WILDLIFE

Accidental Wilderness

Hanford, White Sands and other 'wastelands' are good for bombs—and biodiversity.

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Heidi Newsome, biologist with the U.S. Fish and Wildlife Service, at the White Bluffs of Hanford Reach, part of the former Hanford Nuclear Reservation that's now a wildlife refuge.

4 / 9

April is not the cruelest month in the scablands of southeastern Washington. In a week, pink phlox would carpet the undulating desert landscape below Rattlesnake Mountain, followed soon after by a rush of violet lupine. On a clear day with only a slight breeze, U.S. Fish and Wildlife Service biologist Heidi Newsome walked up a canyon, seeking signs of the rare *buteo regalis*, or ferruginous hawk, so named for the rusty hue of its feathers. No one else was around; this ecology reserve is closed to the public. Far out on the northern horizon, next to a sharp turn in the Columbia River, Newsome could see a few trucks, cranes and old concrete buildings. But as she made her way up Bobcat Canyon, all she could hear were the red-tailed hawks, northern harrier, chukar partridge and migrating bluebirds.

No ferruginous hawks, though. Newsome was, and is, a little worried about how the hawk population is doing these days. But she believes that if the birds are going to show up anywhere, it is likely to be here, in what is arguably the healthiest, largest swatch of shrub-steppe habitat in the country.

Hiking back down the canyon on a rocky game trail, Newsome rounded a corner by a spring and came upon the skeleton of a bull elk. A few leg bones had been scattered, probably by coyotes, but otherwise the skeleton looked undisturbed, as if it had been assembled on the spot by a taxidermist.

The bones were bleached from the sun. Only a tiny patch of fur and skin remained, on the edge of the skull. Newsome knelt down for a closer look, brushing aside the grass that was growing up over the animal's jaw. From the size and wear of the teeth, she estimated that the bull was five, perhaps eight, years old when it died. During the fall rut, bulls are sometimes so busy fighting or mating that they fail to eat enough to store up sufficient energy for the winter. An injury during a bout only puts them at greater risk, and Newsome says it's not unusual for recuperating elk to seek the cool relief of secluded springs such as this one.

Newsome's workplace is loosely known as Hanford. Administered by the Department of Energy, the Hanford Site in its entirety includes Saddle Mountain Wildlife Refuge and Hanford Reach National Monument, as well as the central part of the site, where the core DOE operations take place. Newsome works for the Fish and Wildlife Service, managing the refuge portion of the area. Her work in Bobcat Canyon, in addition to hawk surveys, includes restoration efforts to encourage the re-growth of native plants devastated by recent wildfires.

Mother Nature hasn't always received that kind of respect in these parts. Between 1943 and 1987, nuclear reactors and chemical separation plants here produced some two-thirds of the plutonium for the entire U.S. nuclear weapons arsenal. That plutonium was used in the first atomic bomb, tested at New Mexico's Trinity site; in Fat Man, detonated over the Japanese city of Nagasaki; and in countless warheads assembled during that horrific chess game known as the Cold War. The plethora of spent nuclear materials and remaining radioactive contamination give Hanford the lowly distinction of being the worst radioactive waste site in the Western Hemisphere.

Growing up in Oregon's lush Willamette Valley, Newsome knew nothing about Hanford, except that it was a synonym for bad. "Hanford was this big black hole," she said. "All I knew was that it was really contaminated — and that you'd never want to go there." Yet now, after 10 years working as a wildlife biologist based out of the nearby Mid-Columbia River National Wildlife Refuge Complex, Newsome sees things differently. She has fallen in love with this landscape and come to appreciate the wealth of biodiversity that thrives here, thanks to a

National Parks, forests, wilderness areas and the myriad other state and federal designations for property owned by the government are all part of our shared natural heritage. Yet so too are the lands under the aegis of the departments of Energy and Defense — installations like Hanford. The primary difference between these sites and their more lovable counterparts (ghastly contaminants and the occasional unexploded ordinance notwithstanding) is that they offer minimal public access, if any.

We can't take the kids camping in there, and most likely we don't want to. That does not mean, however, that we aren't curious about what lies inside the fences.

The Department of Energy owns and manages 2.54 million acres of land in the U.S. The Department of Defense has a whopping 25 million acres, although much of that includes military bases and the like — that is more heavily used than the handful of huge and mostly empty DOE tracts. The largest sites include the Army's White Sands Missile Range in New Mexico (3,150 square miles) and Barry M. Goldwater range in Arizona (2,800 square miles), followed by DOE's Nevada Test Site (1,375 square miles), Idaho National Laboratories (893 square miles), Hanford (560 square miles) and the Savannah River Site in Georgia (310 square miles). For comparison, the Hawaiian island of Oahu is 597 square miles.

When I talk about going to Hanford, people usually respond with a sense of abhorrence similar to Newsome's *you'd never want to go there*. Those aware of the contamination predicament slowly shake their heads, signaling a kind of wholesale despair not merely about the pollution at that place, but about the overall ass-kicking Gaia has suffered at the hands of humankind.

Yet writing off these unusual geographies as contaminated hellholes is a mistake on a number of fronts. For one thing, it requires turning a blind eye to how vast and varied they are. In most cases, a surprisingly pristine zone sits between the truly nasty stuff and the outer perimeter. "When the government acquired these areas in the 1940s and 1950s, they had these huge security buffers," says Joanna Burger, a professor of life sciences at Rutgers who studies DOE sites throughout the country. "Maybe only 10 percent of the land was ever used."

These areas also warrant our attention because they contain diverse ecosystems with some of the least-disturbed plant and animal habitat in the country. After so many decades without grazing, mining, development, ATVs or other public use, they have become accidental wildernesses. Similar circumstances can be found in other corners of the globe: The strip of land constituting the Demilitarized Zone on the Korean peninsula; forests near Chernobyl; vibrant coral reefs around once-bombed-out atolls in the Pacific. Yet many of the largest of these unexpectedly natural sites are right here in your American West.

Which points to another reason why we shouldn't view places like Hanford through the single lens of environmental nightmare — or, for that matter, eco-paradise. To see these historically pivotal landscapes in simplistic terms ignores the relationship each of us has to them, and belies the complexity of the world we inhabit.

April is still chilly for rattlesnakes to be out sunning, but as we began our walk up Bobcat Canyon, Newsome still advised me to keep an ear out for the telltale rattle. Petite with straight sandy-blonde hair and brown eyes, Newsome reminds me of an outdoorsy version of actress Holly Hunter. While walking or driving, she will reflexively halt or slam on the brakes of the vehicle and in a nanosecond bring her "binocs" to her eyes to focus on a distant bird.

Just to get this out of the way: Newsome doesn't wear a hazmat suit to work, and she isn't in danger out in the field, provided she doesn't flip the truck while navigating some of the site's more harrowing dirt roads. That's not to deny the fact that nearby sits some seriously disastrous detritus. Hanford is home to 53 million gallons of solid and liquid radioactive waste stored in failing underground tanks; 25 million cubic feet of buried or stored solid radioactive waste; billions of gallons of contaminated groundwater; hundreds of buildings, all slated for demolition, that have varying amounts of contaminants. And although plutonium production at Hanford ceased almost 25 years ago, new goodies keep arriving, making the worst mess in the country that much more intractable. The same day I toured the area, a retired nuclear reactor from a decommissioned U.S. Navy submarine arrived at Hanford, where it will be stored in a huge pit alongside 121 others just like it.

Thirty billion dollars does buy you some cleanup, though. About half of the area along the river has been resuscitated to a healthy state, pump-able liquids have been removed from those leaky underground tanks, leftover plutonium has been shipped elsewhere (South Carolina), a third of the buildings have been demolished, and a massive high-tech waste-treatment facility is being built to handle the otherwise untouchable tank waste. (The plant is not expected to be running until 2019 at the earliest.)

Move outward in any direction from Hanford's central plateau, which is to say the contaminated areas, and the situation couldn't be more different. Today, the landscape is less disturbed than it was before World War II, when much of the area was covered by farm fields and orchards. "All of this would be a bunch of crop circles if not for the Manhattan Project," said Newsome. She rattled off the names of species — sage sparrows, long-billed curlews, burrowing owls, sage grouse, jackrabbits. "None of them would be here."

In the early 1940s, when the federal government commandeered the hamlets of Hanford and White Bluffs, along with a wide area around them, safeguarding wildlife habitat was the last thing on people's minds. They were thinking about the Nazis. In a 1939 letter to President Roosevelt, Albert Einstein warned about "extremely powerful bombs of a new type," and advised that the U.S. hasten to secure uranium supplies and commit its best scientists to the task of developing atomic technology before the Germans beat us to it.

To harness the power of nuclear fission, the architects of the Manhattan Project needed a colossal industrial facility for producing plutonium. In December 1942, military brass dispatched a civil engineer to the West to survey potential locations. Years later, Fritz Matthias told a historian that he knew Hanford was ideal the moment he saw it: "We flew over the Rattlesnake Hills up to the river, so I saw the whole site on that flight. We were sure we had it … we had found the only place in the country that could match the requirements …" With a sparse population, relatively mild winter weather, power available from the Grand Coulee and Bonneville dams and, crucially, the Columbia itself, Hanford was perfect. (Nuclear reactors require huge volumes of cold water.) The setting also didn't strike Matthias or his colleagues as especially beautiful. To outsiders, this expanse of the Columbia Basin was a desolate tableland endowed with little more than "sand, sagebrush and dried water courses."

Inspecting a beetle sunning itself in the branches of a young sagebrush plant, Newsome said that the same poor opinion of the desert persists today. "This country was considered wasteland," she says. "Most people didn't — and still don't — appreciate its biodiversity." The modern corollary is the idea that deserts should be blanketed with solar arrays. And maybe they should. But Newsome thinks the tendency to undervalue this landscape may be a vestige of an American conservation tradition that inflates the value of the scenic at the expense of the biologically important. Jewels like the Tetons and the Grand Canyon are unparalleled and should obviously be protected. But they're not always the most supportive of wildlife. "I wish people like Teddy Roosevelt had thought more about preserving the nation's biodiversity."

By that criterion, Hanford is a treasure. Aside from the smaller and more heavily trafficked Yakama Indian Reservation and the U.S. Army's Yakima Training Center, this is the only remaining shrub-steppe habitat in the state. The word steppe derives from Russian, meaning vast, treeless plain. Instead of trees, these arid lands are full of bitterbrush, bluegrass, bluebunch wheatgrass, balsamroot, hopsage and two newly discovered plant species: the Umtanum Desert buckwheat and the White Bluffs bladderpod. Rocky Mountain elk, mule deer, bobcat, coyote, beaver, the occasional mountain lion and dozens of other species make their home here, as do a variety of waterfowl and songbirds.

The Hanford Reach is also the last place along the main stem of the Columbia with naturally occurring chinook salmon, and a Nature Conservancy species inventory conducted here in the mid-1990s documented 40 insects previously unknown to science. (And no, the flora and fauna here are not radioactive mutants.) In an enthusiastic summary of their findings, The Nature Conservancy researchers write that the site is a "spectacular" genetic bank for integral components of the local ecosystem, and that it is perhaps the single most important link in "preserving and sustaining the diverse plants and animals of the Columbia Basin Ecoregion." Take that, doomsdayers.

An area like Hanford has several advantages for conservation: its size, the dearth of human activity, nearly 60 years of little or no disturbance, and connections to other habitat lands beyond the site's boundary. Wildlife is not preserved as if in a game park, but actually has a chance to thrive on its own. "We try to keep the common birds common," quipped Newsome.

As we made our way toward the spot in the canyon where the elk died, Newsome was again on the lookout for ferruginous hawks. Far in the distance, we could see the 200 Area, once home to the giant plants where the separation process took place. A hideous brew of chemicals was needed to isolate the plutonium from irradiated fuel rods. Each of the buildings was hundreds of feet long, with two parallel walls rising some 80 feet off the floor. An anonymous worker back in the day said the buildings reminded him of a canyon, and that eventually became their nickname: the canyons.

I asked Newsome about the impact those facilities, the reactors and all of the underground pollutants have on wildlife, but her answers were a seminar in myth-busting. Local elk, for instance, are generally larger and have bigger antlers than their cousins in alpine regions, because of the higher nutritional content found in grassland food sources. Another study found that Hanford's deer have five times fewer radioactive contaminants in their antlers than deer sampled in a remote part of Oregon, where the same contaminant could only have come from historic nuclear test explosions. Scientists hypothesize that, because there is less precipitation in the scablands, there are fewer raindrops ferrying fallout down to the roots of plants that are consumed by deer.

These counterintuitive findings remind me of a trip I took a few years ago to the tiny Pacific atoll of Christmas Island. The island was once home to a British military base, and was also the site of a few nuclear weapons tests in the late 1950s and early 1960s. I thought it would be interesting to bring a Geiger counter. The readings, however, were as insignificant as the National Cancer Institute radiation expert had predicted. In many remote places where nuclear weapons were detonated, just about the only radiation detectable today is background radiation from the sun. People living in modern urban settings, on the other hand — environments filled with

televisions, smoke detectors, kitty litter, airplanes, high-powered medical equipment and trace amounts of uranium in the ground — are exposed to much more radiation than people living on Christmas Island, or for that matter, the wildlife biologists roaming the untrammeled areas of DOE sites like Hanford.

Recently, Newsome has been studying long-billed curlews that seem to be picking up contaminants — just not here. The exposure, she thinks, is happening at the birds' wintering sites on the Baja Peninsula. Perhaps more than most people, Newsome is aware how impossible it is to escape the interwoven relationship between civilization and nature. "Working in a place like Yellowstone, you might be led to think your world is more pristine than it is," she said. Not so at Hanford, where the good, the bad and the ugly are all front and center. "We are all downwinders."

Two weeks before my visit to Hanford, I flew to Albuquerque and drove south to White Sands Missile Range, where I met a jovial and mustachioed army biologist named Patrick Morrow. Access to the 2 million acre range, even for those with military clearance, depends on the "mission" agenda of the day, and what restrictions have been applied and where. Put another way: Because rockets and bombs are sometimes dropped on, lobbed across, exploded under or intercepted above various parts of White Sands, the Army would prefer that people steer clear of the action. According to a local museum exhibit, some 42,000 missile and rocket firings have taken place at White Sands in its 65-year history.

Dirt roads and power lines weave through the landscape, and the range is speckled with high-tech buildings for radar, telemetry, telecommunications and who knows what else. Faded signs along one of the main roads through the basin identify proving grounds with names like Cooker, Brillo and Chile. Driving past and imagining uniformed military brass occupying the currently vacant bleachers set out in the middle of the desert amid the creosote and mesquite calls to mind a kind of sunburned Dr. Strangelove.

Yet despite the weapons testing and other clandestine mischief that goes on here, White Sands is undeniably wild. Even the airspace above the range is closed. (The only other place in the country where the airspace is similarly off-limits is over the White House.) "What did you think would be here? Big bombed-out stuff covered in debris?" asked Morrow between spits of dipping tobacco.

We were headed up into the San Andreas Mountains. Running north to south along the western side of White Sands, these mountains are part of the vast Chihuahuan Desert of the Southwestern U.S. and Northern Mexico. A handful of brave homesteaders raised goats, sheep and cattle here until the 1940s, when the Army acquired the land. Today, those mountains provide some of the best habitat anywhere for wildlife, including pronghorn and desert bighorn sheep, the latter of which Morrow and colleagues are trying to reintroduce after the native population was wiped out by disease. Along the less rugged slopes, desert grasses and juniper grow in delicate balance and host abundant wildlife. Most everywhere else in the Southwest, similar terrain has been all but neutered by grazing.

Driving up a mountain road, we passed a giant satellite dish of some kind. Morrow didn't know what it was, or said he didn't know, and sure didn't look like he cared. Soon after, he stopped the truck and we hiked south across an arroyo to inspect 2,000-year-old rock paintings of red and orange masks. One of the strange benefits of having so much land cordoned off from the public is that ancient petroglyphs, rock paintings and other cultural artifacts are better protected from harm than they are on public lands. Unscrupulous treasure hunters are less inclined to sneak onto military land.

Later in the day, Morrow and I arrived at an area called Mockingbird Gap. We scrambled up a riparian valley strewn with granite boulders, looking for pronghorn. Morrow complained of aging knees, but the New Mexico native still blazed up the hillside at an impressive clip. Bighorn sheep also remained elusive, but we found ourselves in a desert garden, surrounded by prickly pear cacti, little-leaf sumac, Wright's silk-tassel, shrub oak, agave, ocotillo, yucca, Apache plume, long-leaf Mormon tea and other plants that Morrow, a mammal specialist, confessed to not knowing. (A botanist working for White Sands has collected more than 1,000 different plant specimens inside the range.)

As we walked back down the narrow gap, Morrow paused to describe the vista. Almost everything we could see, in any direction, was part of White Sands, with the exception of the Sacramento Mountains to the east. Looking north, past where the mountains meet up again with the pancaked basin, he pointed to a minuscule structure: the McDonald Ranch. The rustic house is where the Manhattan Project scientists assembled the first nuclear weapon, which was detonated out there, at the Trinity site just west of the McDonald homestead.

The next day was the first Saturday of April, one of two days a year the government opens Trinity to the public. It was sunny, and the 3,000-plus visitors kicked up dust as they moved from the gravel parking lot, through a fenced-in walkway, into another fenced-in enclosure where an obelisk stands at ground zero. The day was surreal. Not so much because X marks the spot, or because a guy in a black-and-pink jacket was handing out copies of a three-page screed about how President John F. Kennedy knew that he was going to be assassinated in Dallas. No, what was truly strange was the tone of the day. Hot dog and postcard vendors gave it the ambiance of a county fair. Obese tourists snapped photos by the obelisk, and science buffs proudly displayed T-shirts printed with the periodic table.

The thing is, I like the science pilgrimage theme. Whatever one's opinion about the decision to make and drop the atomic bomb, the Manhattan Project is an epic chapter in the story of human knowledge. That said, the absence of anything at ground zero to honor the dead — those killed by the bomb, killed in action during World War II, killed in any war, even — strikes me as an oversight. Even just a plaque of some kind would suffice, accompanied perhaps by J. Robert Oppenheimer's famous words. Upon witnessing the successful detonation early that morning on July 16, 1945, he was reminded of a Hindu scripture: "If the radiance of a thousand suns were to burst at once into the sky, that would be like the splendor of the mighty one. Now I am become Death, the destroyer of worlds."

Newsome and I made our way across the Columbia over the Vernita Bridge, a popular put-in spot for boaters. From there we headed east, out onto the spit of land directly across from three of the retired nuclear reactors and below the White Bluffs, the centerpiece of the Hanford Reach National Monument.

Ten years ago this June, President Clinton signed Presidential Proclamation 7319, establishing the monument. In doing so, he set aside 195,000 acres of Hanford's former buffer zone for conservation, while also opening up part of it to recreation. Aside from the final stretch of the Columbia between the Bonneville Dam and the Pacific Ocean, the 51 miles within the Reach, from the Priest Rapids Dam to the town of Richland, constitutes the only remaining free-flowing water on the river. The rest of it is essentially a series of reservoirs. That makes this area of the Mid-Columbia Basin that much more attractive for salmon fishing and boaters. Today, people can paddle right past the Hanford Site, not more than 200 yards or so from the reactors that dot the shoreline and shaped world history. (You are not allowed to step onto the bank on that side of the river.)

Newsome and I walked down to the water. She was talking about the huge ice age floods that sculpted this landscape, but my attention was on the nuclear reactors. Some of them have been "cocooned," meaning the core and the rest of the building have been wrapped in an airtight and waterproof swaddle of steel and concrete for the next 75 years. The idea is that during this time, the radioactive contents will cool, at least somewhat, and by 2085, scientists and engineers will have developed new ways to handle and safely dispose of them. Let's hope so.

Throughout our day exploring Hanford's wild side, I would glance in the direction of the reactors. From almost everywhere where nature is thriving at Hanford, the reactors look minuscule, if they are visible at all. Yet here on the edge of the river, directly across from them, they are no longer dwarfed by the landscape. Hanford the bio-reserve is now, really, Hanford the plutonium production facility. Instead of birds, we heard a jackhammer-like thud thud thud at the N reactor, where work crews are excavating below the building to clean up contaminated soils before the structure can be cocooned.

Growing up in New England, I had never heard of Hanford, let alone other DOE sites like Sandia, Idaho National Labs or Savannah River. I had probably heard of the Nevada Test Site, or might have guessed what it meant, and I had heard of White Sands only because of a lame Willem Dafoe movie by the same name. Still, all of these places were foreign to me, as foreign as the south of France or the Mekong Delta.

Back then, my peer group was marching through the enviro-lit canon: Thoreau, Leopold, Muir, Snyder, Tempest Williams and others. Edward Abbey was in there somewhere, as was Bill McKibben, with his provocative argument that we had arrived at The End of Nature. So too was John McPhee's Encounters with the Archdruid.

McPhee's book in particular resonated with me, perhaps because it delineated what I naively thought to be the clear line separating those who aim to trash the planet and those who respect it. In one chapter, McPhee describes a hiking trip he took with David Brower, former head of the Sierra Club and veritable celestial of the preservation movement, and a miner named Charles Park, a man "who believes that if copper were to be found under the White House, the White House should be moved."

On the trip, which takes place in a majestic section of the Washington Cascades, Brower talks about the power and importance of wilderness for its own sake. Park, habitually swinging a small gem ax at just about anything along the trail other than Brower's kneecaps, counters the archdruid's opinion with a realpolitik view of civilization's mineral and material demands.

Visiting places like Hanford and White Sands serves to hammer home the realization that neither Brower nor Park is right. All places are invariably more complicated than pithy descriptors like pristine or poisoned, as are our relationships to them. Humanity doesn't pillage or cherish the Earth; we do both, plus everything in between. We are all downwinders, yet that is only where the story begins.

Just a few minutes away from our stopping point along the river, Newsome and I climbed a short but steep game trail that leads to a perch above the big bend in the Columbia and offers a sweeping vista of the White Bluffs, where cliff swallows darted about. Far in the distance, Newsome spotted three deer foraging on one of the islands in the middle of the river, just east of the reactors. The deer tend to congregate there, she said, because the island gives them a good view of whoever is approaching. "They feel safe out there."

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