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1

The State of the Grasslands

NUMENIUS WOULD BE A FATHER

I

Early morning is a time of shimmering beauty in the grasslands. The sun swiftly melts the delicate shimmer, however, and you are soon left with a blinding haze and unrelenting heat. Beyond layers upon layers of bleached grass, past where hot air wavers, life unfolds in ways that few are able to witness. On early May mornings, I feel fluttery with anticipation, as though I were picking up a treasured family member at the airport. It has long been my dream to follow the extraordinary curlew over the course of an entire breeding season in the grasslands, and this year I have devoted myself to the work.

I first encountered the long-billed curlew in California in my twenties and fell deeply in love with my “Zen teacher.” Having grown up in the Himalayan foothills, which are resonant with plant and animal biodiversity, I was a child naturalist who lived for glimpses of a multitude of creatures from jackals to snakes. When my family moved to Delhi and then Toronto, it was a painful shock to be separated from my beloved mountains, hills, and forests. As a graduate student, I moved to Los Angeles, where I yearned even more to regain the intimacy I had lost with nature. Each weekend when I could get away, I hiked in forests and wilderness areas, sometimes studying for Monday’s exams while shivering in a tent. Then, one morning, I had an encounter with a long-billed curlew who transformed my life and work as a naturalist.

I moved, finally, to New Mexico, where searching for *Numenius americanus* became my spring and summer ritual. The curlews arrive in the grasslands of northeastern New Mexico, which is the southern end of their breeding range, in the spring. They are depleted after flying hundreds of miles from Baja California, the Chihuahuan Desert in Mexico, the Gulf Coast, or even Central America, sometimes over the course of just a couple of days.

I breathe more freely after I've had my first curlew sighting of the season. Sometimes I take field trips to the grasslands as early as the end of March to observe the biome, though the curlews won't have arrived yet. On March mornings, the spring winds moan and wheeze, chilling the air, grasses flutter in the unrelenting wind, and even the staid juniper trees begin to dance. Spring can be wild here, with blustery snow, hard rain, and chinook winds. While the exact date varies from year to year, curlews tend to get here in April—by Earth Day. This year, my family and I weren't able to drive east to the grasslands at the very beginning of May, as we were tangled in a flurry of end-of-school performances amid surprisingly hard spring rains, and my younger daughter and I were recovering from nasty sore throats and fevers.

Searching for curlews brings me back to where I belong. As a girl in the Himalayan foothills, I could slip into the wild almost any day. Now, most of us don't live in such biodiverse places. Even in New Mexico, the so-called Land of Enchantment, I must drive for some time to approach the wild. I cannot even walk to what I have defined as the microwild—fragmented scraps of nature that are large enough to harbor notable biodiversity. As a naturalist who studies ecosystems and plant and animal biodiversity, I see a benefit to my field trips—they allow me to spend long periods of time in nature. On weekends, I drive to national forests or other wild areas where I hike in search of birds, and over long summer days I drive farther to wildlife refuges or cruise along private fields and beyond, in search of intact stretches of grassland.

Despite the unavoidable delays, we were finally here in the grasslands. Eyeing a pronghorn who for some reason was racing with our car, my husband, Michael, drove onto the shoulder and turned off the car.

The fastest land mammal in the country, *Antilocapra americana* continued to race before coming to an abrupt halt to watch us. Our two girls were riveted.

After years of studying long-billed curlews, I know not to expect an appearance simply because I'm in the field in the right season. Two years back, on Memorial Day, I hiked long hours in a promising wildlife refuge without seeing a trace of a curlew. Not even a cry. There were other birds—*Sturnella neglecta*, western meadowlarks in yellow and black, sang throatily from fence posts, and *Eremophila alpestris*, horned larks with headbands, scuttled in the dirt, looking for grass seeds. These two species would be my faithful companions in the season to come. Long days spent observing birds are like a *yatra*—a pilgrimage—like the road trip my parents took me on to Dharamshala, where the Dalai Lama lives, so that he might bless me. And he did, with a beatific smile and the caress of hands over the head and chubby palms of a two-year-old girl who locked eyes with his. Seeing the curlew is a similarly transcendent experience and is perhaps fittingly rare.

Grasslands are one of the most magnificent and diverse biomes on the planet, and also the most vulnerable. The shortgrass prairies of northeastern New Mexico brim with perennial grasses, especially *Bouteloua gracilis* (blue grama) and *Bouteloua dactyloides* (buffalo grass), drought-tolerant species with 90 percent of their biomass in astonishingly long root systems that stabilize the soil. In the summer, a subtle multitude of wildflowers put on a show that changes from week to week. Precisely because grasslands are mostly fertile and flat, over the last two centuries they have been razed in North America and throughout the world for agricultural development: The American Bird Conservancy estimates that over fifty million acres in the northern Great Plains have been plowed under and replaced with cropland. The long-billed curlew's story illuminates the plight of numerous grassland birds and animals. The curlew is one of four indicator species—the others being the upland sandpiper, Baird's sparrow, and Sprague's pipit—whose presence is a marker of the health of the shortgrass prairie.

Grassland fragmentation hasn't abated. Over two recent years, nearly six hundred thousand acres of northern Great Plains grasslands—an area almost the size of Yosemite National Park—were converted to fields of wheat, corn, and soy. Every year the Great Plains loses roughly one million to two million acres of grasslands. The World Wildlife Fund cautions that more than 70 percent of America's tall-grass, mixed-grass, and shortgrass prairies have already been lost, and we're consequently seeing devastating declines in grassland pollinators and birds.

While I continue to scan the grasslands before me in search of the long-billed curlew, I have reason to feel doubtful. Many a day have I driven back home disappointed. Perhaps one consolation is that along the way I encounter a chorus of smaller grassland birds like the sunny meadowlark and the curious horned lark.

Even a seemingly solitary bird like the curlew is buoyed by community in surprising ways. The deeper I wade into the ecology of the grassland biome, the surer I feel that conservation efforts are best focused not on any one species but on ensuring that the *community* of grassland animals have the habitat they need to thrive. One key player in this community is *Athene cunicularia*, the burrowing owl, who along with the loggerhead shrike may well be a sentinel of the grasslands. Always on watch, the leggy owl with an erect posture might be an ancient master of the Way; he nests in burrows dug by the industrious prairie dog and pays rent by warning his neighbors about danger. The burrowing owl is more visible than the elusive *Lanius ludovicianus*—the loggerhead shrike stares so sharply, you'd think he has a score to settle. This May morning, my older daughter, Mia, identified the shrike from the way he flew off to a better perch so he could stare us down. With black visors drawn across a slate-gray head that blends into a gray back, this is a steely-looking bird who impales his prey on thorns or barbed wire fence. Then you see his pearly white underside shine softly in the spring sun. You wish you would chance upon the shrike again and again. Like the burrowing owl, the loggerhead shrike is aloof, indifferent to your desires. Today the bird is listed as endangered in some

states—likely because of the loss of grassland habitat dotted with shrubs, which are critical hunting perches and breeding grounds—and is rarely seen in the Canadian prairie, where the eastern population is classified as endangered and the western as threatened. In the western US, I tend to see only one or two individuals over the course of a day. This makes the shrike an infrequent bird, given that most days when I am in the field, I cover a considerable distance—today, in addition to hiking along familiar trails, we also drove across thousands of acres of grasslands.

In contrast to the solo shrike, I found it heartening to experience robust numbers of another grassland regular: *Tyrannus verticalis*. The western kingbird's lemony-yellow belly caught the sun's light as he flew from fence post to fence post, lording over as much distance as he could cover. The diffuse gray head gave way to white along the chin. Over the last decade, the western kingbird may have disappeared from my garden, but it gladdened me to see several individuals along a wire fence in public lands in northeastern New Mexico.

We were experiencing the relative abundance that surrounds spring migration. The kingbird was one of several species who watched us from two fences that lined the road. The familiar *Sayornis saya*, Say's phoebe, with a charcoal cloak and tan-orange underside, executed fabulous aerial leaps to fly-catch. Every spring, I see a pair of phoebes out my bedroom window—they return to breed under the eaves of a neighbor's house. But the Say's phoebe undoubtedly looks more dashing against this sage-green expanse.

The group clown chuckled; the meadowlark has stripes running across a splashy yellow face. When I feel glum because the long-billed curlew is nowhere in sight, the meadowlark cheers me up. The bird is actually not a lark (family Alaudidae) but related to New World black-birds and troupials (family Icteridae). Looking closely, I spotted a smaller bird in the group, like a schoolgirl with a black-and-white headband; with the shy curiosity of a student, the horned lark cocked a small head to one side to size me up, revealing a buttony dark eye and lemony throat. A dramatic bird with two black teardrops, she let out

squeaky high-pitched calls. Those aren't horns but feather tufts that lend this lark a spirited look. I sometimes see the horned lark in the company of curlews, so the tinkling song of this bird felt like a flicker of hope.

II

It is one thing to drive through the grasslands and quite another to walk through them. When the winds are relatively calm and there are clouds in the sky, the prairie stretches ahead, flanged here and there with glimmers of illumination. It may look like nothing but grass and light, but on foot you experience the prairie's rich wildlife community—a herd of pronghorn grazing in a prairie dog town, or a Say's phoebe letting out a plaintive *pee-ur* while in the air. Only the fortunate see the queen of grassland birds. But you can nonetheless experience a freeing openness that is a distinctly different experience from hiking in a forest. Commonly known as prairies, grasslands are herbaceous grass-dominated landscapes with less than 10 percent tree cover.

Since grassland birds are no longer as abundant as they once were, even in springtime the songs of flying larks are punctuated by birdsong filtering from the distant woods. At the edge of these woods, a frog croaks in a shallow creek and a passing ash-throated flycatcher responds insistently. A hepatic tanager flies from one ponderosa pine to another. While it's tempting to end a disappointing grassland hike in the woodlands, where the flashier birds fly, it takes Zen-like patience to remain in the grassland. Ultimately, it is the search for my old companion, the curlew, that keeps me rooted in this biome. As you walk through modern-day grasslands, the most common sight is not a bird but a cow patty. The tang lingers and gets on your clothes and skin. On occasion you spy bison patties. Coyote scat, woolly gray, won't surprise you, but a fresh greenish-brown pile attracting flies may have you wondering whether a mountain lion passed through here. A horned lark—so near!—eyes you winningly from a sandstone, and a cluster of meadowlarks ride air currents with undulating arcs, pausing on dry grass to

chuckle like teenagers. Our eyes aren't used to such wide-open stretches, and it can take some adjustment to *see* this landscape. When I come upon a herd of bison, I observe them from at least three hundred feet away, and the experience triggers a sense memory of an ancient time when some distant ancestor roamed the savanna and glimpsed a lion peering from behind a line of shrubs.

The openness may suggest emptiness, but that is an illusion. The richness of the grasslands comes dazzlingly to the fore on those occasions when, feet planted on sod, I find myself observing a long-billed curlew. "How did I ever find this prehistoric-looking bird?" I wonder then. For my method is to roam the prairie, drive along fenced-up fields or public land, and scan the grass until my eyes hurt. Such adventure has its highs and lows. Many a time I find myself on the verge of serious letdown. While Michael drove and our younger daughter, Pika, read a novel titled *Hummingbird*, I had begun to wax philosophic with Mia, who'd been scanning the prairie: "You don't see a curlew every day when you're out in the prairie. That's one reason why it's special when you *do* see a curlew."

This wasn't convincing anyone. We all felt deflated that our first field trip of the season wasn't yielding the joy of seeing a curlew.

III

Over the last 150 years, especially during the twentieth century, long-billed curlews have lost fully a third of their historic breeding range. Today, curlews breed in the summer in what remains of the shortgrass and sagebrush prairie in the Great Plains, Great Basin, intermountain valleys of the western United States, and southwestern Canada. As their fragmented breeding grounds dwindle further, even the staid USDA has gone as far as to admit that the conversion of the prairie to agricultural use—and more recently to development—is the major threat to curlews. The curlews are already vulnerable to the overuse of pesticides.

It was still early in the season, and I had committed to observing curlews in all stages of their breeding cycle to fully understand their lives

and needs. Seeking my Zen bird, I suppressed the sinking feeling that we were seeing every other bird on the prairie but the curlew. *Falco sparverius*, American kestrel, kited above; our smallest falcon, his rufous and blue-gray colors were thinned by the sun. Pronghorns raced each other, though one pair gazed drowsily into the distance. The white rump of *Circus hudsonius*, northern harrier, flashed in the bright light as this bird with an owl-like face glided deep and low into a field in search of prey.

Feeling beat, we got back into the car. A little later, a meadowlark considered us from atop a brushy juniper. This was a remote stretch of road and visitors merited careful attention. I hoped he wasn't mocking us.

"How much more distance will you go?" Pika asked from the back seat.

"Not much. A few more miles."

"A few more *miles*?"

We were careening toward the end of the stretch of prairie where we might reasonably find a curlew. Nest-site fidelity is strong in many curlew pairs, and from prior years I knew this as the territory of a remarkable pair, Numenius and Crescent. Amid the gloom of "we didn't find one and now we must turn around," I said, "Stop. Wait. We got him."

Despite my years of experience, the spring's first sighting is tinged with magic. I am beyond thrilled and can scarcely believe my luck. Later, when I reflected on the day's ups and downs, the curlew sighting felt surreal, like a miracle. How did we manage to comb out this singular bird in thousands of grassy acres of prairie?

I have rarely seen a male curlew so contemplative, so much at ease. The season stretches ahead for Numenius. He may be seasoned, but each spring brings fresh unpredictability. His round head is mellowed with sunrays and he momentarily points his long indelible bill to the horizon. It is as though Numenius has smoothly completed his last shift—incubating eggs—and is taking a well-deserved break. Shooting the breeze.

The cool May breeze caresses my cheek as I stand on spongy ground, watching the male curlew from roughly a hundred feet back. On occasion he dips his bill into the short grass to pick off a grasshopper. There don't seem to be many grasshoppers around, or else they're not particularly visible today. A few of them *click-clack*, punctuated by a cicada's whine and the faint buzz of a fly. The flies are a testament to the unusual spring rains and occasional puddles. The rains are the reason a playa shimmers in the distance, beyond where Numenius forages. Playas are shallow ponds or lakes that form temporarily in grasslands during monsoons. They have been forming in the southern Great Plains since the Pleistocene, when they were gently carved into being by sediments and wind erosion. Numenius may not have seen such an expansive playa in some years—and neither have I.

During the breeding season, some curlews prefer to have a water source in the vicinity. In modern times, most curlews must make do with cattle watering holes. While curlews are large enough to drink from watering holes, other sensitive grassland birds such as *Calamospiza melanocorys*, lark buntings, are prone to slipping and drowning in these contraptions. The shallow playa, on the other hand, has the blue-gray grace of a water body that is part of the landscape—both small and large birds are at ease here. Numenius pauses occasionally to look for a grasshopper while slowly making his way toward the playa. Insect abundance gets denser the closer you get to water. For once, spring rains have soaked this parched landscape. The ground I stand on feels unusually soft, and the fronts of my black-and-white sneakers are muddy brown. The curlew moves to where the land dips and then abruptly vanishes from sight. I scan the greenish-gold grass but find myself staring at a bare expanse of landscape—beyond the playa lies another stretch of tawny grass before a thick line of dark conifers breaks in. Steely-blue mountains rise beyond, their uppermost domes dotted with luminescent snow, and saddles gleaming white. The curlew's leggy profile imprinted in my mind, I let out a long breath at the sheer beauty before me. The southernmost range of the Rockies, the Sangre de Cristo Mountains, are the crowning glory of this landscape.

IV

Numenius is a father. Well, almost. His mate, Crescent, has laid a clutch of eggs, and the pair is taking turns keeping them warm. When he sits down to incubate their four eggs in a shallow depression scraped into the ground, short grasses cover most of his body, with part of his neck and head sticking out. From a distance, a predator might perceive the head as a tawny mound or clod dug up by a prairie dog, but the bill is a giveaway. It is safer when Numenius rests it against the grass.

Spring feels like a lifetime ago. Numenius got to the breeding grounds in mid-April. As usual, he got here earlier than Crescent, on a mission to find and establish himself in a large territory with insects scurrying about. Monogamous birds, Numenius and Crescent chose each other a few years back. Each mating season he makes a fresh effort to please her and win her over once more. This spring, he poured himself into a display flight over their nesting grounds, beginning with a steep musical ascent and climaxing with a slow descent marked with bubbling upward slurs. They mated successfully, and Crescent laid a clutch of four eggs.

Crescent incubates the nest during the day, putting in twelve-hour shifts, and he takes over at night. Incubation will last for about a month—a long time during which the eggs are vulnerable to predators, although the birds' patterned dorsal plumage blends in with the vegetation, camouflaging them.

When a predator passes by while Numenius is incubating, he freezes in place so that he won't be noticed. This usually works—except for one wandering coyote who seems exceptionally hungry. The coyote's coat is scruffy, a muddy tan color; it looks as though he had a rough winter.

From the state of the grasslands, Numenius can sense that last autumn was too dry. The coyote may have begun to suspect the presence of the eggs and is scheming to get them. He and Crescent keep the coyote at bay with different strategies. At first sight of the

coyote, they exchange an anxious *curluoo* call. Then they escalate to a heightened alert and dive-bomb the intruder, as part of many attempts to squawk, shriek, and *ki-keck* the coyote out of their territory. But the coyote is persistent and impossible to shake off. He lingers, lurks, and waits.

