to stop. There is no route for us to leave the gully that isn't currently blocked by a gorilla, so we will stay still until they choose to move on. We are confined by the brush behind us. We press into it, and watch the scene ahead.

For a long while, we are entranced

Clockwise from left: Volcanoes National Park, Rwanda; a hummingbird eyes the camera while feeding; our guide shows us seeds found on the forest floor; a juvenile mountain gorilla practices beating his chest.

PHOTOGRAPHS: RACHEL GUILBINA

by the everyday—and very human— activity in front of us. We become absorbed. The wall of vines to my left vibrates in a breeze I cannot feel, but I ignore it. The two females begin to squabble over a large, fresh piece of bark, and a juvenile emerges from under the log to watch the dispute. We hadn't noticed her. Curious about the source of the agitated chatter, another adult female comes out of the hollow tree. We hadn't noticed her either. Then two or three more gorillas— and these are massive creatures— somehow emerge from the nettles and the leaves, like apparitions, to watch the fight that now seems imminent. The two females begin to scream, grabbing at the bark and each other.

Suddenly, the vines to my left shake again, and just as it occurs to me to be concerned, a huge silverback rushes to the scene with surprising speed. He runs up and smacks the fallen tree with a crack that echoes through the gully. The female agitators flee, while the others, like their human spectators, freeze. The silverback has his back to us and is far too close. At the same time, we humans realize that we are spread in a line downslope, blocking his only exit from the clearing. I look behind me at my usually exuberant classmate Ana—her face is ghost white. I look ahead and see the ever-thoughtful Martin, who seems truly enraptured. Finally, I turn to Amy, and she is smiling. For a brief

moment, I'm convinced that we are going to be charged by a 350-pound silverback gorilla, and that Amy is smiling to keep us calm.

But instead, for a very long while, nothing happens. My group stands, waiting. The silverback doesn't seem to take note of us at all. He keeps his back to us, without even a glance in our direction. This habituated group is just that— habituated. To the silverback, tasked with the protection of his group, we smell unremarkable. Unthreatening. Familiar. I'm struck by the fact that despite having flown 7,000 miles and hiking for hours to be here, my presence is an unexceptional part of his normal routine. Far from the otherworldly "wild" I had imagined, this landscape was a complex tapestry of natural systems and layers of human intention, value, and need, intimately intertwined. In fact, had we chosen, we could have visited a group ten minutes from the parking lot— while still other, unhabituated groups live deep in the forest, far from tourist eyes.

After standing motionless for about ten minutes, the silverback slowly turns to face us. We see a fresh wound on his lip: he's been in a fight. This explains his agitation, and likely the pacing, angsty juvenile we saw earlier. He begins to walk down the slope towards us, the silver hair on his back accentuating the incredible mass of muscle that seems to make up his form. We hold our breaths. He approaches Martin. And then he walks by him. He pushes through the thick brush behind us, impossibly silent, and is swallowed by the green.

Eventually, the other gorillas move on as well. They go back into their hollow tree; they melt into the leaves, back under the logs, and into the vines again. And it's just us now, a group of humans, mouths agape and eyes still frozen wide, looking at each other. 🌿



ARTWORK BY SEAN HUTTON. "Out for a Stroll."

POSTED AND PATROLLED

Cultures clash during an afternoon deer hunt in Vermont and an unlikely bond between strangers develops. • By JOSHUA MORSE

A TRAIL OF SPATTERED blood, gleaming red on the matte brown of withered oak leaves, crossed an invisible line in the woods. The deer I had shot and spent the better part of the morning tracking had crossed the line without a second thought, but it stopped me as surely as barbed wire or concrete. It was my first hunt in Vermont, my first hunt as an ambivalent new gun-owner, and my deer—for this is how I thought of it—had fled onto posted land.

In rural Vermont, cultures are clashing over property lines. Landowners used to be generous with their property and their neighbors respectful of the privilege to use it. Land is changing hands now, and properties long open to the public are being posted against trespass. Many blame the influx of out-of-state "transplants," who are unfamiliar of the ethic of publicly used private land. As a transplant myself, I was uneasy.

My deer had crossed onto the property of two life-long Vermonters, and I would have to ask permission to continue my search on their land. Slowly, I wound my way out of the woods and up a long gravel drive. Awkward and unsure of what to do with my gun, I approached a beautiful Adirondack house and knocked on the front door.

Dogs barked, the door swung open, and kind but cautious eyes met mine. I explained my predicament to Sharon, and she quickly granted permission to track my deer across her land. This permission came with a warning,

though. Her husband, Michael, was also out hunting this morning. If our paths crossed, I would need to explain that I had spoken to her.

I LOST THE blood trail in a meadow, where the even carpet of oak leaves gave way to grasses that beads of red could not cling to. Dejected, I unloaded my gun and walked back through the field and up the drive. As I began to strip off my woolen field coat, a new voice startled me. "What are you doing here?"

Michael's brow was furrowed, and the gun in his hands was loaded. The gulf between us seemed vast. He, a true Vermonter; I, an ex-urban transplant. A seasoned hunter, comfortable in a tense moment with a firearm at hand; a novice hunter, uneasy about even purchasing a gun. My anxious mind leapt to other differences. The pick-up in their drive; the Subaru that had carried me to the hills outside of Burlington. By all appearances, Michael was a straight man; I, a queer one. Perhaps our politics clashed?

"I shot a doe on your neighbor's land and tracked it onto yours. Sharon said it was alright for me to search for it here."

Michael's face hardened. "And you're leaving empty-handed?"

I flushed with guilt. "I've been searching since eight, but I lost the trail in your pasture."

To my surprise, Michael put down his gun and looked thoughtfully towards the field below us and into the tangled woods beyond.

"I know the deer around here pretty well" he said. "I'll help you look for her."

MICHAEL'S EYES LINGERED over a thicket of buckthorn and red maple, just past the end of the blood trail. A wounded deer, he explained, will lie down in a thicket and become invisible. Our best chance of finding mine would be to walk the edges of each thicket near her trail's end. If we could get her to

stand, I would have a split second to take another shot before she fled.

Whatever our differences, the shared task on a shared landscape came first. We followed a slight depression downhill, circumnavigating each thicket with the slowness of herons scanning the water's edge. Soon, the depression widened with collected water. Wounded deer, Michael told me, often follow drainages to larger streams where they submerge themselves to hide the scent of their blood, and then continue slowly downhill as long as their wounds continue to hamper them.

The prior tension between the two of us had lifted. Michael seemed thoroughly focused on the hunt and sharing his knowledge of the land and its deer. I soaked in his wisdom.

The drainage met a broad, stone-studded stream, and I found a fresh spot of blood at their confluence. The trail emerged from a swampy thicket—smaller and less frequent than before—and climbed a steep bank into the shelter of hemlocks. We appraised the path. When an injured deer's blood flow diminishes, Michael told me, it can be a sign that the wound is not lethal. If the trail starts to gain elevation, the deer may be regaining strength after the shock of being shot.

In Michael's estimation, my deer would likely make it. We talked over the merits of continuing the hunt, and I decided to press on, while Michael turned back for home. My chances of catching up to my deer were low, but, the knowledge I gained reading the landscape with Michael demanded practice. I decided I would follow the trail until I found my deer or lost it for good.

IN THE MID-AFTERNOON, I walked out of the woods again—without my deer. But, as I stopped by Michael and Sharon's house to thank them for their graciousness, it hit me that I was far from empty-handed. 🌸

WHO WE

OF

THE

WILDFIRES

On the frontlines
of the **CALIFORNIA
WILDFIRES**, a group
of women look to redefine
an industry.

By **EMILY
DOLHANSKY**

STOCKTON UNIVERSITY, NEW JERSEY |
DOLHANSKY USING AN INFRARED GUN TO MEASURE THE
TEMPERATURE OF THE FLAMES ON A PRESCRIBED BURN.

TRIAL

BY FIRE



I WASN'T SURE WHAT TO EXPECT when I landed in California last October to attend a training event for women wildland firefighters. I was attending the second annual Women-in-Fire Prescribed Fire Training Exchange—or WTREX (pronounced “w-treks”)—in Yosemite National Park. It was the first time I would see so many women firefighters in the same place.

Prescribed fire training exchanges (TREXs) are 10-day-long hands-on events that have been organized across the country since 2008. They provide firefighters from different backgrounds, agencies, and skill levels the chance to learn from one another and to apply “good fire” (otherwise known as prescribed fire) to the places that need it the most. This includes any ecosystem where fire played a beneficial role historically. At TREXs, the people who fight bad fires become the ones who get to light good ones.

Although TREX participants generally have a wide range of qualifications—from beginner firefighters like myself to seasoned professionals—most are men. Women make up less than 10% of the wildland fire workforce. To put this in perspective, nearly twice the percentage of women serve in the military. WTREX accepted 90% women and 10% men to flip the gender ratio in the firefighting community on its head.

The idea to hold a women’s TREX began at another TREX in 2015. A number of women in leadership positions attended that event and shared their experiences of being in a male-dominated field with one another. Finding other women firefighters to connect with is a rare opportunity. To be a woman in wildland firefighting is to accept a level of solitude.

“It was really powerful,” said Nikole Simmons, one of the women who attended both the TREX in 2015 and WTREX in 2017. “We saw that there was a lack of female leaders in our experience. We said, ‘Wouldn’t it be great if we could all learn from each other?’” What began with a group of women swapping stories turned into a movement, and the first WTREX was held the next year.

I didn’t realize the importance of sisterhood in the firefighting community when I applied for a spot at the training. I came to WTREX as an outsider: a 23-year-old graduate student studying fire ecology at Yale University



hoping to gain hands-on experience with prescribed fire. I had no firefighting qualifications, but I was determined to learn. I couldn’t think of a better place to do so than a training event designed specifically for women. By the end of WTREX, not only had I formed a network with these women, but something much more meaningful: a sisterhood.

I WAS 19 YEARS OLD the first time I saw a forest burn. It was mid-March and freezing—the kind of day that winter has its claws dug into despite protestations from an approaching spring. Dozens of people were gathered in a remote area of New Jersey not to flee the flames but to watch. The New Jersey Forest Fire Service was conducting a prescribed burn on Stockton University’s campus. This burn was the start of both the school’s ten-year-long forest stewardship plan and my subsequent love for fire. I was studying forestry at the university, and I was one of a small handful of students allowed to monitor the burn that day. For those of us who lived in this region—fondly referred to as

“the pinelands”—we knew that fire is an essential part of the ecosystem and in some areas of the state it had been suppressed for far too long.

I had never seen a forest fire before and experiencing it firsthand was transformative. It blazed a path for the rest of my time at Stockton University and eventually as a master’s student at the Yale School of Forestry. What struck me most about that day—more than the firecracker sound of Mountain-laurel as its oils ignited, more than the smoke so thick it blotted out the sun, more than the heat of the flames as they licked up the cracked trunks of pine trees—was that I was one of the only women present. I was the only female student to don the bright yellow, flame-retardant clothing and face the flames.

It was clear that firefighting gear was not made with 5’3” women in mind: The smallest jacket was three sizes too big on me, and the hard hat kept slipping down my forehead.

Regardless, I was determined to keep up with the Forest Fire Service as they weaved between trees and set the forest floor aflame using torches that dripped gasoline. Something about the work they were doing both excited and scared me, and for once in my life, I felt like I was doing what I was meant to be doing. Only later would I learn that women make up just one tenth of the wildland fire workforce.

WHAT STRUCK ME MOST ABOUT THAT DAY—MORE THAN THE FIRECRACKER SOUND OF MOUNTAIN-LAUREL AS ITS OILS IGNITED, MORE THAN THE HEAT OF THE FLAMES—WAS THAT I WAS ONE OF THE ONLY WOMEN PRESENT.

PHOTOGRAPHS (PREVIOUS SPREAD): SUSAN ALLEN, STOCKTON UNIVERSITY; ILLUSTRATION (THIS PAGE): ANJUMI VON PLINSKY

PHOTOGRAPH: STACEY MARION, ADAPTIVE RESTORATION, LLC

▲ | FORESTA MEADOW, YOSEMITE NATIONAL PARK | VIEW FROM FORESTA MEADOW, AN AREA OF THE PARK IMPACTED BY THE RIM FIRE OF 2013.

GO WEST, YOUNG MAN!

ALTHOUGH “WILDFIRE” HAS become a buzz word among the American public, few people know the origins of wildland firefighting’s troubled past. Like other early conservation campaigns, firefighting began as a hypermasculine, militarized effort to save the nation’s natural resources from destruction. After the Great Fires of 1910, a series of wildfires that burned over three million acres in Washington, Idaho, and Montana, president Theodore Roosevelt declared wildfire one of America’s greatest enemies. Young men were trained in the ways of fighting forest fires—essentially

by digging a wide line around the fire to contain it—and put out every fire that began.

“The ideal [firefighter] was someone like Frank Herring, a cowboy who had worked with Roosevelt on his ranch,” wrote Timothy Egan in *The Big Burn*. Firefighting was a man’s job. It required hard work and a high level of physical fitness. One of the U.S. Forest Service’s first female firefighters, Bequi Livingston, wasn’t hired until 1979. Even then, Livingston was only hired because the recruiter thought she was a man from the way she spelled her name.

“When firefighting took hold in the West following the fires of 1910, it was men who performed the bulk of the work,” wrote Amanda Stamper, a participant of the 2016 WTREX, in a reflection after the event. “Over the past 100 years, a brotherhood has formed...In the midst of this brotherhood are amazing women, but never enough in one place and time to form a comparable sisterhood.”

Little has changed in the way forest fires are managed, or in the firefighting culture itself, despite aggressive “fire suppression” tactics being recognized as a blunder in the 1970s. Scientists noticed that ecosystems that had become “fire adapted” over thousands of years had been drastically altered by systematically

extinguishing every fire. Forests have become overgrown with trees that would have been killed if natural fires were allowed to burn. Roosevelt’s legacy of fire suppression is one of the reasons for the “megafires” we see in the West today and will continue to see in the future.

Solving the wildfire problems of tomorrow begins with listening to a diversity of perspectives today and inviting participation from outside the traditionally male workforce. When it comes to fire management, WTREX is a step in the right direction. If the TREX model signifies a shift from fighting fires to lighting them, then WTREX signifies a shift in including women in the conversation.

DURING THE TWO weeks I spent at WTREX in California, 17 wildfires raged across the northern part of the state. The fires killed 42 people, destroyed 9,000 structures, and burned over 245,000 acres. The 2017 fire season was the deadliest in recent history and an inopportune time for a prescribed fire training exchange—the public didn’t want more fires, even good ones. The burns we had planned for Yosemite were shut down before we had the chance to pick up our torches.

What was meant to be an opportunity for women to “put good fire on the ground” was instead a time to reflect on the current state of wildland fire management. Over the course of the two weeks, we discussed how to build a more cohesive firefighting community and brainstormed solutions to the multitude of issues women firefighters face: discrimination, harassment, and inadequate training, to name a few.

Over the past several years, there has been a push to hire more women into wildland firefighting. Many of us wondered if it was worth the effort to hire more women into a profession that’s designed to be unsupportive of them. One participant, Jeanne Pincha-Tulley, shared her ideas on the hiring process at the beginning of WTREX. Now retired, Pincha-Tulley was the country’s first female Type I Incident Commander—the firefighting community’s version of a General and the highest rank a firefighter can achieve.

“When I first came into [the Pacific South-

west Region], I was 32. We were under the Consent Decree, which meant it was being court ordered that women were put into fire,” said Pincha-Tulley. “I was the first female chief in [California], the second in the Forest Service. I was 32—think about it. How mature are 32-year-olds? Running an entire fire organization?”

“Consent Decrees” were put in place to prevent hiring discrimination in firefighting organizations, but Pincha-Tulley is hesitant about federal agencies hiring women simply to fill a quota. Part of the reason the percentage of women in leadership roles is so small (the number hovers around 7%) is because prior to being hired, they aren’t adequately trained for their role. Finding a mentor as a woman in fire is difficult. Pincha-Tulley rose to her position without the guidance of a female mentor, and her experience is similar to many others. WTREX served as a networking opportunity for younger women to connect with and learn from more experienced mentors.

Empowering women in leadership is important, but empowering women on the front lines of fire is just as necessary. Lacey England is in her third season on the Gallatin Rappel Crew (firefighters who rappel into remote fires from a helicopter), and she’s on a mission to change the male-dominated culture from the bottom up. On the first night of WTREX, England gave a talk about using language to create a more inclusive culture. Much of the language used in the firefighting community is akin to “locker room talk,” and it can be incredibly exclusive of anyone who isn’t a white man.

“The Forest Service says they want diverse candidates, but the cultures don’t support diversity,” said England. “Language is a topic that I’m really passionate about, because I think that it’s much more powerful than we give it credit for. What we say and how we speak to each other carries a lot of weight.” England said she’s “working on” her crew and encourages them to stop using gendered terms and slurs. She says they’re slowly coming around to her progressive ideas.

“The rich culture of fire needs change, just as our lands need controlled burns to be healthier,” writes Amanda Stamper. Just as there has been a shift from suppressing fires to lighting prescribed fires, there has also been a shift in how men view women in fire.

“Most of my crewmembers believed that if a woman could hold her ground on the fireline—if she could hike and crawl and eat smoke just as well as the next guy—then she was welcome,” writes Matthew Desmond in his book *On the Fireline*. But significant progress takes time. Wildfires aren’t waiting for us to catch up.

“WHEN FIREFIGHTING TOOK HOLD IN THE WEST FOLLOWING THE FIRES OF 1910, IT WAS MEN WHO PERFORMED THE BULK OF THE WORK. OVER THE PAST 100 YEARS, A BROTHERHOOD HAS FORMED...IN THE MIDST OF THIS BROTHERHOOD ARE AMAZING WOMEN, BUT NEVER ENOUGH IN ONE PLACE AND TIME TO FORM A COMPARABLE SISTERHOOD.”

PHOTOGRAPH: KELLY MARTIN, YOSEMITE NATIONAL PARK





PT. III

LIGHTNING THE WAY

FROM ATOP THE hill in Foresta Meadow, we can barely tell a fire burned through the area just four years ago. One of Yosemite’s iconic meadows, Foresta is a patchwork of vegetation with clusters of young trees like emerald islands among scrubby shrubs and grasses. Purple wildflowers dot the rolling hills with color. Only the charred remains of trees, scattered like spent matches throughout the meadow, ruin the illusion of serenity.

Kelly Martin, Chief of Fire and Aviation at the park, looks out at the view with pride.

Martin doesn’t look like a conventional fire chief: she has brown hair that falls past her waist and regularly wears colorful, feminine jewelry. People are often surprised when they find out she’s the chief of fire at the park—probably because she isn’t a man. She has been serving Yosemite for ten years and worked for the Forest Service for twenty years before that. She was working at the park when the Rim Fire broke out in 2013, burning more than 250,000 acres of Yosemite and the surrounding forests—the same amount of land that burned in northern California during the month of October.

The Rim Fire began as an illegal campfire, but Martin believes it did a lot of good for the park. Before the Rim Fire, some areas of Yosemite had not burned for decades. After the fire, rare species such as the black-backed woodpecker returned because of an increase in suitable habitat. Martin has a progressive approach to fire management, believing that more areas of the park need fire—prescribed or wild—and Foresta Meadow reflects that.

Standing on a hill overlooking the meadow, Martin tells WTREX participants that she hopes the distinction between “wildfire management” and “prescribed fire” will become less distinct in the future. “It’s all ‘fire management,’” she tells us. Even wildfires can be managed for good.

Martin does not believe aggressive “suppression at all costs” tactics should have a role in the way we manage fires anymore. As we travel around Yosemite, it’s clear to see why. Several of Yosemite’s ecosystems have been altered by fire suppression—its iconic meadows, once maintained by the Miwok people, have shrunk by more than 50% since the 1800s.¹ Whole swaths of the forest have been killed by bark beetles. Martin believes the park’s current bark beetle outbreak was worsened by decades’ worth of overgrown trees building up as a result of fire suppression. Beetle-killed trees are being cut down and left in the forest. There simply isn’t enough manpower—or womanpower—to remove them.

Despite the forest-health problems, Yosemite leads the way when it comes to fire management. The use of “good fire” has been identified as the leading solution to the wildfire problem, and women like Martin show how it’s done right. “I do believe that in the future we’re gonna see more smoky skies,” Martin said in an interview after the Rim Fire, referring to an increase in both prescribed and natural fires in the Sierra Nevada region.

Four years later, her words ring true. To make the most of our time at WTREX, the participants hiked into the heart of Yosemite’s wilderness and witnessed the Empire Fire—one of the park’s many “management fires”—first-hand. The Empire Fire was a naturally ignited

wildfire that Martin was allowing to burn, and it was being closely monitored by other park employees. Martin told us the wildfire was nearing its “100th birthday”—it had been burning for nearly 100 consecutive days by the end of WTREX. For 100 days the fire slowly spread through the park, consuming all in its path, and creating space for new life to grow in the process.

MARTIN’S OUTLOOK ON fire management is testament to the fresh perspectives women bring to the table. Even the public is beginning to embrace the idea of management fires in Yosemite. Towards the end of WTREX, I volunteered to stand at Glacier Point and talk to visitors about the Empire Fire. From Glacier Point, you can look down into the Illilouette Basin and see Half Dome and two of the most famous waterfalls in Yosemite. Hundreds of park goers visit this overlook every day to view the iconic dome piercing the sky, its sheer face slick and often glistening with precipitation. I stood near a neon pink road sign that read “MANAGEMENT FIRE: DO NOT REPORT”, a notice for visitors to refrain from calling park employees if they saw smoke from the lookout point.

At one point, a photographer sporting an expensive looking camera approached me. He prefaced our conversation by saying he likes to think he knows what he’s talking about because he reads the local newspapers covering the wildfire. “As a photographer, I’m disappointed,” he said, referring to the haze of smoke hanging over Half Dome, obscuring the perfect shot. “But as a conservationist, I’m happy.”

The photographer knew what most people don’t: that the vision of Half Dome against a clear blue backdrop is a false one, carefully crafted from the idea that national parks should be a pristine wilderness, untouched by man and Mother Nature alike. In truth, the view from Glacier Point was obscured by smoke long before the Empire Fire started. It was only in the 20th century that wildfires were deemed the enemy. Before that, Native Peoples used fire to their advantage, and before them, lightning fires burned in the wilderness on regular intervals. Early conservationists, most of whom were men, ushered in an era of fire suppression that has altered the landscape in ways they could have never foreseen. It isn’t too late to undo the harm fire suppression has caused, though, and women are helping to change that.

“LEAVE HERE WITH your drip torches lit,” said Monique Hein, a wildland firefighter who recently transitioned to structural firefighting, on the last night of WTREX. She was referring to our advocacy of “good fire,” but she also meant to stay motivated and to continue overcoming the odds of being a woman in fire. That night we were all gathered around a bonfire, like moths to a flame.

Four years ago, in a remote part of New Jersey, I saw my first forest fire. What began as a journey into the unknown world of wildland firefighting took me across the country, where I formed a sisterhood with a group of women who blazed a trail before me. As we enter into an age of wildland fire fraught with challenges we have never experienced before, I am proud to say that my drip torch is lit, and I get to walk beside the bravest women I have ever met.

We promise to leave good fire in our wake. 🌿



A farmer walks through his patch of spicy peppers in Pella, Burkina Faso, which were hand-watered using water pulled from the well.

FARMERS ADAPT TO A CHANGING CLIMATE IN BURKINA FASO

A photojournalist captures the impacts of climate change on agriculture in Burkina Faso and highlights the innovative solutions used by communities to adjust to a new climate reality.

Story and photographs by JAMES SOUDER



Above: A bountiful harvest! Wells and dams are important sources of water in Burkina Faso, particularly for vegetable farmers who want to get an early start before the rainy season in order to sell their crops at a higher price at the beginning of the market season.

Below: This long exposure image was taken in Moussoudougou, Burkina Faso, using a flashlight to highlight the texture of the walls in this rural village.



Dams also provide a source of water for farmers and can be flooded into fields through irrigation channels as seen in Pella, Burkina Faso.



Above: Farmers draw well water by hand in Koti, Burkina Faso. With a changing climate, the first rain may come later in the year, increasing the risk of a well running dry before the rainy season begins.



Left: Towards the end of the dry season, farmers with access to deep wells are able to start growing vegetables before the rainy season begins. Vegetable gardens in Koti, Burkina Faso highlight the stark difference between watered and non-watered land.

Above: Women farmers are particularly vulnerable in the face of climate change in Burkina Faso, and they also play a crucial role in implementing adaptation strategies. Oxfam International recommends prioritizing women in climate change adaptation initiatives, including water/soil conservation techniques and crop diversification.

IN LANDLOCKED BURKINA FASO, a sub-Saharan country in West Africa, reliable access to water is crucial—particularly for farmers. Over 90% of the country’s population relies on agricultural activities for income and to feed their families. These farmers are vulnerable to climate change, which has caused irregular rain patterns both in the form of droughts and heavy rainfalls.

Over the course of his travels and work in the region, James Souder documents the growing impact of climate change on the agricultural traditions of farming communities—and the innovative adaptation strategies they have implemented to adjust to our new climate paradigm. 🌱

Through mud-caked
and marsh-soaked lenses,
a photojournalism team
reveals the inseparable link
between the survival of a
fish and the future of a city.

By
**COURTNEY
L. SEXTON**

Photographs by
**MICHAEL
O. SNYDER**

WHAT IS LOST ON THE FRASER RIVER

AND

FOUND

In the southwest corner of British Columbia a great river flows from a canyon in Hope. Hope marks the start of an historic aquatic corridor in the Lower Fraser River Valley. Here the river runs along rich floodplains, through metro Vancouver, and, ultimately, to freedom from the bounds of land at the Salish Sea. For centuries the region has sustained populations of people and wildlife alike, a fertile crescent of the West.

The scientists rely on the knowledge of local stakeholders, and especially the generational knowledge of the First Nations. Some, like 37-year-old Steve Stark—a member of the Tsawwassen First Nation—have witnessed the chipping-away at their culture. Stark says 20 years ago salmon nets used to be full, but now his small fleet of fishing boats targets mostly crab—though these stocks, too, have been slowly depleting over the past 18 years.

STEVE STARK

TSAWWASSEN FIRST NATION



M

The following is an abridged excerpt taken from a larger series of essays published on SAGE Magazine's online publication. To read the full series on the Fraser River visit www.sagemagazine.org.

MOST PEOPLE KNOW Vancouver, British Columbia as a thriving, modern metropolis of the Pacific Northwest—the last stop before civilization gives way to the wilds of the province. Salmon know it as the last obstacle to pass through before they make it from Hope to the Salish Sea on their journey through the Lower Fraser River Valley.

Sockeye, pink, chum, coho, and Chinook. They run to the sea, only to return, each generation pulsing back to their natal waters of the Fraser River.

Salmon are as much embedded in the lifeblood of Vancouver as they are a mirror to the city's struggles. Like so many regions today, the city seems struggling upstream toward a rebirth; battling back the heavy currents of change and development.

Thanks to the influx of foreign investment, real estate prices in Vancouver have skyrocketed. Meanwhile, traditional fishing and canning industries and the local jobs they support have floundered. Wild salmon that once accounted for 60 percent of fishery profits now comprise closer to only 20 percent. Local politicians either champion or condemn the industrial development around Port Metro Vancouver's expansion and export operations. Conservation teams struggle for funding to conduct even basic science that could provide the information needed to find solutions to

wild salmon stock depletion; while indigenous communities battle for the right to sustain the cultures and the identities—inextricably linked to the salmon—that they have built over the past 10,000 years.

This is the story visible from the surface.

Instinct drove us, outsiders, a pair of Northeasterners with a soft spot for endangered species and a good story, to dip below. And so, the Lower Fraser River Valley region was revealed through the fractured light of competing desires occupying the same prismatic conundrum—the salmon are disappearing.

THE REAL SCIENCE OF SALMON

IT IS 5 A.M. and we are on the water.

The small boat cuts through the channel on the south side of Westham Island as the sun rises behind us, tentacles of warmth touching between tall pines. The moon hasn't yet given up the sky.

We are loaded with waders and nets. Canteens of drinking water roll across the hull and the engine of the tiny craft chugs as our guides, Misty and Dave, describe the Delta surroundings—see there, hundreds of kilometers of dikes cut off the river from the floodplain; there, to the south, is Robert's Bank, the site of Port Metro Vancouver's Terminal

Lia Chalifour is a young scientist working with regional nonprofit Raincoast Conservation Foundation (RCF) to gather data about where and how salmon in the region use the Lower Fraser River estuary, a critical stopover on the Pacific Flyway.



2 expansion project.

Westshore Terminals, self-proclaimed “North America’s premier mover of coal,” manages and operates the site, where the project’s additional 2.4 million TEUs (twenty-foot equivalent units) of container capacity would serve exports to primarily Asian markets.

Visions of shipping containers stacked like misfit toys on a peninsula jutting into the Delta dance in my head as we cut the engine. We float along with miles of marsh lying

ahead. It is silent but for the occasional birdcall. We could be nowhere.

In reality, we are in one of the last swaths of protected habitat for salmon that call the Fraser home. Elsewhere, amid the lights, sound, speed, jetties and causeways of the industrialized river, dikes have destroyed the natural shoreline and eliminated access to smaller channels, confining migrating fish to the Lower Fraser’s main strait.

For a moment I breathe in the quiet. Is this what it feels like to be a

fish? To float freely in the shelter of the eelgrass beds, warm in the sand flats and salt marsh?

I’m jarred from my reverie as the boat tips. The scientists disembark, preparing for the morning’s work of catching, counting, and measuring.

Raincoast Conservation Foundation (RCF), our partners on this journey, want to know who is where and when. Which different species of salmon come down from the headwaters? What parts of the estuary are they using more? How long do they stay?

Their interest extends far beyond the fish. Salmon move through the whole ecosystem. Birds and bear feed on them; their bodies fertilize the forests. And we’re losing them.

We’re losing them.

Lia, a young RCF scientist, is obscured by tall reeds as she records conditions. Misty starts the engine and drives the boat just far enough to drag the seining net across to the opposite bank where Dave and Charlie are primed, ready to haul.

Their motions are clean and quick; muscles strain against the mud and the current. Something gets stuck and Misty moves across the stern of the boat with implausible stealth for someone clad in weighted rubber. Time is of the essence—specimens will be lost if the net lags even for a second.

Mike and I sit oddly in the middle, both observers and participants in this Lia calls out numbers (net in time, net out time, etc.) that I scribble on a clipboard while Mike sloshes to capture the action on film, swinging his camera aside to help haul.

We look on as the scientists take stock of their inventory. Small crustaceans, minute marine life. And there it is. Tiny and glistening, no more than two inches. A Chinook? A chum?

“What’s the body shape?” “Look at his parr marks.” “There, on the right side?” “No adipose.” “It’s June.” “He’s really little.” “His head, it’s pretty chummy.”

A chum. It is determined.

We move through the channel and repeat. Once. Twice. Three times more until the tide turns out of our favor.

Later, back at the field station, the fry goes into the freezer. It is funny, the business of specimens—sacrifice to save.

The field station is a basement apartment built into a hillside in



Above: Charlie Clark (left) and Dave Scott (right) assist conservation scientist Misty MacDuffee (background) as they seine for salmon fry in the Lower Fraser River estuary. **Left:** Raincoast researcher Dave Scott holds up a juvenile chum salmon to be measured and counted.

Vancouver’s Richmond suburb. It is furnished only with a few folding tables and chairs, a mattress on the floor here and there. In the freezer beside frozen organic peas and smoothies are baggies with salmon. Nothing to be grilled for dinner though—no, the nymphs will not be eaten.

Lia will look for clues in their ears. Growth rings are laid down in the tiny otoliths each day, ion deposits in the bone material marking migration, like years etched in the trunk of a tree.

What if our ears took count of our

years, our fears?

Even in the early summer the light lasts longer than we’re accustomed, and when the moon doesn’t show until 10 or so my equilibrium spits at me on this strange coast.

It will be 5 a.m. again tomorrow. The bald eagles will be picking at trash heaps; the fry will be pushing their way through the reeds; and the scientists will pull on their waders, throttle the choke on the small boat’s engine, and set to work the business of documenting decline. 🌸

THE
OTHER

SIDE



Danaus gilippus, Queen butterflies on retama.

Exploring the natural beauty and diversity of the Rio Grande Valley, Elizabeth Garcia reflects on what we tear down when a wall is built.

BUTTERFLIES AND THE BORDER WALL

By **ELIZABETH
PARKER GARCIA**

Photographs by
**NATIONAL
BUTTERFLY
CENTER**

IF YOU'VE NEVER
BEEN TO THE

RIO GRANDE VALLEY,

you might think that a region on the Texas border with Mexico would be a desolate place full of tumbleweeds, cacti, and dangerous people. You'd be surprised. In the RGV, you can go to the symphony, visit the largest one-story library in the nation, and buy an \$83,000 Maserati. You can also two-step to a country band, pick a fresh grapefruit from a roadside grove, and eat barbacoa tacos made from a cow's head that's been roasted in the earth overnight. The RGV is a world of contradictions. It is known for obesity and starvation, for illiteracy and a new medical school, for cotton fields and Space X, for the worst poverty you can imagine and for unimaginable wealth.

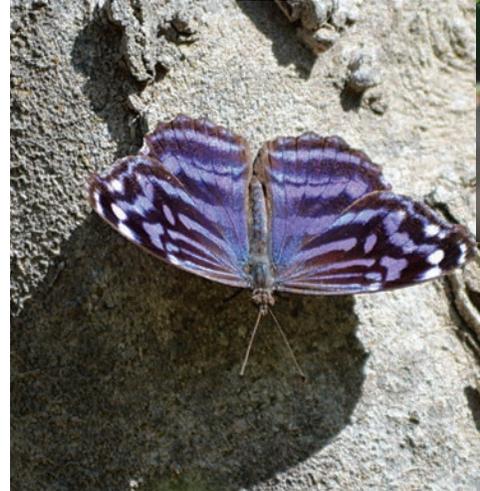
Most people know the RGV as the place where a mighty border wall will intimidate undocumented immigrants on the other side. I know it as the place where this wall will cut off American access to an ecological paradise and hinder the migration of hundreds of species of exotic butterflies and birds every year.

Because it is not possible for us to build anything on our true border (the middle of the Rio Grande River), the border wall is tentatively planned to be constructed up to two miles north of the actual border, forfeiting 80% of the lower RGV's scarce native habitat to the south side of what is essentially a new border. The green spaces that will be lost include sanctuaries not only for wildlife, but for American families, too.

Though the RGV is home to many city parks and thousands of acres of privately owned ranches, there is little publicly accessible wilderness left. The border wall will block American access to most of the National Butterfly Center, Santa Ana National Wildlife Refuge, and similar areas, preventing thousands of families from reaching outdoor areas that are vital to their physical and mental health. I know because I have depended on these places for my own wellbeing.

A FEW YEARS ago, I developed a mysterious autoimmune disease. My body had fought an invading virus so aggressively that it began to

- ▼ *Atlides halesus*
Great Purple Hairstreak butterfly
- ▼ *Myscelia ethusa*
Mexican Bluewing butterfly



- ▲ *Biblis hyperia*
Red Rim butterfly

misidentify its own healthy cells as enemies, attacking my lungs, skin, and joints. Most days, I used all my energy to work for a few hours and then came home and collapsed on the couch where I focused solely on remaining conscious enough to watch my six-year-old daughter sit in front of the TV or play a video game until her dad returned from his office. Even when my husband arrived and urged me to go to bed, I struggled to drag myself up, slowly shower, and will a heavy toothbrush across my teeth. My care team thought Lupus could be possible. While I waited for more test results, my therapist urged me to minimize stress. She told me to look for birds or butterflies. "Wait at a window for one to appear. Be present. Watch." She prescribed nature and said that

time outdoors would be helpful to my daughter and husband, too.

At first, my family started looking for birds and insects while waiting in traffic. We stopped at a red light where green parakeets perched on telephone poles and wires. We rolled down the windows to hear them squawk. My daughter marveled at how they nuzzled each other like sweethearts. My husband squeezed my hand.

Driving home from school one afternoon, we came across dragonflies and swallows all swarming and swooping through our neighborhood. Initially, it looked like the swallows were eating the dragonflies, but they both chased something else that was invisible to us. An impatient driver honked and forced us to move on before we could discover what was for lunch.



One day, we drove through a bloom of tiny yellow butterflies that sprinkled down from the heavens like living confetti.

Physically, I still suffered from pain and fatigue, but these little observations lifted my spirits. I realized we needed a closer look at nature. Not the nature that you see from your car windows. Not the nature you sample in a city park full of well-groomed trees and grackles that steal popcorn from trashcans. Not even the nature of our small yard where a hummingbird built a nest in our biggest tree. We needed nature we could get lost in.

The National Butterfly Center was the first place we visited on our quest for wellness. The center's entrance features a rectangular, white brick building and a shimmering reflecting pool. The sharp, straight lines of the building and pool contrast with the center's acres of curvy, cultivated gardens and zig-zagging, brush-lined trails.

I marveled at how quiet the grounds were. I was used to the endless noise of the city, but at the center, I could hear the breeze rustling through the tall grass and shrubs. It felt like the land sighed. As I grew closer, I saw many orange butterflies stuck to every plant, opening and closing their wings in time. I passed under a shady canopy of trees, and a Mexican Bluewing landed on my shoulder. For a few moments, the butterfly's wings rose and fell with my own soft breathing. I lost my troubles and found a bit of peace.

Over our next visits, we learned that the center isn't just home to butterflies; it also hosts a variety of native and migratory birds. There are birds dark blue like a north wind and bright blue like a Caribbean sea. There are green jays with cerulean heads and lime green bodies. There are fantastic creatures of other colors, too, like Roseate Spoonbills with pink feathers and spoon-shaped beaks.

Perhaps the most famous visitors, though, are the center's namesake swallowtails, hairstreaks, emperors, skippers, longtails and, of course, monarchs. Thousands of monarchs arrive each October from northern states, floating into the subtropical RGV like orange autumn leaves. They bring the cool with them. They stay awhile and then spirit away to Mexico in time for Dia de los Muertos. After wintering in Mexico, they ride warm winds north, returning to the National Butterfly Center before bringing spring and summer to Kansas, Michigan, and beyond. The National Butterfly Center is an ideal location to witness this migration, so it's hard to believe our government wants to seize seventy of its one hundred beautiful acres to build an ugly wall.

CONTRARY TO COMMON belief, the wall will not be erected in an empty, dusty space. Its engineers will cut through a critical conservation corridor, demolishing thousands of acres of lush, riparian habitat. In a sense, the United States is being diminished by its own autoimmune disease. Some of our leaders have become so aggressive in fighting “bad hombres” that they are also hurting innocents on American soil. The border wall is supposed to protect our country’s border, but if it is built where it has been proposed, we will lose some of our nation’s most beloved and necessary land.

The border wall will destroy privately owned properties like the National Butterfly Center and the ranches and



▲ **Cyanocorax yncas**
Green jays; exterior wall of National Butterfly Center.

homesteads of many families. It will also prohibit public access to federally owned land like the Santa Ana Wildlife Refuge. Whatever native land is left intact will be trapped behind the wall along with endangered species like the Texas Tortoise, Texas Horned Lizard, and Texas Indigo, which will be unable to climb out. Further, the wall will separate co-dependent plants and animals that rely on one another to fulfill their life

cycles, resulting in species decline and death. It will prevent endangered ocelots from reaching a major source of water, the Rio Grande River, and keep them from accessing diverse mates. It will reduce the already scarce habitat that migratory birds and butterflies depend on when they make two-way stops in the RGV. And it will hurt families like mine who need time in nature to improve their physical and mental health.

If the wall is built where it’s proposed, people and animals in the RGV will lose places that nourish them. The wall will allow us to keep our grey interstates, but we will lose our brown river. We will be able to visit our newly-remodeled shopping mall, but be unable to sit beneath our 900-year-old Montezuma Cypress tree. We will keep our multimillion dollar convention center, but lose La Lomita Mission. We will preserve our gated communities, but be left outside the gate of the “crown jewel” of the National Wildlife System, Santa Ana National Wildlife Refuge.

To thrive, we need all the parts that make us whole. We need balance. We need our treasured green spaces to be kept a part of this one nation, indivisible, for all. 🌱

MIS MID PAPIS

What makes an environmentalist?
What do they look like?
Where do they come from?
One writer’s reflection on
growing up, taking stock,
and reshaping the narrative.

• By EMILY ALMENDAREZ

GROWING UP, MY FAMILY never ran out of things. Wait, let me rephrase that. Growing up, the invisible hands of repurposing made it feel like we never ran out of things.

No, growing up my family didn’t carry multiple bank accounts. Our bills were not green, and they did not sport historical caricatures. Ours were hot pink with “Notice to Vacate” scrawled in red—like the screaming, flushed faces of landlords telling my father that this was not a homeless shelter.

Emily, asegúrate que no se vayan a quemar los frijoles. Vengo al rato.

Trust me, you have not felt anxiety until you’re told to take care of the beans boiling on the stove top in the early morning. I would give a muffled affirmation—sí mami, cuídate—and flip the pillow to its cold side. The madrugada pot of beans was up jumping before you or the sun had agreed a new day had started. If spinach was Popeye’s energy, each bean was a Duracell battery. The cracking tortillas on our comal acted as a makeshift metronome, ticking in between the yawns and Power Rangers playing in the background.

Y esas botellas. Recuérdate Fernando, de aplastarlas.

After breakfast, we didn’t mow our luscious green lawn as a chore. Los Angeles isn’t really known for many of those. Our mid-day activity consisted of running around the house collecting plastic bottles and aluminum cans, abandoned in corners and on table tops by a house in constant motion. This turned into basketball practice—recycled bags and bottles as improvised nets and balls. My brother and I always hoped for a 35-cent cut after selling them at our local recycle facility. The Munchies peanut butter cheddar cracker sandwiches were 35 cents. Years later when asked if I received an allowance, this sweet concession is what my thoughts would gravitate to.

Cómo que ya no hay Fabuloso? Mira, échale aguita, y mézclalo. Ves? Como nuevo.

You could never tell my mom that we were out of something. Alchemy was her craft. She bended water and used it to prolong the product left at the bottom of the dish/shampoo/fabuloso bottle. I was a witch in training, inculcated with the refusal to recycle a bottle, unless it had been filled with water at least once.

Mira hija, machuca los frijoles para ser unas baleadas bien ricas. Sácate la crema y el queso.

Lunch metamorphosed the beans from earlier that day. Refried beans became the savory paste that kept the guac, cream, and cheese together in the large flour tortillas. No, the guac was not store bought. No, the guac was not part of a fad or aesthetic. The avocados were purchased by the women that sat by the bus station or near the underpass of the freeway. The guac was created with love; my dad slicing, me smushing.

We never forgot the hands that had touched our food. We never forgot the journey our food took to get to our table. We never forgot our people that picked them off the field. We never forgot.

Lito, se llama sopita de gallina negra.

Dinner was a bean soup with a boiled egg for each person at the table, all overseen by my old man. You see, my dad could be a history professor if he wanted. No, not those professors that sport the Mr. Rogers sweaters, and lack the skills to teach or interact with fellow human beings. My dad is all hand waves and gesticulation. The kitchen was his lecture room; his stage for his TED Talk on “Bananas and How the United Fruit Company Ruined Honduras”. He’ll tell you the ins and outs of development in El Salvador, give you a crash course on Mexico’s infrastructure, and the dates of U.S. intervention Latin America. He’ll illustrate the gen-

erational exploitation of both land and indigenous people, doing it all without the academic jargon that acts as the barrier between the intellectual haves and have-nots. He’ll belly laugh at his own jokes and widen his eyes for added effect. He’ll tell you stories of his youth grazing cattle and traveling around his country. He’ll tell you of the disproportionate effects of climate change on marginalized people of color.

No te vayas a tardar mucho. Tengo que entrar a trabajar temprano mañana y necesito agua caliente.

The water pressure and heating in our apartment always seemed to be off. It was a timepiece and tracker of how long and how many people had showered that night. My parents finessed any way they could to make it feel like we never missed anything.

You see, that’s the thing. Environmentalism is usually portrayed as a hipster with lensless glasses—one that goes to organic juice bars on the weekend, listens to Tegan and Sara. The portrait is painted white and it sports Birkenstocks. It’s not a terrible image, but it’s one that erases the intersectional pioneers of indigenous land retention. Or the accidental environmentalists like my parents.

Marginalized communities face the brunt of food deserts, climate change, land grabbing, fracking—you name it. They face it at a disproportionately higher rate than those with privilege. My family may not have the academic lingo or requisite trust fund to be able to compartmentalize the issue. Not let it bleed into their lack of health care. Lack of monetary means. Lack of legal status. But those relationships exist. My parents are the reason I’m here and why I understand that through land we set the stage for further questioning and activism.

It’s the jumping off board, the tethering thread—not the final point of inspection. 🌱



HARD WATER

An intimate portrait of a community on the extremes. • By PENN CHAN



PHOTOGRAPHS BY PENN CHAN

THE FORECAST READS -10°F today, but it's colder on the frozen lakes of Maine. There, the wind chill takes hold as you stand on solid ice, 8 inches thick—the only thing separating you from certain death underfoot. For several months, I found myself on the lake nearly every day, meeting and photographing these hermetic communities. The shared sense of isolation attracted me to this place and, by association, this inhospitable climate. We arose at dawn each day to sit and wait for the catch. It was the process that kept us warm; the mystery of what we could find that kept us coming back, out into that cold, ruminating quietly within the internal tundra that seemed to transport us hundreds of miles away. ❄️



SAGE

EXPANDING ENVIRONMENTALISM THROUGH
PROVOCATIVE CONVERSATION AND THE ARTS.



Climate change has had a devastating effect on the agricultural traditions of farming communities across the globe. In Yé, Burkina Faso, farmers have developed adaptation strategies to adjust to the changing conditions, including the half-moon method, which captures rainwater and keeps topsoil from washing away in heavy downpours. Here, Etienne Tiendrébeogowe observes his fields before, during, and after a heavy rainfall.

Photograph by **JAMES SOUDER**