

SAGEBRUSH to SANDSTONE

A Humanities Guide to Outdoor Nevada



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*From Sagebrush to Sandstone, A Humanities Guide to Outdoor
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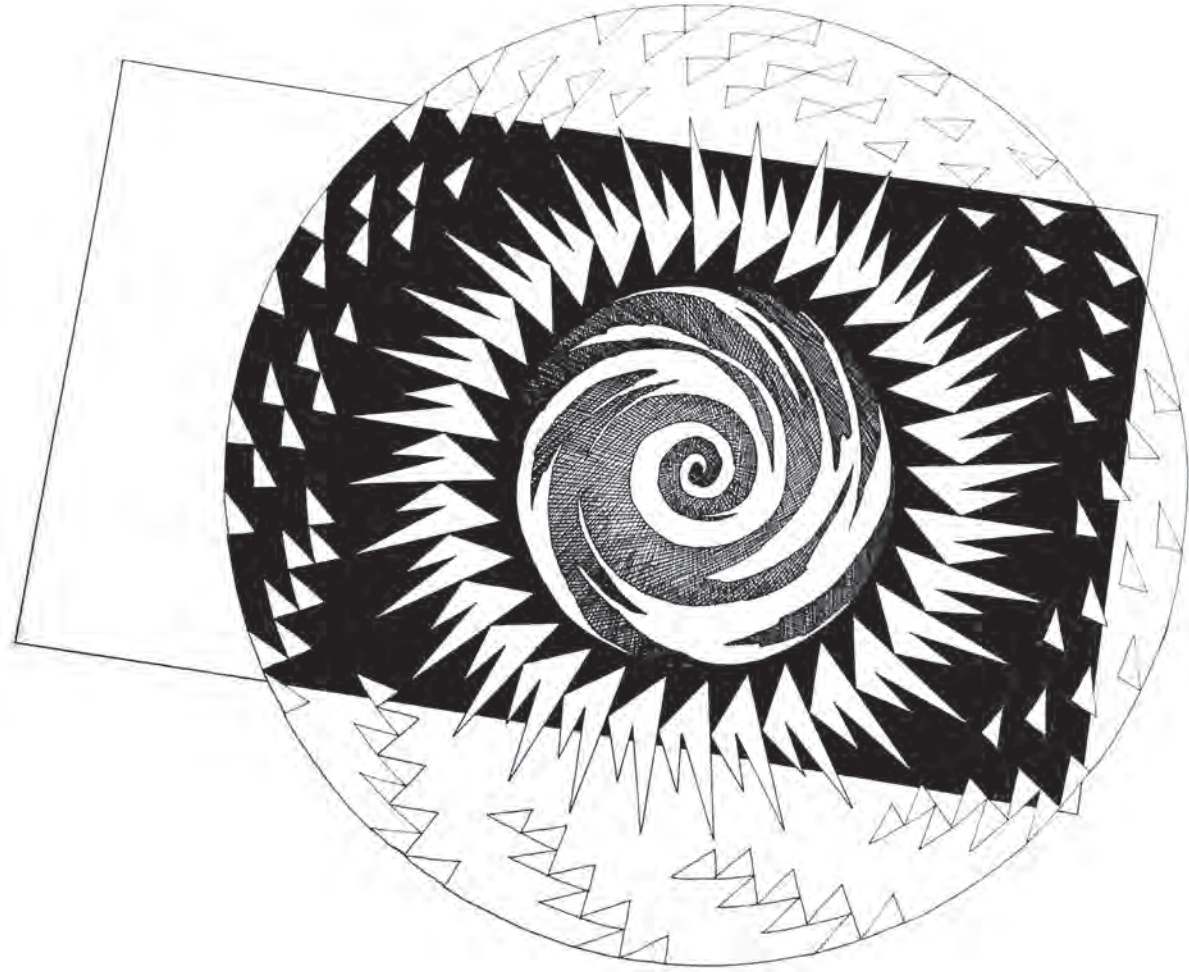


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Foreword

Before I moved to Nevada, I was the sort of hiker who liked to spend my Saturdays climbing to the top of mountains. My goal was always to reach the top to claim the prize of enjoying my lunch in front of a breathtaking vista, revealing more and more mountains to climb on future hikes. That all changed when I moved to Nevada 20 years ago. I immediately fell in love with the timeworn gravity of Nevada's open spaces, as well as Nevada's subtler knee and foot-level ecologies. Instead of constantly looking up and out, I lowered my gaze to discover delicate creatures, rainbow-colored soil and rocks, lilliputian plants, desert-worn glass and ceramic shards, abandoned rusty cans of all kinds, and even a whole 19th-century hotel razed to the ground by fire with the pattern of its explosive fall still visible in the detritus it left behind. Nevada certainly has its share of strenuous hikes with stunning views, but also has a wealth of discovery — of the natural and historical kind — if we look down and look closely.

I have lived in many major ecosystems of the state — the Las Vegas Valley in the Mojave Desert, the Truckee Meadows at the foot of the Sierra Nevada Range, the heart of the Great Basin's Sagebrush Ocean, the edge of the Humboldt Range in the Ruby Mountains — and from these homes I have explored each corner of Nevada, traveling down nearly every paved rural road and quite a number of unpaved ones. My desert explorations have taught me the value of wide vistas, as well as those intimate, nose-touching looks at the smallest of ecosystems. This is a profound gift that I carry with me always and share with others whenever I can.

During the COVID-19 pandemic, while being socially and physically isolated, many of us sought refuge and inspiration in the natural spaces

around us. We at Nevada Humanities recognized the value of these experiences, and with this in mind we tailored our 2021–2022 *Nevada Reads* statewide book club program to feature two important memoirs that encourage us to more deeply engage with our natural world. *Miracle Country: A Memoir* by Kendra Atleework and *World of Wonders: In Praise of Fireflies, Whale Sharks, and Other Astonishments* by Aimee Nezhukumatathil have inspired the book you now hold.

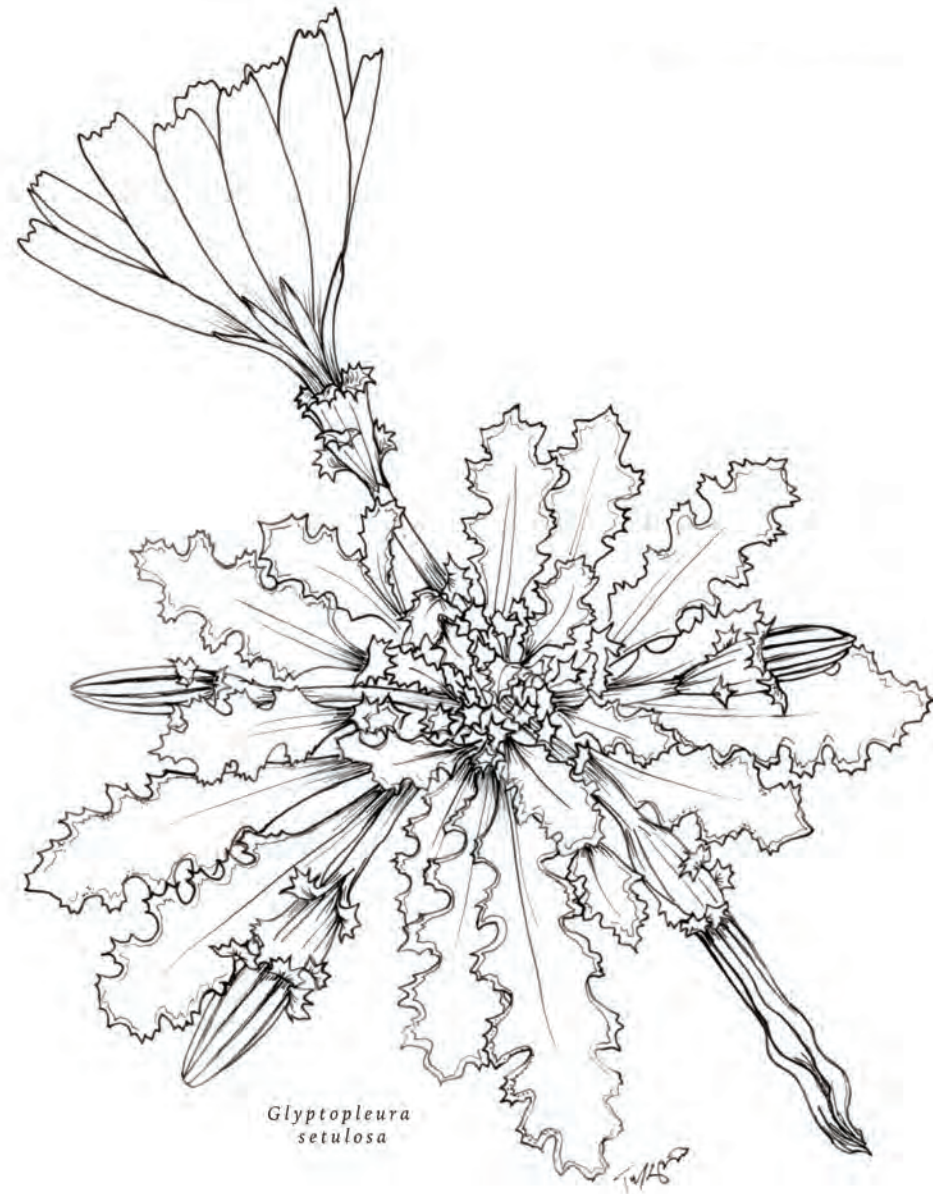
This humanities guide to outdoor Nevada is the result of countless staff meetings, all focused on a desire to give you a gift that will help facilitate the exploration and creativity that have become key elements in our own lives. The beauty of the humanities is that in appreciating what others have created, we, in turn, cradle those sparks to light our own creative fires. This book is intended to be the beginning of a journey, not the end result of other people's creative work. The purpose of this book is to offer a taste of the wealth of creativity that has arisen from the Silver State and to encourage you to pause and look closely at the Nevada landscapes and places that you stand upon. Inspired by the voices and drawings of Nevada thinkers, poets, artists, and scientists, we hope you will hone your senses to be able to see, hear, smell, taste, and touch the desert around you. Notice the contrast of our cultivated spaces to the raw spaces that nature tends. Learn about the human history of our lands through the artifacts and objects left behind by the people who have come before us. Grow to cultivate an ethic of care for our shared lands so that we can become stewards of these places together. At its core, the humanities is about relationships, those between people, but also those between people and the natural world.

We hope you will make this guide an extension of your outdoor experiences. Thoroughly use this book with writings, drawings, dog ears, dirt smudges, and smashed leaves. It is meant not only to inspire, but also to express and contain your creative outpourings. But don't stop here or feel bound by the pages of the book. Be curious, use the prompts in the guide to explore beyond its pages — there are many, many meaningful reflections on our natural world that we were not able to include here. Please visit Nevada Humanities' website at nevadahumanities.org to access the many resources that complement this guide.

Love for, and awareness of, the natural world around us has the potential to deepen our life experiences in ways that may seem surprising. Looking closely blossoms a visual literacy that anyone can cultivate. In our experience at Nevada Humanities, we also see this twined with cultivating closer relationships and even the fostering of empathy and compassion. Outdoor experiences can also nurture a solid sense of self-reliance and confidence. The journey is endless and filled with wonder.

Remember the rules of the road — walk lightly, leave no trace, take nothing with you — and read carefully the beautiful introduction penned by Debra Harry in the next few pages. Her wisdom is all the guidance we need to understand that we are not the first people to walk these paths, that there are many layers of names and understandings for the things we see and experience, that the land speaks to us if we listen, that our actions directly affect the land, and that we are never alone in even our most remote places.

CHRISTINA BARR
Executive Director, Nevada Humanities
Reno, Nevada



*Glyptopleura
setulosa*

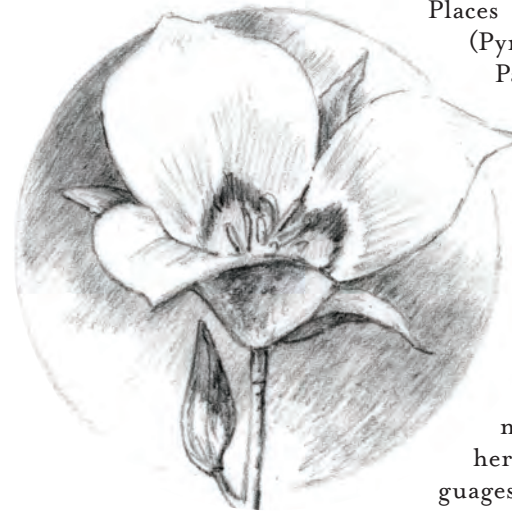
Introduction

Warm greetings and welcome to the homelands of the Numu, Newe, Washiw, and Nuwu. You may have never heard these Indigenous names before. These are the names for Original Peoples of these lands including what we now call the Nevada. I am referring to the Indigenous Peoples who have lived in these homelands of theirs since the beginning of time. These peoples, my peoples, were “re-named” by White settlers in the 19th century shortly after first contact, thus we are more commonly known as Northern Paiute, Western Shoshone, Washoe, and Southern Paiute. These are the names you are likely to read in a history book or tourism article. Sadly, those names are merely conjured-up labels that carry no meaning. Our true words for ourselves reflect that we refer to ourselves as “The People.”

I’d like to situate myself as an Indigenous woman, Kooyoee Tukadu (Kooyoee eater), to be specific, and a longtime activist and scholar who is deeply committed to the protection and perpetuation of the rights of Indigenous Peoples. My maternal family is largely based at Kooyoee Panadu (Pyramid Lake), and my paternal family is largely from Agai Panadu (Walker Lake).

It is an honor to have an opportunity to write these introductory comments for *Sagebrush and Sandstone: A Humanities Guide to Outdoor Nevada*. This book invites you to experience my peoples’ homelands from a place of wonder, curiosity, reverence, and peacefulness. In order to do so, one must have a basic grounding in how things came to be in our vast homelands. Our oral histories, passed from generation to generation, speak about the time that all of these lands were covered in water. I want to share one of our Creation Stories, as an example of Indigenous cosmology:

Long ago the whole world was under water except for one mountain... When waves came they would touch the tails of the birds. Sun said, “I don’t like to see water around here. I want it to dry up. When it dries up, all kinds of animals shall come to the world and use the Numu language.” Sun said, “Go to the mountain and stay there. Anything that comes to the world after the drying up of the water shall be your relative.” –Paiute Creation Story



Places like Kooyoee Panadu (Pyramid Lake) and Agai Panadu (Walker Lake) are remnants of those ancient times when most of the region was underwater. Our creation stories place us here since the beginning of time, deeply and originally indigenous to our own homelands. In our cosmology, the animals were here first and spoke our languages; the Numu, the People, were created by our elder animal relatives. This is Indigenous knowledge, and it reminds us of who we are, what is our place in the world, and defines our relationship to the natural world. These stories are much more than myths but instead reflect the cosmologies of Indigenous Peoples. Sometimes these ancient knowledges are eventually confirmed by Western science. Oftentimes Indigenous knowledge systems inspire Western knowledge development such as in food, medicine, health, and ecology.

A key aspect of Indigenous Peoples is their ancestral knowledge and ties to place. Indeed, as land-based societies, Indigenous Peoples’ world views and ways of life are intrinsically tied to

the lands. So much so that Indigenous languages convey deep knowledge of the landscapes, waterscapes, weather, climate, and flora and fauna. Indigenous Peoples have an ancient and continuously-held connection to these lands we now call Nevada.

It is easy to forget that this land is the homelands of the Numu, Newe, and Washoe Peoples. Our communities are small, rural, and generally isolated. The language of the land and our names for significant landmarks and waterways have been erased from public memory and replaced with settler names. But fortunately we remember and work to recover and replace these sacred places with their true names. For the Numu, Pyramid Lake's true name is Koooyooe paa'a. It is fed by the sacred waters that flow from the alpine lake known as Lake Tahoe, through the Koooyooe hoopa, now known as the Truckee River, that flows through areas such as Tohateepuwaetu, the place of the white rocks, and on to Koooyooe Paa'a (Pyramid Lake). As you can imagine, the work by our Indigenous geographers to reclaim our Indigenous place names is a critically important act of decolonization.

When we acknowledge our relationship to these places, and to the waters, and the skies and stars above, it invokes not just locality but the spirituality that connects us to these places. We have been taught to talk to the land. The land, the water, and the animals know us; they understand our prayers, and the spirits of the land acknowledge us. When we dance, the ancestors dance with us. This land and these sacred places have given us songs. They have healed untold generations of our people. The rocks are ancient ancestors. The water is medicine; these waters can heal. Indeed, water is life.

There is not one place that doesn't have the footprint of our peoples on it. No one knows this land better than we do. It is not by accident that Indigenous Peoples are still caretakers of an estimated 80% of the world's biodiversity, despite only occupying 20% of the earth's land base. We are the protectors of the land and all of nature. Our ceremonies teach us to use our voices to speak for all of nature.

As visitors to our homelands, I ask you to walk lightly upon our earth mother's back. Walk as if you are giving her a gentle massage, and she will enjoy it. Talk to her, and all life around you, as they hear what you are saying. The plants that you see have a purpose; some are foods, some are medicines. All living things have their own place in the world. They have their own original instructions that were given to them at their time of creation. They continue to live true to their original instructions.

As human relations, we must respect all of life. We must protect them and speak for them when they are in danger. This is our role as human beings. Those are our instructions. We know that respect requires reciprocity. We should not take more than we need; and if we take, we must also give back.

I ask you to know where you are and upon whose land you are visiting. Be a good guest. Be a good ancestor. Respect the past and protect future generations. Do your best to ensure the wellbeing of the generations yet to come. Above all, give thanks for the life we have and the opportunities we have to make our world a better place.

DEBRA HARRY, PHD.
Nixon, Nevada

Walking in Circles

RODNEY J. LEE

Trails are passageways
worn down by repetitive use:

us, following ourselves,
back & forth—to & fro;

we march, predestined ghosts
in the footpaths of the past,

trotting down today
a pathway for tomorrow;

each experience a memory,
a shed of thread, unraveled cocoon.

Free are we when our feet
no longer trod the trail,

above, transformed beyond dust & bones;
our bodies rushed or withered away,

regardless; we all transition,
change beyond the trail

I suppose.

Perhaps we just become the track,
walk until we're worn away,

pushed down—stepped on,
pulverized into the ground;

this lane of repetitive use,
age-after-age, era-after-era,

come & go—leave behind,
transform; repetitive to redundancy:

redundant originality.
We look back for our footprints,



indistinguishable among the billions
& billions along the path.

Every pioneer a reconsideration, like Jesus;
a revision, like Buddha.

We swallow, choke, dry, repeated
trail—tacitly unconscious.

“What is crooked cannot be straightened;
what is lacking cannot be counted.”

We march & march, Ecclesiastically
quantum stepping along trails; profit,

increasing in knowledge & sorrow,
branching trees of foreordination,

vanity of vanities; spreading the web
of ceaselessness, wisdom's sore travail.

Searching, through woods & desert,
city & Strip, downtown, Las Vegas,

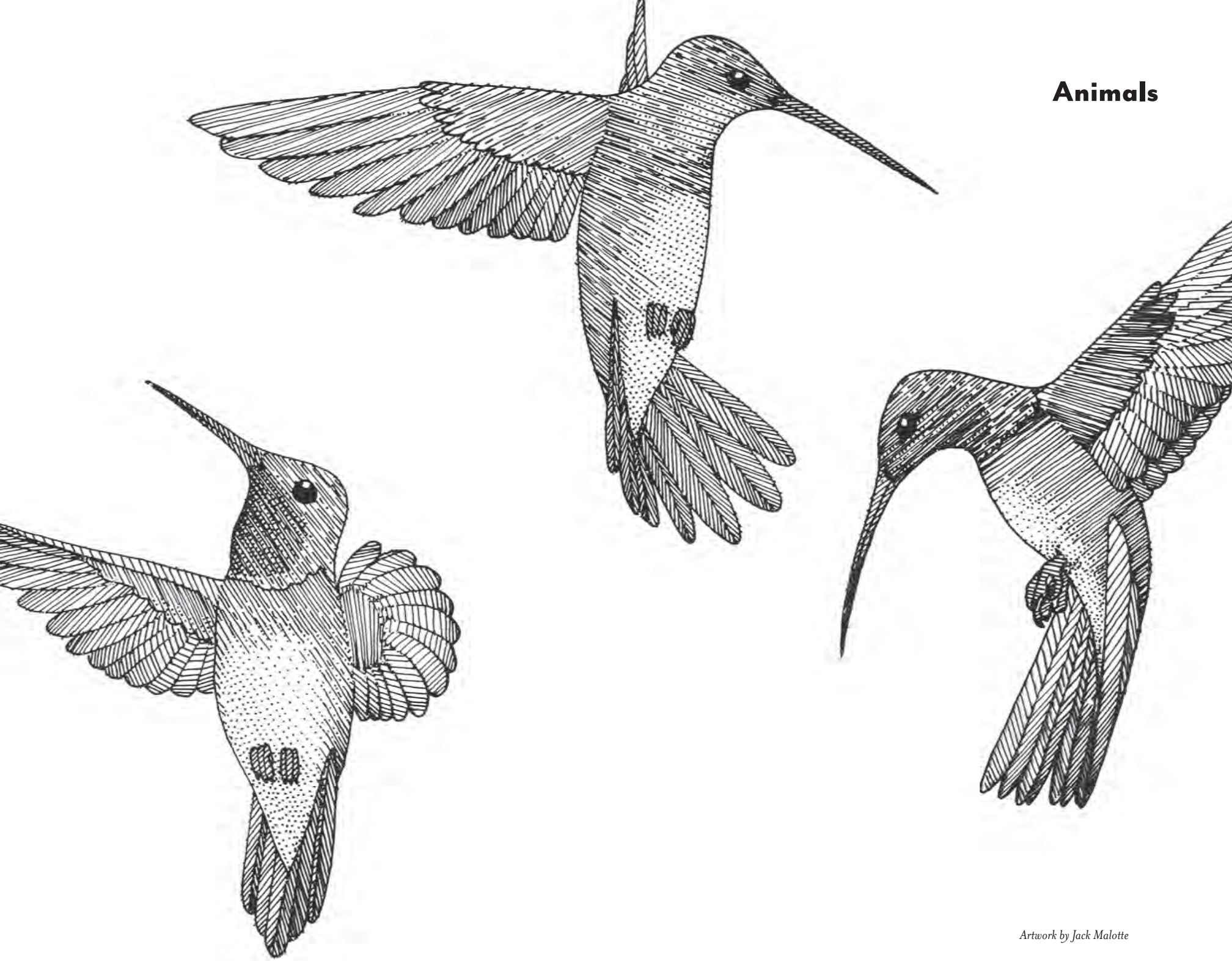
Reno, Tonopah, Ely, Caliente, Pioche,
wandering Fallon, Eureka, Elko, Carson City,

chasing after the wind: mountains, lakes, forest;
probing along these trails, searching for ourselves.





Animals





Nevada's Bighorn

WADDIE MITCHELL

Where rabbit brush and cacti dare perfume the boding desert air
Where vistas capture vestige hiding answers everywhere

On edge of shear and blinding heat and canyon dark and valley steep
and rock ridge high and desert wide live desert bighorn sheep

Few are equipped to exist long among the rock and sand and thorn
where scorpion slip underground below the broke and torn

When evolution divvied trait and labored hard on land and scape
Gave speed and flight and smell and sight for life means someone ate

Danger is always eminent, sheep must be constant diligent
Gone are those who momentarily drop their vigilance

against the cunning, stealth and will and empty gut that's needing filled
makes every moment of each day a deadly game of skill

A glimpse of head dress well adorned and battle crack of curling horn
Sing species hid in open sight and miracle when born

At times twelve days 'fore drink revives and hydrates them that stay alive
The desert bighorn sheep remain and sustain and survive

Nevada is their chosen home allowing them to thrive and roam
to cut their trail, to perch and scale and read the desert's tome

We are obliged to history to keep alive their mystery
protect the desert bighorn sheep, for they are legacy

Bighorn Sheep

The desert bighorn sheep, with its distinctive curled horns, is an iconic symbol of the West and an important and sacred animal to the Indigenous Peoples across Nevada. Bighorn sheep are habitat specialists that live in the safety of a steep and rocky landscape allowing for wide-open views. They have extremely acute eyesight, and their cloven hoofs allow them to move quickly on the steep slopes to escape predators. The terrain also provides cover as they blend invisibly into the landscape colors. You may find bighorn sheep today along the rocky ledges and mountains of the area, near natural springs, or silhouetted against the sky on a mountain ridgeline as they catch the last rays of sunlight.

Nevada has many mountain ranges, separated by wide basins, and at the start of the European settlement bighorn were found in almost all of them. Nowadays, bighorn sheep can still be found roaming the ranges in Nye, Lincoln, and Clark counties, from remote places such as the Alta Toquima Wilderness to the Desert National Wildlife Refuge, or from the Valley of Fire State Park to Hemenway Park in Boulder City, where they are often seen grazing in the suburban luxury of a lush city park.

BOBBIE ANN HOWELL



Creative Prompt: Bighorn sheep blend right in... what are some tips to find them? You might need to look for a splash of white or movement in the rocks; binoculars can be helpful. Have you seen a desert bighorn sheep or a rock drawing of one? What kind of drawing or silhouette shape can you make to show the distinct features of the desert bighorn sheep?

Quiet Moments

HEATHER LANG-CASSERA

The desert tortoise makes its way,
Not as if she could move mountains,

She is the buttes & saddlebacks themselves
& is too perfect to be a fixed part

of this dust-splashed earth.
She swishes sand, leaving wing-shaped tracks,

& on her back, carries a detailed
topographic map: the delicate lines,

contours of relief,
or manifestations of the gaps

we fill with silence
& other abstract declarations.

Together, we hear the hearty hissing
& guttural grunts, warning

us to keep our distance;
at first, we thought the tortoise

was a snake, but we learn
that even our palms

such unquiet basins,
can ache.



Desert Tortoise

The state reptile of both Nevada and California, the Mojave Desert tortoise is an icon of the desert Southwest. It has impressive survival skills: Tortoises obtain much of their moisture from rain puddles or from wildflowers and grasses that they eat during springtime. They tolerate droughts by reabsorbing water from their bladder and by maintaining high levels of waste within bodily fluids; if necessary, they can survive a year or more without water. They also have excellent memories and will often return to the same rock depression to drink during a rainstorm.

Tortoises spend as much as 95 percent of their lives underground — thus their heavy claws, suitable for digging. During the summer, when desert temperatures can reach up to 140 degrees, the cooler temperatures and higher humidity levels in their burrows help tortoises retain moisture. During colder winter months, they remain in their burrows and save energy by entering a dormant state called brumation, similar to hibernation in mammals. If a tortoise survives the many threats it faces — habitat loss, disease, being run over — it can live up to 80 years and grow as large as 15 inches in shell length.

If you come across a desert tortoise in the wild, stop to appreciate the amazing animal in front of you — but don't pick it up. A startled tortoise might release life-giving water stored in its bladder, and it will have to start all over again.

STEVE HROMADA & KELSEY FITZGERALD



What the Godmothers Told of the Pond

MELANIE PERISH

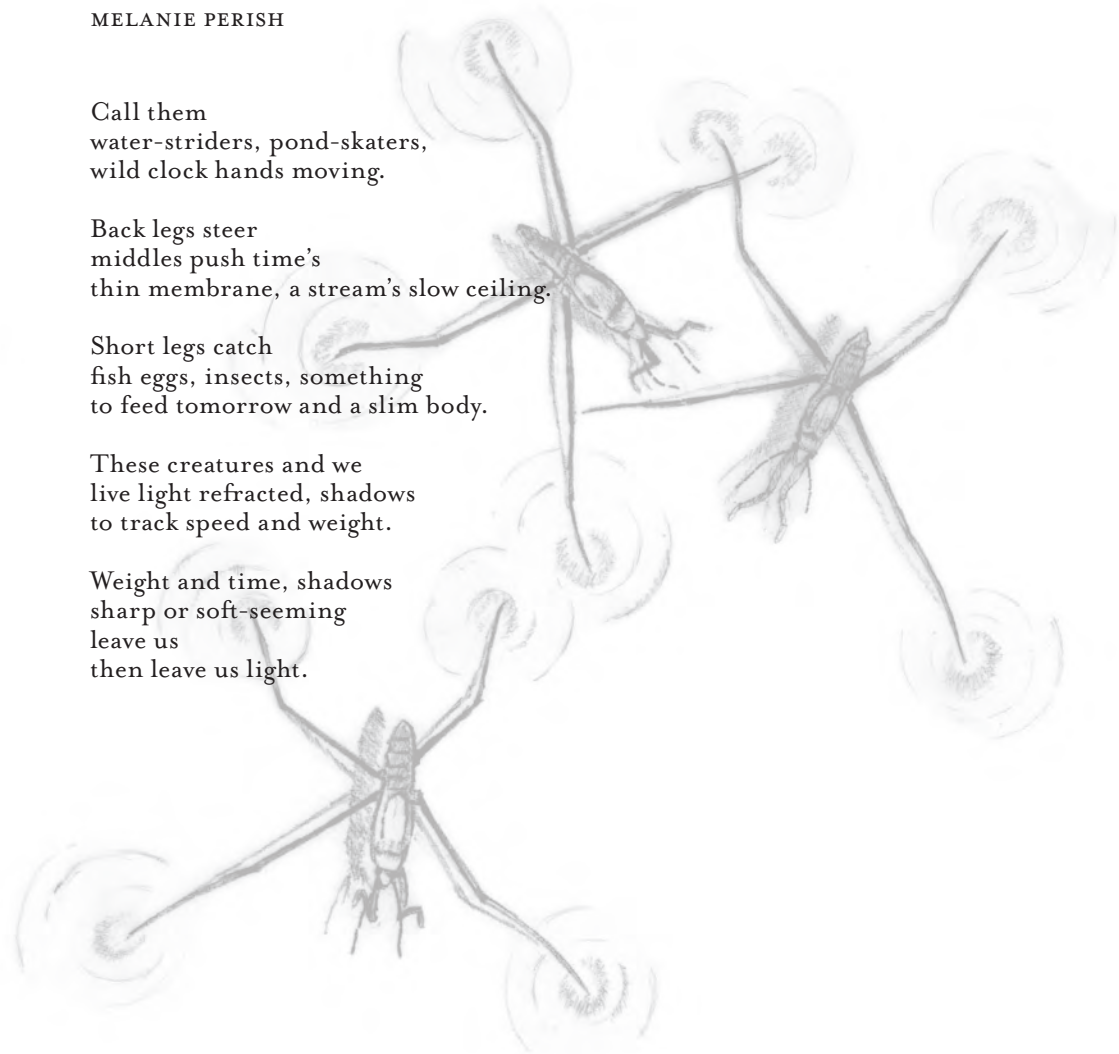
Call them
water-striders, pond-skaters,
wild clock hands moving.

Back legs steer
middles push time's
thin membrane, a stream's slow ceiling.

Short legs catch
fish eggs, insects, something
to feed tomorrow and a slim body.

These creatures and we
live light refracted, shadows
to track speed and weight.

Weight and time, shadows
sharp or soft-seeming
leave us
then leave us light.



Water Strider

One of the things that defines water striders is that they live and move at the interface of water and air: while some species have wings with which to fly from pond to pond, most spend almost their entire lives where water and air meet. They breathe air from above the water while their bodies are adapted to use the water's surface tension for both moving and eating. Like all true insects, water striders have six legs. They use their short front legs to grab prey that fall to the water's surface, while using their middle legs to row and their back legs to steer. All of the legs are covered with microscopic hairs, trapping air bubbles and keeping the insects buoyant on the water's surface.

KEVIN BURLS



Creative Prompt: Close your eyes and imagine yourself in the place of a water strider. Make sure there is enough space around you, and move your arms (or legs) through the air as if you're gliding through the water. How do these movements differ from your everyday movements as a human walking on land, or swimming in the water?

Take a few minutes to journal below or on a blank page about places you've seen in Nevada where the natural world interfaces with the man-made — for example, the edge of a city, ghost towns, mining operations, or solar farms. How do you think nature responds? What kind of life do you imagine taking place there?

Haiku

KAREN LAING

Hummingbirds echo
Beneath saturated skies.
Sound at the speed of light



Hummingbird

Hummingbirds are a noisy bunch. Not only do they sing, squeak, and rasp using their vocal apparatuses, but many species common in Nevada — such as Calliope, Anna's, Costa's, Broad-tailed, and Black-chinned, to name a few — also produce unique noises with their feathers. Often these noises occur during courtship diving displays in which a male plunges downward, opening its tail at the last moment; the rushing air causes the uniquely shaped feathers to pop with a burst of sound. The Broad-tailed hummingbird makes a constant buzzing trill while in flight that can be heard from relatively far away. By listening to a hummingbird near its favorite feeding ground (look near patches of lupine or columbine flowers close to water sources), you may be able to count quite a few sounds as these tiny birds zip frantically about, beating their wings 50 or more times a second. That's a lot of noise from a bird that can weigh as little as a feather over the weight of a single penny. BENJAMIN SONNENBERG



Creative Prompt: Imagine life from the perspective of a hummingbird, flitting from flower to flower. Try to capture the traits of this tiny bird through free association, writing down whatever comes to mind first, as quick as a hummingbird.

excerpt from **Ten Gallon Clouds**

KIRK ROBERTSON

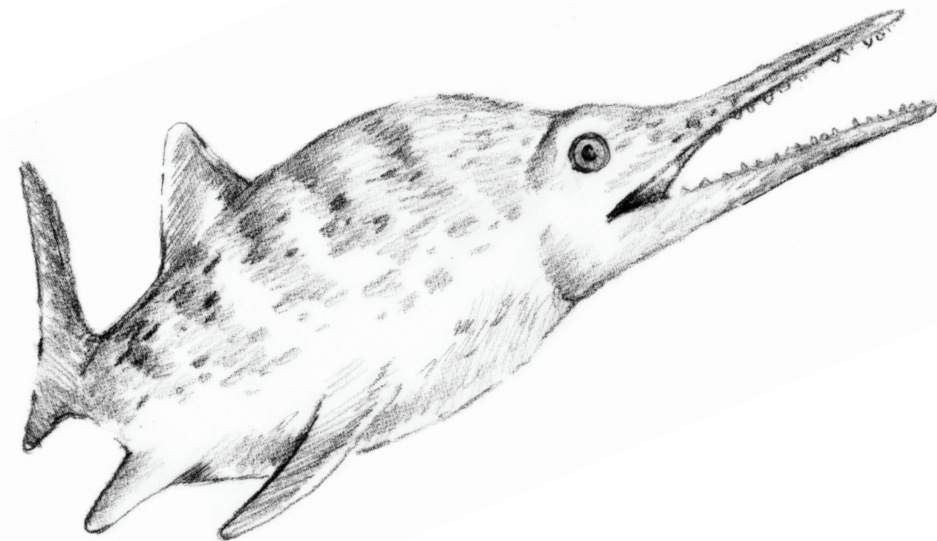
In the afternoon you'll
probably even wish for rain
just to cool things down
but you know it will not come
know that you'll
have to wait it out

As the ichthyosaurs must have

Drying up with the seas

Here
where the dark and light
collide

Under the blankets of the sky



Ichthyosaurs

Although we know Nevada as an arid or mountainous environment, most fossils found in the state are of marine life. No wonder: 358 to 419 million years ago, the whole Great Basin was filled by the ocean, and Nevada has a great fossil record to document the ecological changes and species that lived here. Given that time frame, it is only recently that Nevada has become an arid habitat dominated by terrestrial species.

As the prehistoric geology of the state changed, mountains began to rise and the water levels fell. Eastern Nevada developed shallow lagoons and beaches. Ichthyosaurs, marine reptiles about the size of a school bus, thrived during this period, and Nevada has some of the richest ichthyosaur fossil beds in the world (you can visit them at Berlin-Ichthyosaur State Historic Park, near Austin). In fact, the scientific name of the species, *shonisaurus popularis*, is a reference to the Shoshone Mountains of Nye County, where its fossils were originally found. In 1977, the ichthyosaur was named the state's official fossil.

The last part of the state to dry up was the northwestern region around what is now Washoe County. Today, alkali flats and salt desert scrub are found across Nevada and are the final remnants of those vast, shallow oceans. DANIELLE MILES



Creative Prompt: Standing outside, picture the landscape as if you are at the bottom of a deep ocean. Imagine how many of the nearby mountaintops were once ocean floors, and consider the magnitude of time and geological change that must have required. Take some time to look up the sizes and types of prehistoric creatures that once lived in your area, and list or sketch them on a blank page. Can you imagine an ichthyosaur swimming around in your living room today?

excerpt from Flying Cotton

DREW SEEVERS

Grazing inside a lavender brush-like thistle flower
a white lined Sphinx moth drinks sweet nectar—
feeding wings invisible and visible—
a metaphor of atoms: mostly empty space
a symphony of browns and dark stripes;
a body smaller than my pinky finger.

Wonder of this insect avatar of the hummingbird
breeds a smile and my delight to witness
life universal: interconnected and codependent



Sphinx Moths

Like hummingbirds, many sphinx moths hover in front of flowers to sip nectar, earning them the nickname “hummingbird moths.” The white-lined sphinx moth, *hyles lineata*, is one of the more common in Nevada, sometimes seen in large numbers in the late spring. They zip from flower to flower, their wings beating at an average of 41 times a second, which propels them at speeds upwards of 25 miles per hour. In warmer deserts and in the summer, they will be active at night.

Because their furry bodies pick up and transport pollen, these moths can be important pollinators of many flowers, in deserts as well as other ecosystems. While this interaction is vital to the flower, it’s more or less incidental to the moth, another example of nature being “interconnected and codependent,” as the poem puts it — but also fleeting.

KEVIN BURLS

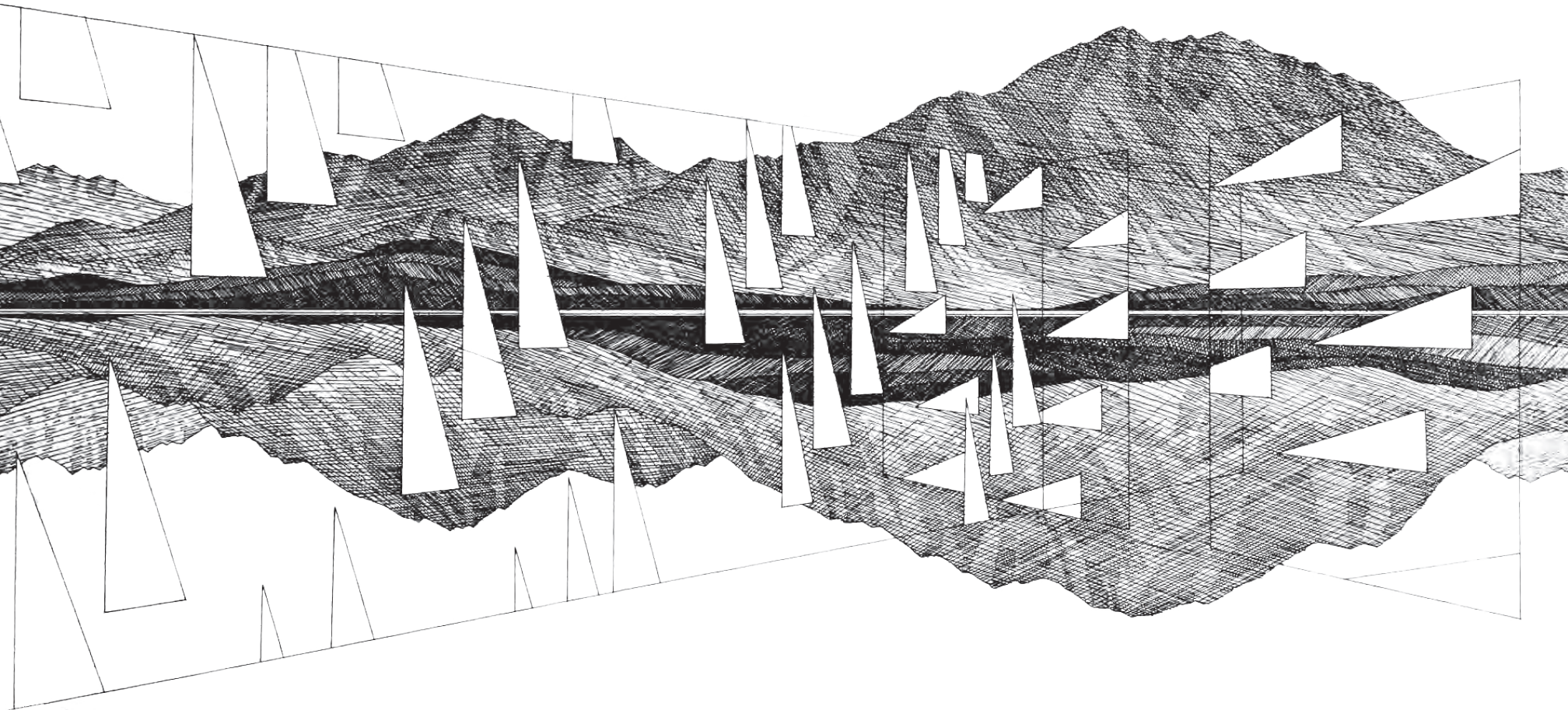


Creative Prompt: List five ephemeral or transitory connections you share with the natural world; examples could include the pleasing scent of a wildflower, the soothing beauty of a sunset, or finding wild berries to eat on a hike. Then, taking inspiration from the metaphors found in this poem, create your own poetic description of your surroundings.





Plants



Bristlecone in Blue

JENNIFER BATTISTI

Ascending takes effort.
My hamstrings protest; dizzy spells,
a cold sharp ache coiling in my ears,
my mind like an open door— all the flies let in,
the bodies below, still
waiting on warm asphalt.

There seems no good reason to climb
mountains anymore.
We left our grieving city, the sound of
trauma still audible
beneath our heavy sips of air
switchback after switchback, then higher still
the silence first like a murder then solvent.

My heart blooms suddenly—the delinquency
of being alive.
We rest at Ponderosa, inhale
sun-baked butterscotch
from its bark, the sweetness, an infidelity.

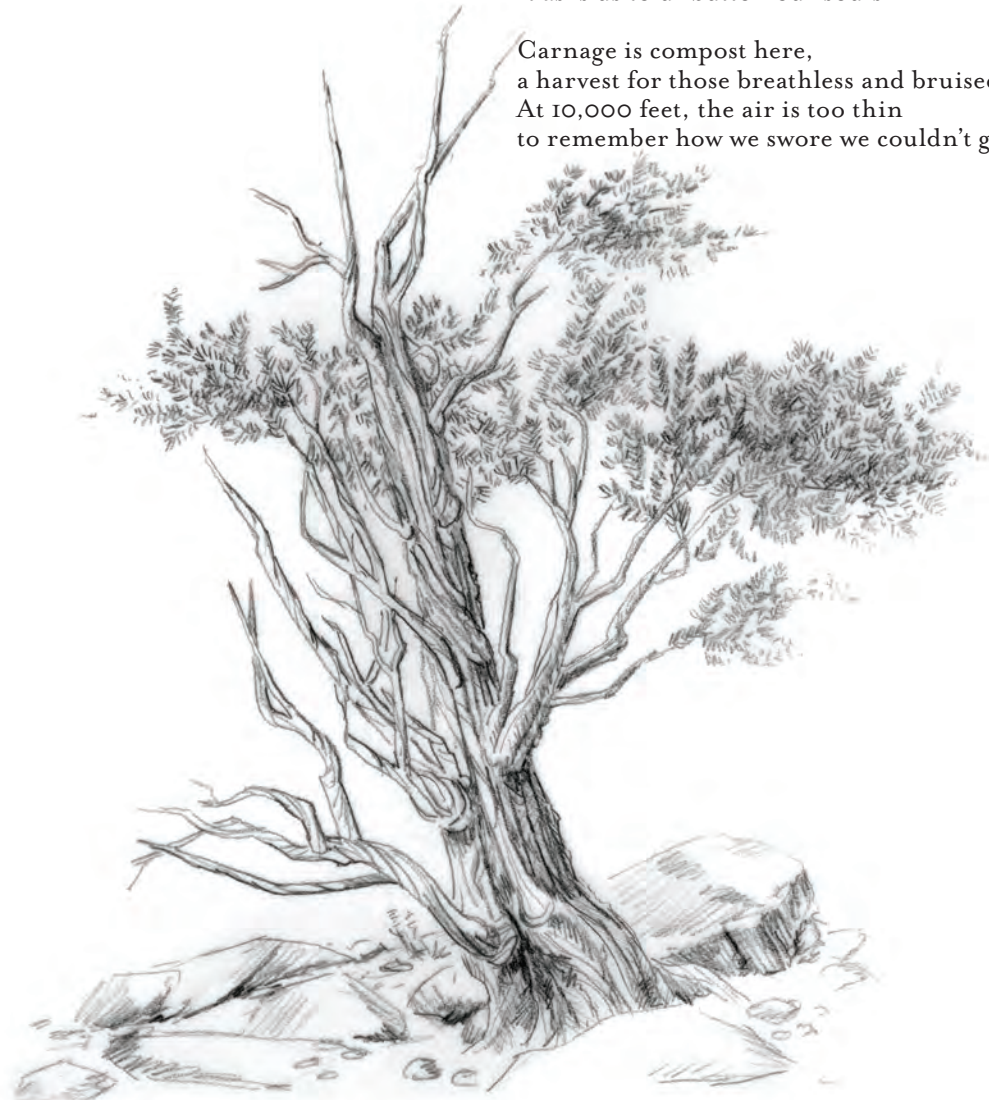
The dead still stand here centuries later.
The canyon bursts open a boneyard of bristlecone
in blue, the sky so certain—
gnarled trunks support branches, poised
petrified lightning, limbs
held up in terror
and surrender.

Wind-carved fissures filled with termite families
burrow and devour history,
because the earth won't waste one single thread.
Quiet is a tender animal at our feet, a helix
of sorrow and prayer held in the den of its mouth.

There is nothing here to discover;
when we reach Raintree,
the oldest living thing in Nevada,
we are finally far enough away to be seduced
by hope.

The 3,000 year old tree is neither boastful nor glum.
Beneath a heap of roots, thick as thighs, it forges
soil, tangled by time into braided bark.
It forks turbulent winds through waxy needles,
It asks us to unbutton our souls—

Carnage is compost here,
a harvest for those breathless and bruised.
At 10,000 feet, the air is too thin
to remember how we swore we couldn't go on.





As the world's oldest living organisms, Bristlecone pines (*Pinus longaeva*) define the landscape along the roof of the Great Basin. Bristlecones grow as close to the sky as possible, seemingly searching for the harshest environment possible to watch over basin and range country. From this vantage, and thanks to their multi-thousand-year lifespan (the oldest known species is 4,800 years old), Bristlecones understand the ephemerality and extreme nature of weather and climate. They watched ice ages fill the mountain cirques around them with snow and ice, and witnessed the demise of those glaciers and lakes during megadroughts. These changes in water availability influence both the landscape and its inhabitants, causing people, plants, and animals alike to follow the water and a favorable climate. In what might be Earth's slowest race, Bristlecones shift upslope and downslope in concert with atmospheric temperatures. Despite millennia of experience with varying climate conditions, recent decades of rapid warming pose risks for the Bristlecone. It is losing its slow race to a slightly faster competitor, the Limber pine, which is colonizing the most favorable habitat in its own upslope shift. While it takes some effort to reach the Bristlecones' haunts, it is well worth it to enjoy the company of Nevada's most elderly and wise creatures. BENJAMIN HATCHETT

Bristlecone Pines

Creative Prompt: List some events that have taken place in Nevada during the lifetime of a Bristlecone pine. What might it have seen over its long lifespan? What might a baby Bristlecone pine see in the future?

Sketch the scene around you from the lofty perspective of a Bristlecone pine; feel free to add elements from the last 4,000 years, or elements from the next 4,000 — plants and animals, places where water might once have been, progressive modes of transportation, different interactions between man and nature.

Sego Lily

ELIZABETH QUIÑONES-ZALDAÑA

If the sego lily, a windy
Transplant, opens
Itself in serenity
On the juniper cliffs
To the bee,
Who harbors
An irresistible taste
For its velvet marrow,
Forgetful of its naked splendor

And everything else besides,
Until its mottled trace
Is obliterated:
Then good for it.

Forgive me,
Being neither
Bee nor lily,
Full of wonder—
Yet betrayed
By dull insights,
I seek counsel
In the place we stood
Momentarily rooted,
Hours after sandstone
Balanced on end
Has cooled to indigo
Against midnight.
There's the Milky Way
Rising in the moonless sky,
Like seed scattered
By the whirlwind.



Sego Lily

Sego lily is a white, three-petaled lily that blooms in spring and summer on dry hillslopes. The scientific genus, *Calochortus*, is Greek for beautiful grass, referring to the leaves. The sego lily grows each year from bulbs, which have been used by Indigenous peoples—including the Gosiute, Hopi, Navajo, Paiute, and Ute—as a staple food that could be stored through the winter. Once pollinated, sego lilies produce flattened seeds that catch the wind efficiently. Plants can also travel via animals by hitching a ride or being consumed in fruit.

Have you ever found seeds on your pet or caught on your socks? Those seeds may have barbs or hooks to grab on to passersby. Some plants, like desert peach or pinyon (piñon) pine, produce edible fruit and seeds that can be consumed and carried around during digestion. KATHERINE STRAIN



Creative Prompt: How would seeds that travel by wind be different compared to seeds that are carried by animals? Draw several seeds that you see around you. Do you think they are dispersed by wind, animals, or something else? Design your own seed to be carried by wind, animals, or water—what features would help your seed travel?

A Place of Stone

SHAUN T. GRIFFIN

for Ben and Karen

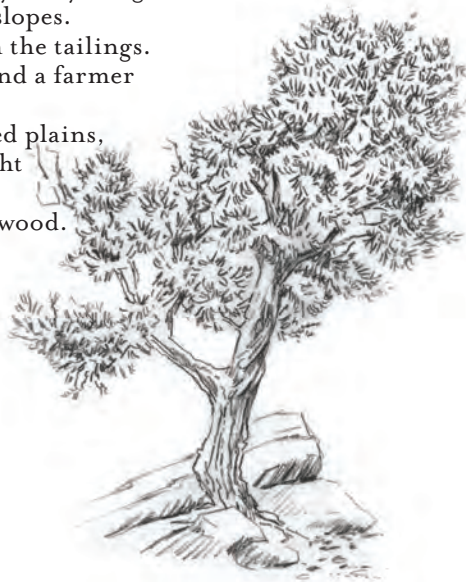
I come for the wooded dance of the Comstock:
the piñon pine, harsh as the face of an owl,
juniper, a scruff beard on the high desert,
and locust, spent, with purr of cicadas.

I come alone, in a blue-black forest of night,
steal my way into the folds of darkness,
risk ruin under the light of a star. I come
as so many others must, for that which is missing
from the stencil of the city: the outline of a face
on the back of a horse, the quiet rocks
that grow and grow in the sun's burnt strokes,
and the pine nuts glazed with sap in the fall.

I come for the fissures that ripple through this land:
the empty shell of a mine shaft, water
dripping in like a slow clock from above;
the breaking, the chipping, the bloody salt smells
that ride the canyons. A trail of ashen dreams
flake the golden skin of Nevada.

I come to fill the fallow contours of my mind
with a place of stone, yet nearly everything
has been stripped from these slopes.
Even the cornflowers cower in the tailings.
Cattle graze on winter roots and a farmer
fingers heat from the stove.
Fences crawl over half-bleached plains,
touch the moon's corrosive light

and I return, a wisp of desert wood.



Deserts are harsh, and plants often have limited access to water and nutrients. But while we might assume this would result in a fierce competition, desert environments often foster cooperative relationships. One interesting case

involves the piñon (or piñon) pine,

which relies on other plant and animal species to complete its life cycle. Piñon seedlings rarely grow out in the open, and they are often found inside the canopy of a sagebrush shrub, where the shade protects them from the dry air. This is an example of facilitation, where the presence of one species benefits another. (As opposed to, say, parasitism, where one species takes advantage of another.) Piñon seeds find their way under a sagebrush canopy as a result of a mutualism — a relationship between species in which both participants benefit. Mutualisms are common in ecology: Bees pollinating plants while sipping their nectar is an obvious example. Several bird species, including piñon jays and Clark's nutcrackers, collect piñon seeds when they ripen in the fall. Rather than eat them all, the birds bury most of the seeds, which they dig up throughout the winter when other food sources are scarce. If any of the caches go unused, the seeds can germinate in the spring. Seeds that were buried in favorable locations have a chance to grow into a new tree.

ALEXANDRA URZA, ELIZABETH LEGER,
& SCOTT DICKENSHEETS

Mutualism

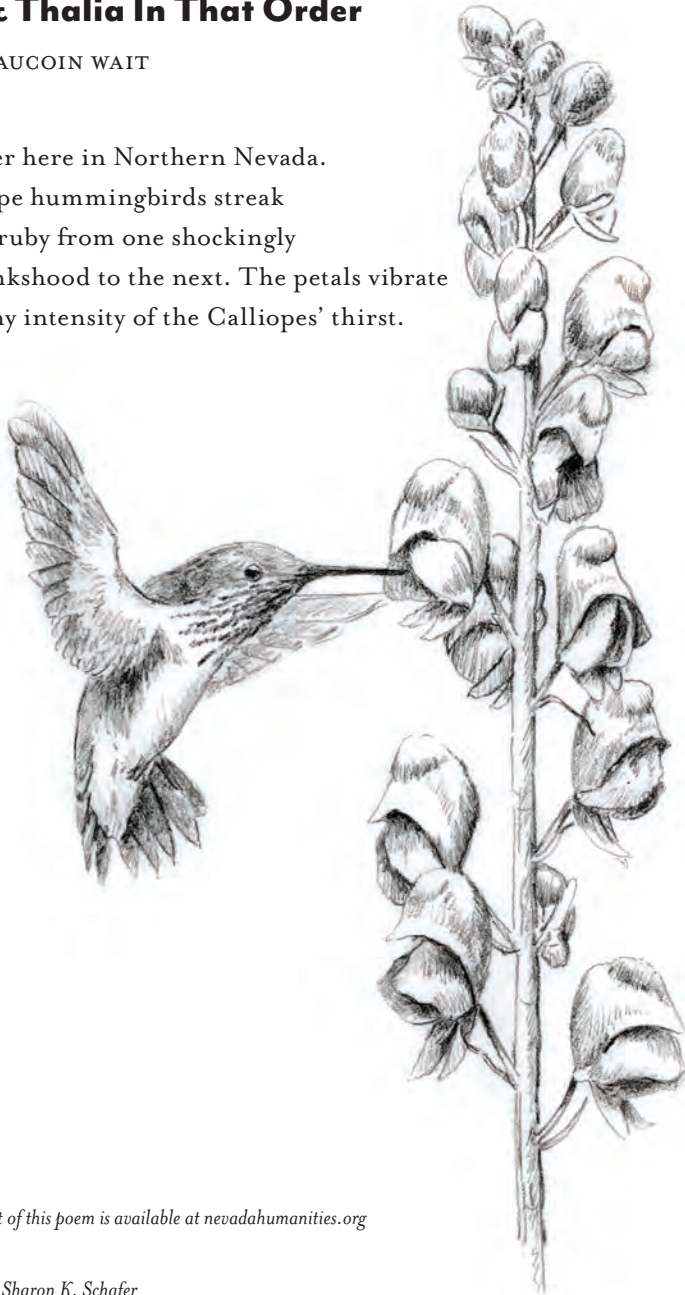


Creative Prompt: Look around you — can you spot any examples of mutualism in your backyard or in your immediate surroundings? Consider other types of mutualism, not just in the natural world, but in your own life.

**excerpt from Calliope, Clio, Melpomene,
Urania, Euterpe, Polyhymnia, Terpsichore,
Erato, & Thalia In That Order**

MICHELLE AUCOIN WAIT

It is summer here in Northern Nevada.
The Calliope hummingbirds streak
emerald & ruby from one shockingly
purple monkshood to the next. The petals vibrate
with the tiny intensity of the Calliopes' thirst.



The full text of this poem is available at nevadahumanities.org

Monkshood

This poem vividly describes a colorful natural rendezvous between the “emerald & ruby” of the hummingbird and the “shockingly purple” petals of the monkshood flower. But what is a beautiful, everyday encounter for the tiny bird would turn out quite differently for you: the monkshood — so named for the flower’s cowl-like shape — belongs to the toxic aconite family. As it contains aconitine, a neurotoxin and cardiotoxin, you don’t want to handle it carelessly, or at all. (It’s also known as wolf’s bane, and is said to have once been used to poison wolves.) It grows in alpine meadows across the northern hemisphere, and its nectar feeds a variety of moths and other pollinators. While monkshood has some modest medical uses, they’re overshadowed by its deadly effects, which appear as far back as Greek mythology — Medea tried to poison Theseus with monkshood in his wine — and as recently as *NCIS: Los Angeles*, in which a character was murdered with monkshood poison. (Literary scholars will remember it from James Joyce’s *Ulysses*, too.) When you encounter monkshood in Nevada’s mountain fields, admire its deep purple beauty from a safe distance. SCOTT DICKENSHEETS

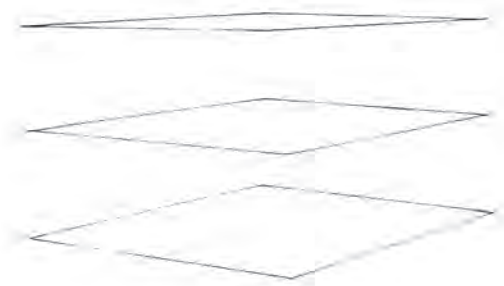
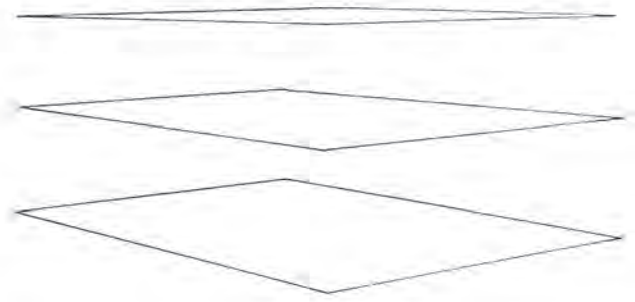
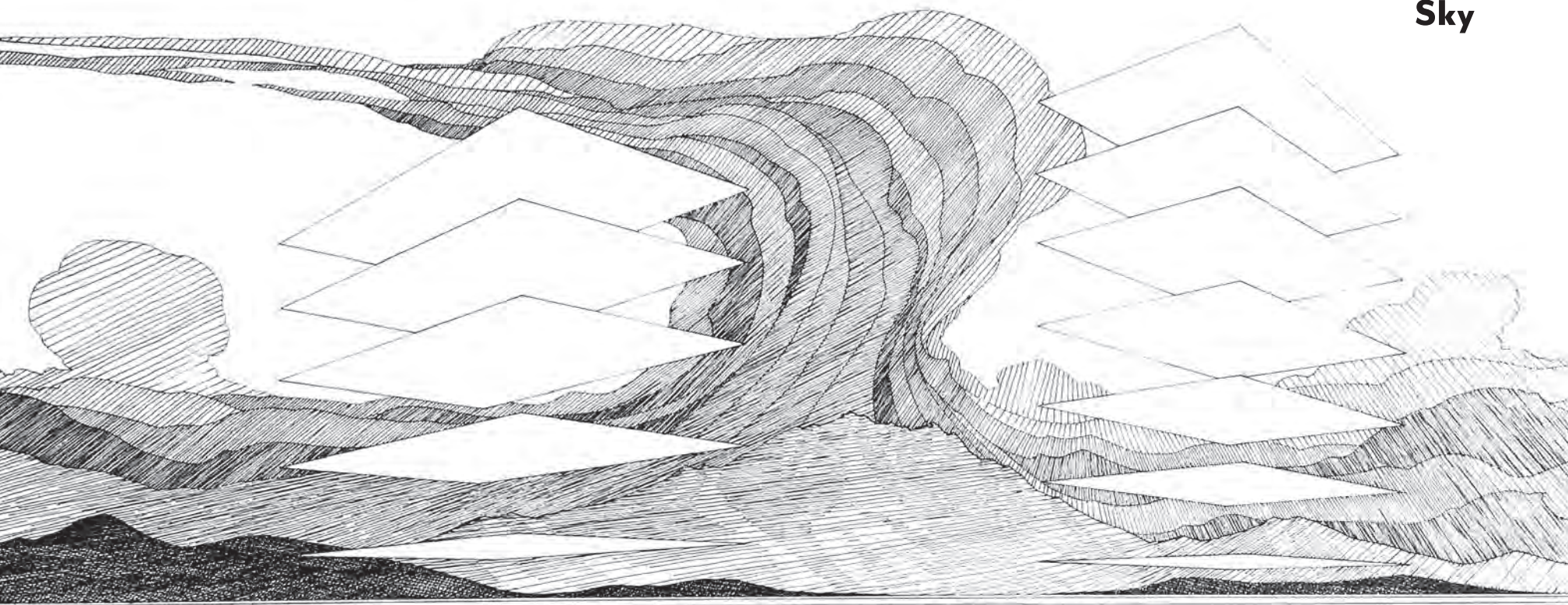


Creative Prompt: Reflect on the ways beauty and danger often occur together in nature, in ways both obvious (a lovely landscape might conceal dangerous animals) and more subtle (the spatial disorientation of the desert — where things are farther away than they look — can lead unprepared hikers into threatening situations).





Sky

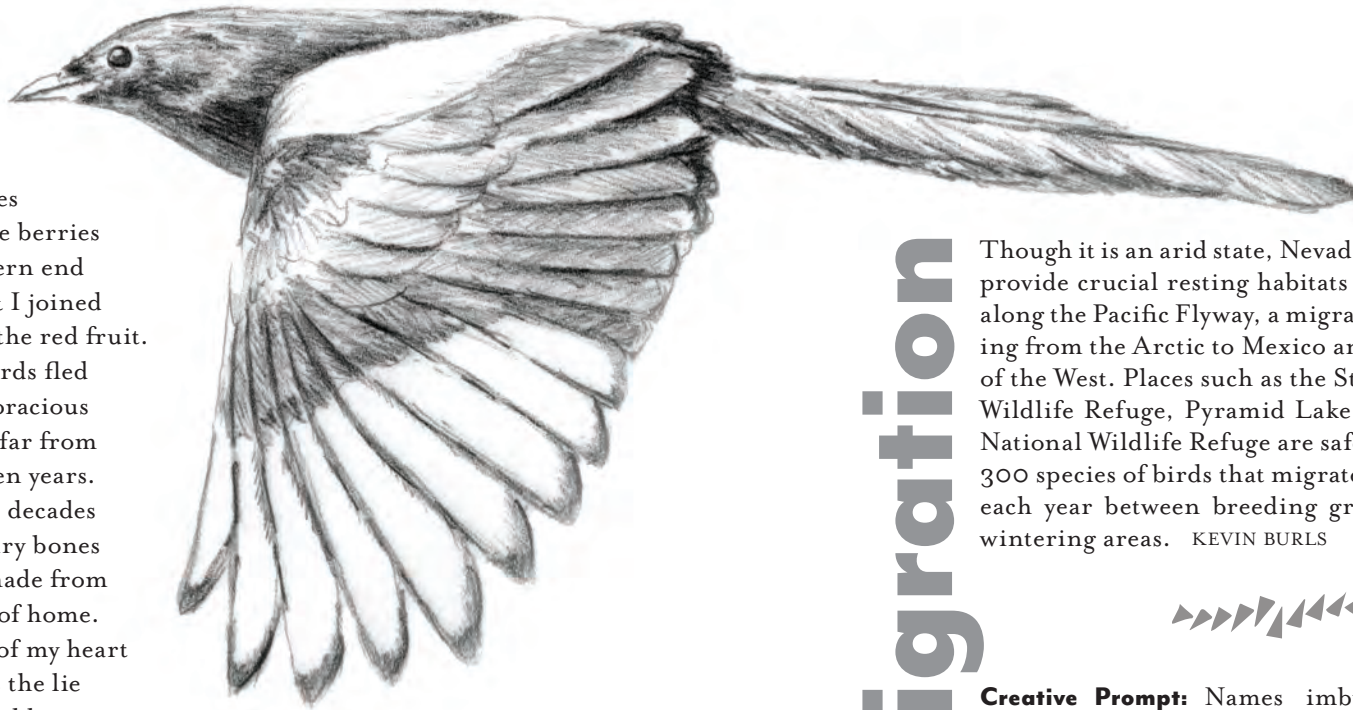


Wabuska

ADRIAN C. LOUIS

for *Sassy*

Faded years ago
fat & sacred magpies
gnashed yuwepooee berries
on the shaded eastern end
of the buckbrush & I joined
them, toying with the red fruit.
Sated, Messiah's birds fled
& I followed, my voracious
wings flinging me far from
my home of eighteen years.
I circled clouds for decades
Until I fell to the dry bones
of the Dakotas & made from
memory, a replica of home.
I became a citizen of my heart
& turned as gray as the lie
that at any day I could scrape
all the asinine clichés & excuses
from my old tongue, cook them
down in a silver spoon, resurrect
my wings & magically flap back
to the ghost clouds of childhood.



Migration

Though it is an arid state, Nevada's many wetlands provide crucial resting habitats for birds moving along the Pacific Flyway, a migratory path stretching from the Arctic to Mexico and covering much of the West. Places such as the Stillwater National Wildlife Refuge, Pyramid Lake, and Pahrnagat National Wildlife Refuge are safe havens for some 300 species of birds that migrate north and south each year between breeding grounds and overwintering areas. KEVIN BURLS



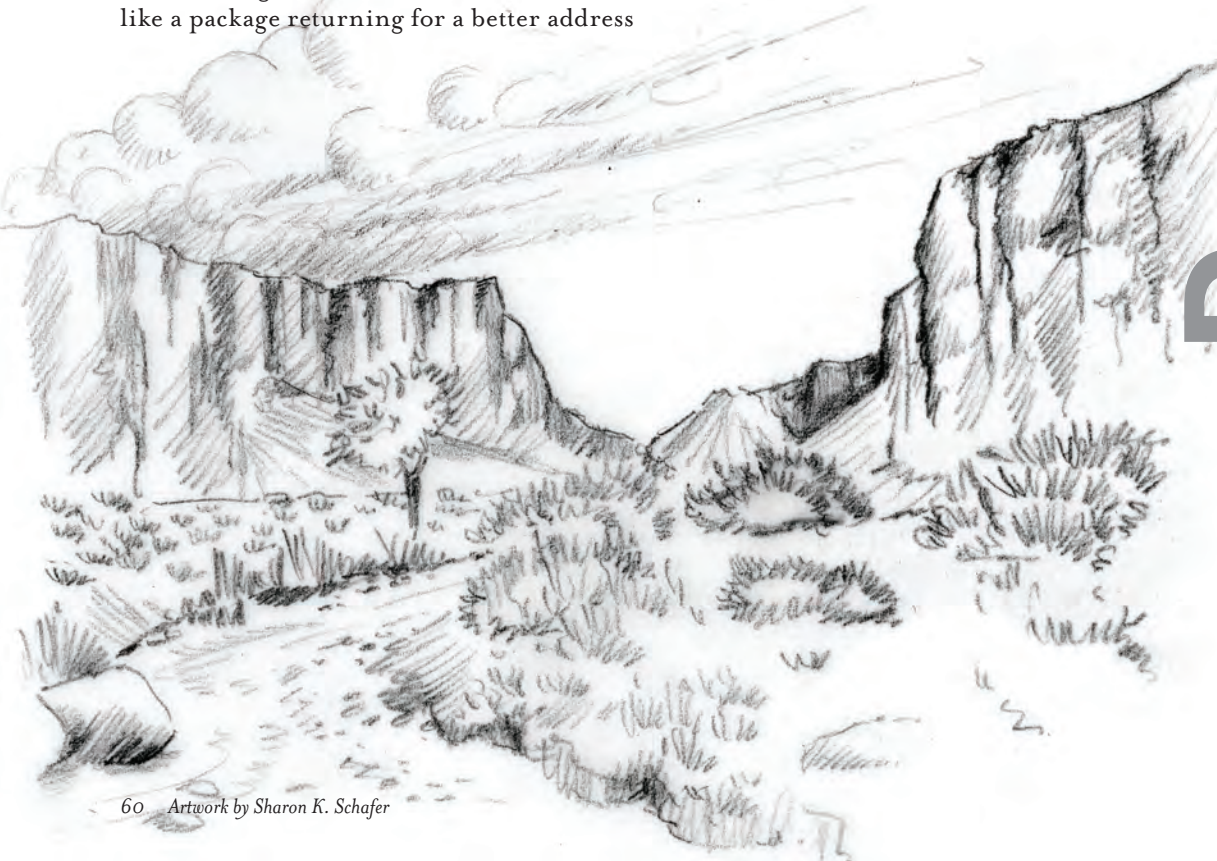
Creative Prompt: Names imbue objects with meaning, carry history and knowledge, and provide us with a richer sense of our place in the world. Looking around, can you pick out plants, animals, rocks, or other landmarks that are currently nameless to you? Learn the names in the local Indigenous language(s), and think about their significance to our community and our ecosystem. Look online, research at your local library, or ask local experts about names, their origins, and meanings.

August Mirage

STEPHEN SHU-NING LIU

Driving across Death Valley and past Ghost Town,
I'm back from my desert home to those
wind-tousled banks of the Yangtze:
each cactus down the furrow is a bristly head
of a peasant, each rock a water buffalo.
Each road sign leads me to the Apricot Inn,
which LiBai frequented, carousing through the night
and the freeway shimmers, liquefying fast
into the old river I knew.

In the sky a single cloud glides on.
I take it for a sampan that carries me
all the way back to Chongqing, Fu Ling,
and discharges me into a farmhouse,
like a package returning for a better address



Desert Mirages

A shimmering on the pavement or in the desert, often referred to as a “desert mirage,” occurs when light refracts around the curvature of the earth or through layers of different temperatures. Desert mirages are a type of atmospheric optical illusion that are known as “inferior images,” and they form below the horizon line. In the desert and over paved roadways, the air is hottest directly at the surface. Because hot air rises and cold air sinks, turbulence can occur at the surface, which causes a shimmering effect as the light bends through these areas of different and changing temperatures. KACIE N. SHOURD

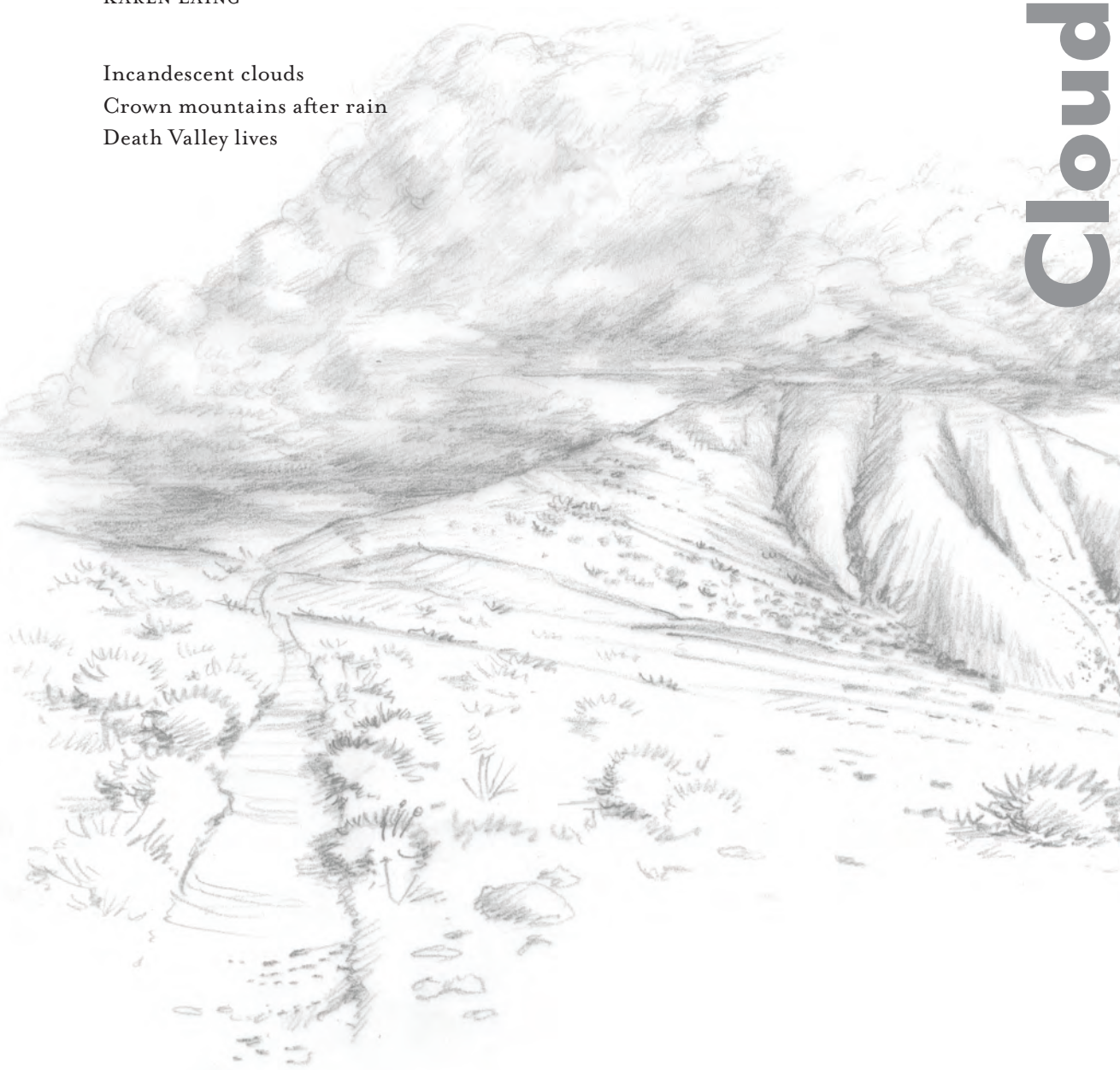


Creative Prompt: The poet expands on the scientific meaning of “mirage” to make it a metaphor for the memories triggered by features of the desert, the way a cloud reminds him of a sampan. Liu writes of the shapes and images he sees in the sky, the plants, the rocks around him. What memories of your own life do the clouds — or rocks or plants — bring to mind? Can you spot any mirages around you, or shapes in the clouds overhead? Draw what you see, or imagine, here:

Haiku

KAREN LAING

Incandescent clouds
Crown mountains after rain
Death Valley lives



Clouds

Rain does not happen often in Nevada. In fact, Nevada is the driest state in the nation and averages less than 10 inches of rainfall per year, with many parts of the state receiving much less. The word “Nevada” translates roughly to “snow-capped” in Spanish, which is appropriate since Nevada’s water supply mostly comes from snowmelt in the Sierra Nevada, local groundwater, and the Colorado River (which is fed by snowmelt in the Rocky Mountains). The state’s wet season occurs during the winter months, which means our precipitation is largely snow instead of rain.

Because rain is so rare in Nevada, we often see clouds called virga, which result when rain falls from a cloud but evaporates before making it to the ground. These are commonly referred to as mare’s tails or jellyfish clouds. Another cloud-form seen in Nevada, but less common elsewhere, is the lenticular. It has a lens-shaped or even UFO-like appearance, and many people have never seen one because they do not form over low terrain. Lenticulars form as air encounters a large obstacle, such as a mountain. As westerly winds frequently encounter Nevada’s many ranges, lenticulars are abundant here. The rainbow or iridescent glow that often appears around the edges occurs when light diffracts through small ice crystals or droplets present in the cloud. KACIE N. SHOURD



Creative Prompt: Write your own haiku, taking in the sky, the landscape, and maybe the feeling conjured by the scenic vastness before you. (The haiku form generally requires three lines of five, seven, and five syllables — but you can be creative with it if you need to!)

excerpt from **Toward Morning**

GARY SHORT

The sky sleek as the coat of a blue roan
in the moonquiet of two thousand stars
falling on Fourth Street in Panaca.
The smell of dust in October air.
A horse whinnies, dreams she is the wind.
On highway 319 a haytruck
shifts toward Cedar City

and the night grows huge. I remember Basho

*Deep autumn,
My neighbors,
How do they live?—*



Dark Sky Sanctuary

In many parts of the world, and particularly in North America, dark skies are an endangered resource. “Astronomers say that because of light pollution, fully 80% of people living in these areas no longer experience ‘real night,’ that is, real darkness,” Paul Bogard writes in the book *Let There Be Night: Testimony on Behalf of the Dark*. This isn’t a small matter — according to a 2009 study, there is scientific research that suggests light pollution can disturb the health of both humans and wildlife. It can tamper with breeding cycles and foraging behaviors in birds, for example, or alter seasonal responses in trees. In humans, excess nocturnal light has been linked to a variety of mood disorders and physical conditions. On the everyday level, too much ambient light can estrange us from the depth and beauty of, as the poet puts it, “the moonquiet of two thousand stars.”

Fortunately, Nevada’s abundance of dark skies offers an antidote to light pollution. Indeed, two years ago, the Massacre Rim Wilderness Study Area, in the northwest corner of the state, was designated an International Dark Sky Sanctuary. But you can find deep nocturnal darkness in much of the Great Basin, places where you can watch as “the night grows huge” and chart your place in the universe. SCOTT DICKENSHEETS



Evening Light Pantoum

ECHO CLARK

Finally it's evening, outside's
Time for everything to soften
Under golden light
Filtering away the grain

Time for everything to soften
When holding myself close
Filtering away the grain
I feel the future in me dark

When holding myself close
And faraway, my ancestors' collected dreams,
I feel the future in me dark
In technicolor, holograph of ghost

And faraway my ancestors, collected dreams,
Under golden light
In technicolor, holograph of ghost
Finally it's evening out, sides.

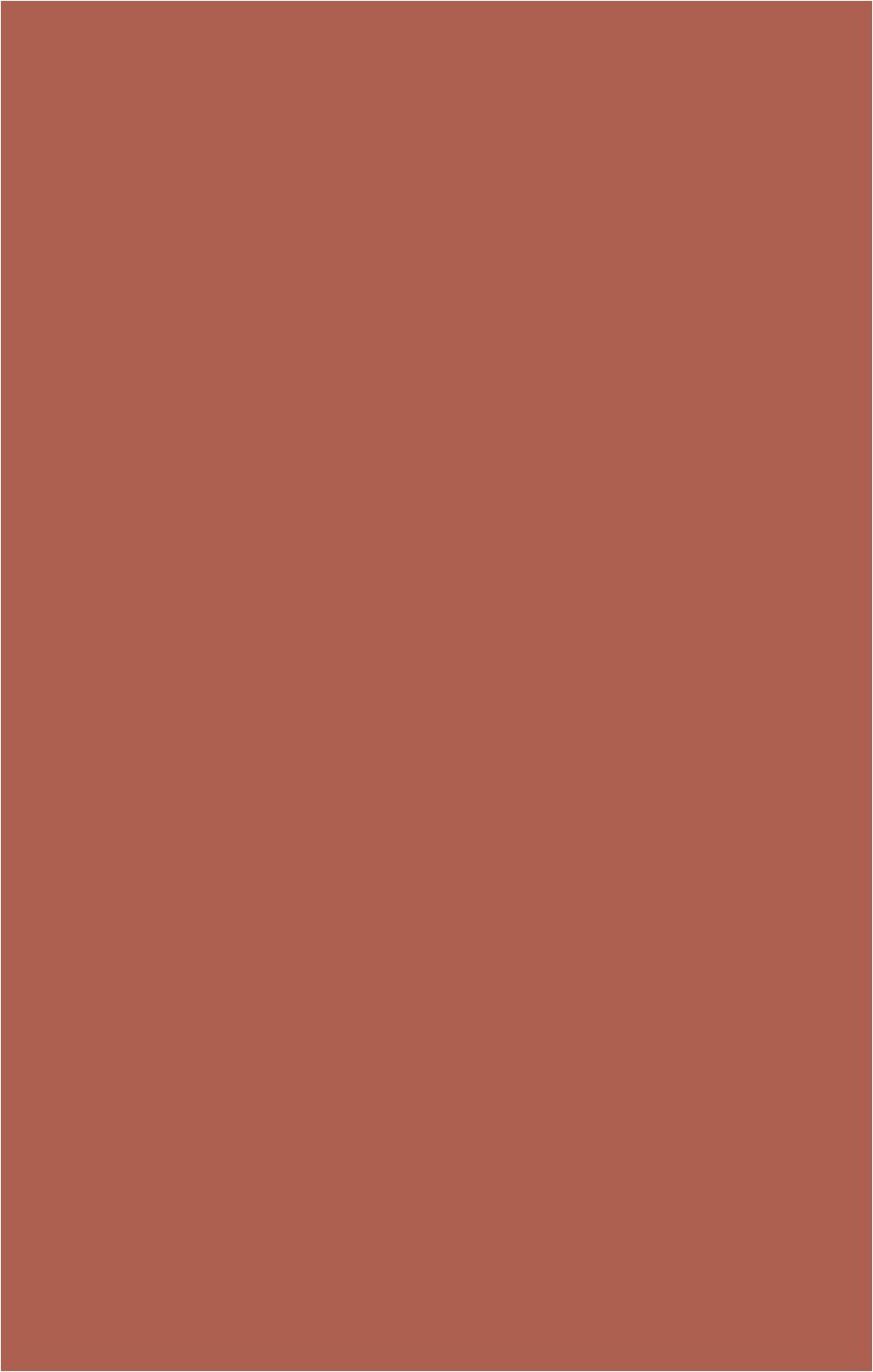


Sunset

The sunlight that enters our atmosphere arrives in a full spectrum of colors. At one end, red, yellow, and orange light have quite long wavelengths; whereas at the other end, blue, indigo, and violet have much shorter wavelengths. The sky normally appears blue because blue has a short wavelength and is scattered the most when it enters the atmosphere and encounters molecules and pollution particles (humans can't see indigo/violet light very well, otherwise the sky might appear purple). As the sun rises or sets, the sun's rays must travel through a lot more of our atmosphere, and the short wavelengths diffuse so much that they "scatter out" and do not make it to our eyes. With their longer wavelengths, gold, orange, and red can travel through much more atmosphere — so the sky often appears a beautiful gold or even red at dusk and dawn. KACIE N. SHOURD

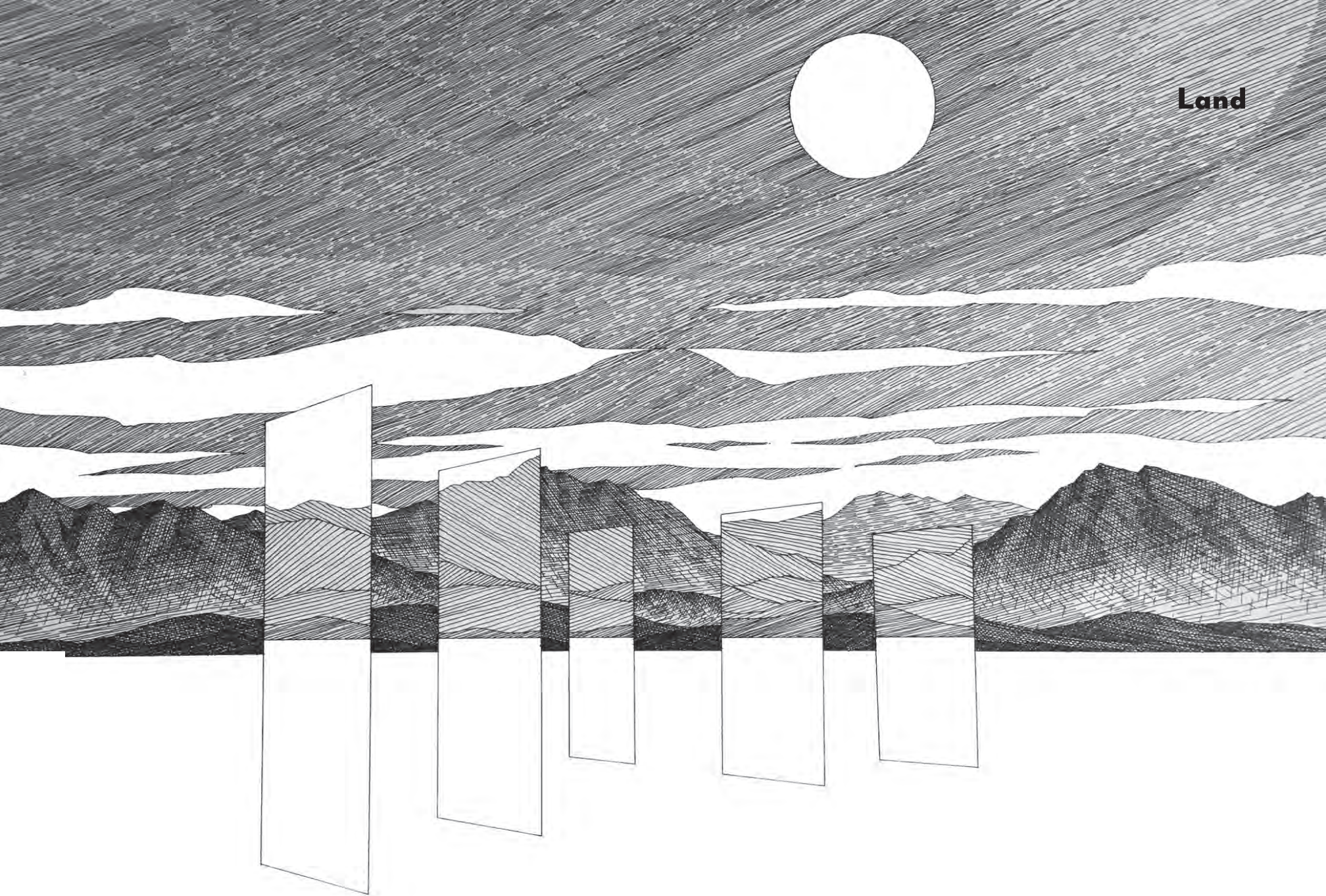


Creative Prompt: Take the time to watch a sunset, or sunrise, from beginning to end, noting the colors you see in the sky, and how they change over time. Draw and/or write down all the colors you see here. Over the course of a week, observe the minute changes in the sky as it grows from light to dark, or dark to light.





Land



Lost in the Woods

NILA NORTHSUN

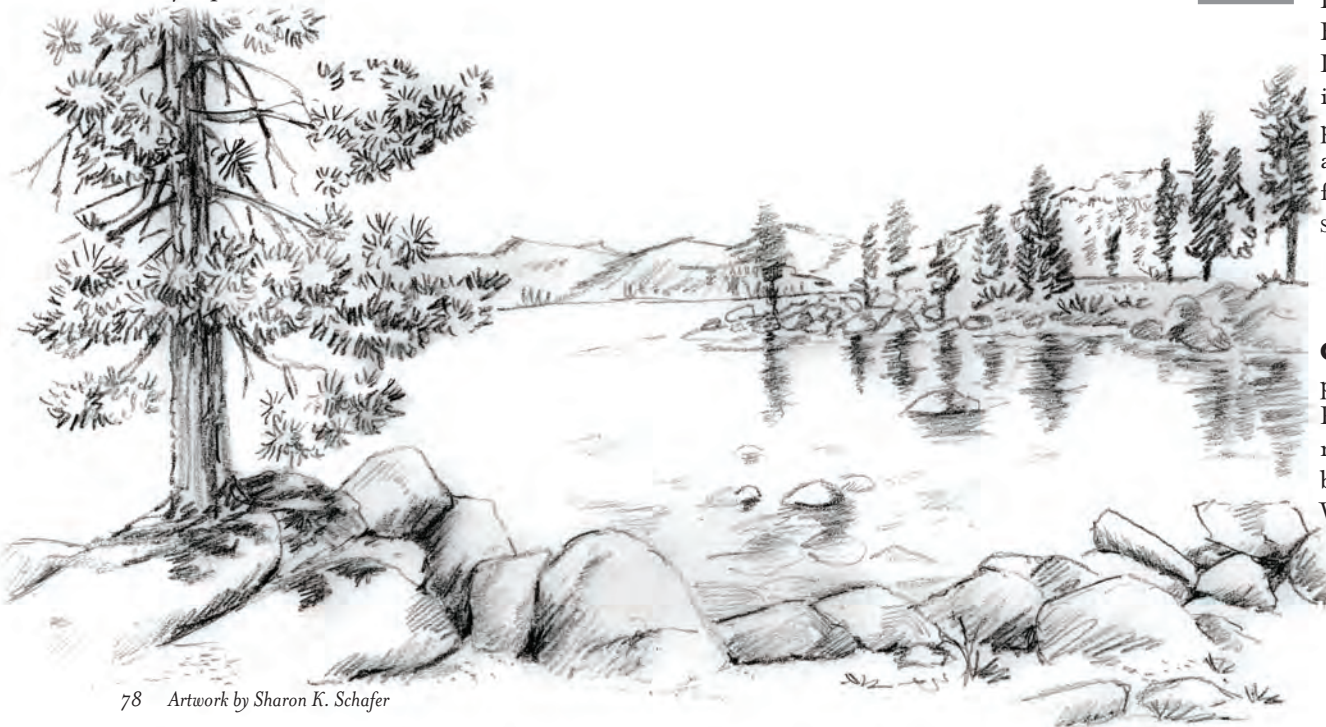
the lake glistens in the distance
they can't talk
lost in their separate thoughts
ultimately the goal is the same
among thousands of people
among roads and trails known
like the back of their hands
to somehow lose themselves
to become invisible to everything
but the trees
if they believe hard enough
they can make it real
a separate reality
from cars and hot dog stands
from day glo biking shorts
maybe like the indians that were here first
that return
and gaze over the lake
and remember how it used to be
like wovoka saying pray hard
pray hard for the return of our ghosts
and how it used to be
pray hard
and we can make it real
pray hard
and you can become invisible to their bullets
pray hard
and suddenly
they were alone in the woods



Marilyn Monroe Imagines Herself as the Earth When Lake Tahoe is Formed

GAYLE BRANDEIS

Marilyn imagines she's the Earth, a very specific patch of earth in the Sierra Nevadas; she imagines how it feels when the faults that have been itching inside her, aching like a spine that needs to twist and crack, finally give way; she imagines the release of that, the pleasure, all that rumbling and tumbling; she imagines the way the water rushes in to fill the new space she's created, deep and clear and cold; she imagines how refreshing that would be, the water filling her up, quenching the parched parts of her, allowing her to heave and ripple and calm, allowing the deepest, darkest parts of her to settle even as her surface sparkles, always sparkles, in the sun.



Lake Tahoe

As this poem indicates, Lake Tahoe was created by powerful tectonic forces: Some 24 million years before Marilyn Monroe could've cracked her back, activity along roughly parallel fault lines began creating the Sierra Nevada and Carson mountain ranges; that same action dropped the land in between, setting the stage for Lake Tahoe. The poem's references to the lake's "deepest, darkest parts" are also scientifically sound. At 1,645 feet, it is the third deepest lake in North America and one of the deepest in the world. At 22 miles by 12 miles, it is larger than all American lakes except the Great Lakes — so vast that you can see the curvature of the earth in the convex appearance of its surface. Another gripping scientific fact hinted at in the poem: Following such phrasings as "rumbling and tumbling" and "heave and ripple and calm," you might learn of the McKinney Bay tsunami. Geologists tell us that approximately 12,000-21,000 years ago, a massive, earthquake-triggered landslide on Lake Tahoe's western shore, where McKinney Bay is now, sent a towering wave across the lake. It is estimated to have been as high as 300 feet in some places. The "megasplash" stripped the plant and animal life from the shores, and probably left the water muddy for years. You can easily find a computer visualization of the event online.

SCOTT DICKENSHEETS



Creative Prompt: This poem relies heavily on the personification of Lake Tahoe as Marilyn Monroe. Pick out a feature of the landscape around you—a rock formation, hillside, grove of trees, or, yes, a body of water—and draw it as if it were a character. What traits and personality would you give it?

Valley of Fire

CHARLENE STEGMAN MOSKAL

for Philip

You would have loved this;
the red rocks, the monoliths
that speak of how time
metamorphosed into hard rock,
with etched symbols in sunlight,
prayers hidden in crevasses.

I chose to believe they are maps
graved into the rock to guide processions
that petition gods, seek benedictions for water
to drink, cleanse, renew, to baptize the spirit.
Buried with answered prayers,
a river runs under the sands.

It's easy to trust the ancients still visit.
Protected between sunburned rocks
they follow night trails,
feet padding through red dust
escorted by long gone coyote howls,
the shrill of night hawks
the snuffling of mountain lions.

They follow the paths of spectral ancestors;
find clean water that gurgles warm and sweet,
(now thirsty arroyos forgotten by rain).
They do not need to read the walls,
their calloused ghost feet as sure-footed
as the rams they have drawn.

On some nights I imagine
you have been invited
to walk with them.

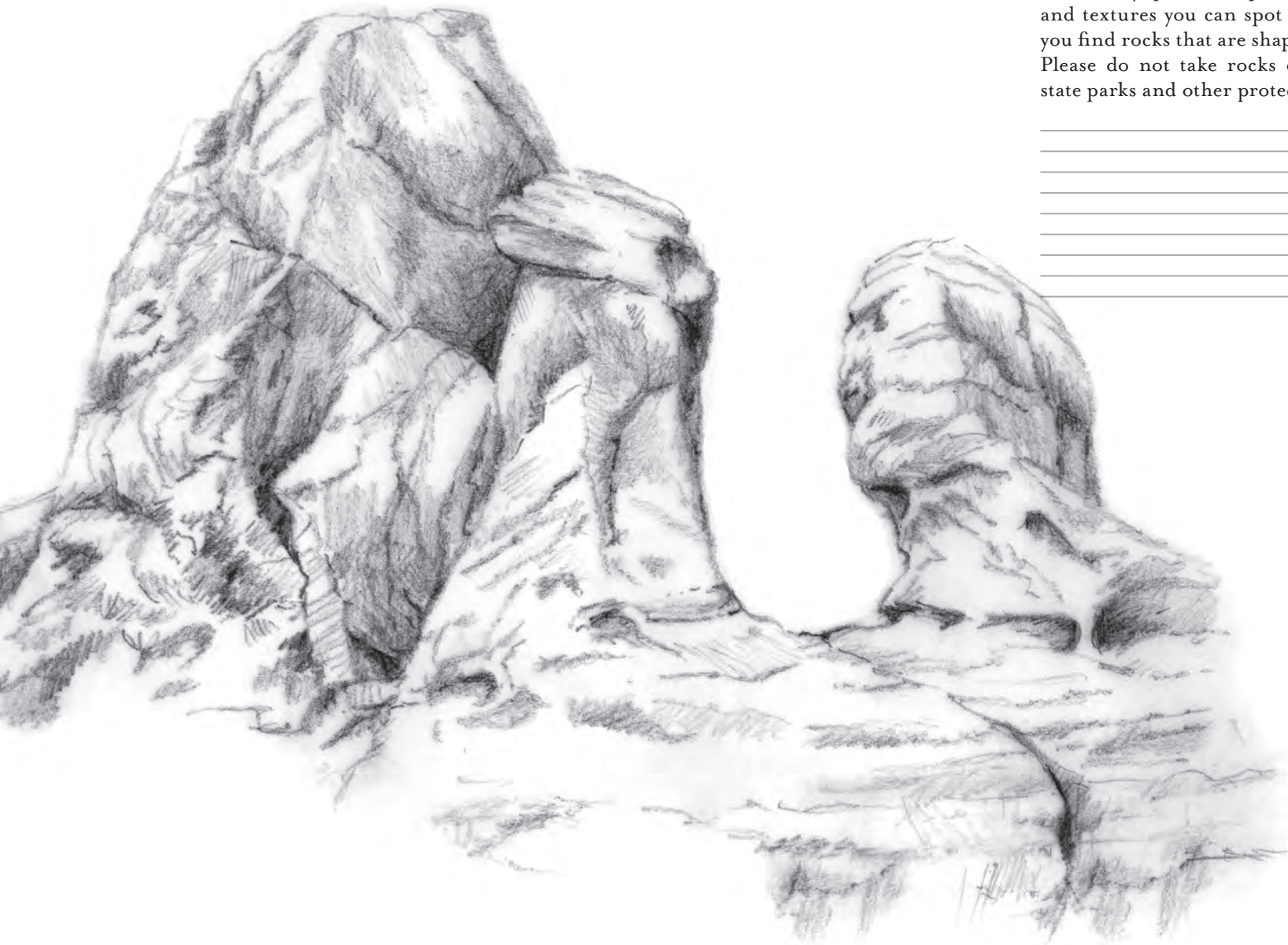
Valley of Fire

Valley of Fire State Park in southern Nevada is a breathtaking place full of clues to the paleogeography of western North America and Nevada. The colorful folded and sculpted sandstone you see as you travel and hike through the park is known as the Aztec Sandstone, which formed as part of a massive sand sea that extended from southern Nevada into parts of Arizona, Utah, Idaho, Wyoming, and Colorado during the Jurassic Period beginning about 200 million years ago. Composed of large dunes formed by sand transported by dry winds that once scoured the floodplains of major river systems around the Colorado Plateau, this sand sea reached a thickness of nearly 700 meters (2,300 feet) across much of its extent. As today, the dunes supported life, and trace fossils preserved in the sands can be found around the park.

Beginning in the Late Jurassic and into the Cretaceous Period, about 164 to 66 million years ago, tectonic forces caused uplift and folding of the sandstone along a major thrust fault that led to the formation of the Muddy Mountains south of the park and other mountain ranges along a belt extending from Mexico north into Canada. These forces followed by sustained erosion by wind and water caused the brilliantly colorful and wavy formations visible in the park today. The alternating red and buff colored bands visible at Rainbow Vista and the Fire Wave dramatically show the transition between the lower red sandstone altered by groundwater prior to uplift. The middle buff sandstone gradually thrust above this alteration zone and later sculpted into unique curves by erosion over tens of millions of years.

JD LANCASTER & TATIANNA MENOCAI





Creative Prompt: Look at the rocks and stones around you. Thinking about the pressures and forces over time that must have contributed to its form today, pick one up and see how many colors and textures you can spot upon its surface. Can you find rocks that are shaped like Nevada? Note: Please do not take rocks or other objects from state parks and other protected lands.

Mojave in July

ANGELA M. BROMMEL

You can't explain to friends from home how the desert makes it better, but you try:

Imagine a heat so dry that it presses down into the earth, releasing its scent so that it takes on the comforting smell of clay pots in your grandmother's kitchen when you were a child, or your hideout under the evergreens where you used to sit for hours smelling only the dirt, the sap, the pine.

Imagine a smell that reminds you of the kitchen on holidays: sage, rosemary, and something you chase that is reminiscent of honey, but feels like love.

Some people still fight it. They call the heat oppressive, they call it unrelenting. They have not learned how to live within it.

You must learn to smell the water beneath the surface.

You must learn to let the heat pass through you, warming your bones, your ligaments, and all the pieces that you call you.

Let the heat draw out everything unneeded.
Let it put you to bed midday.
Let it make you new.

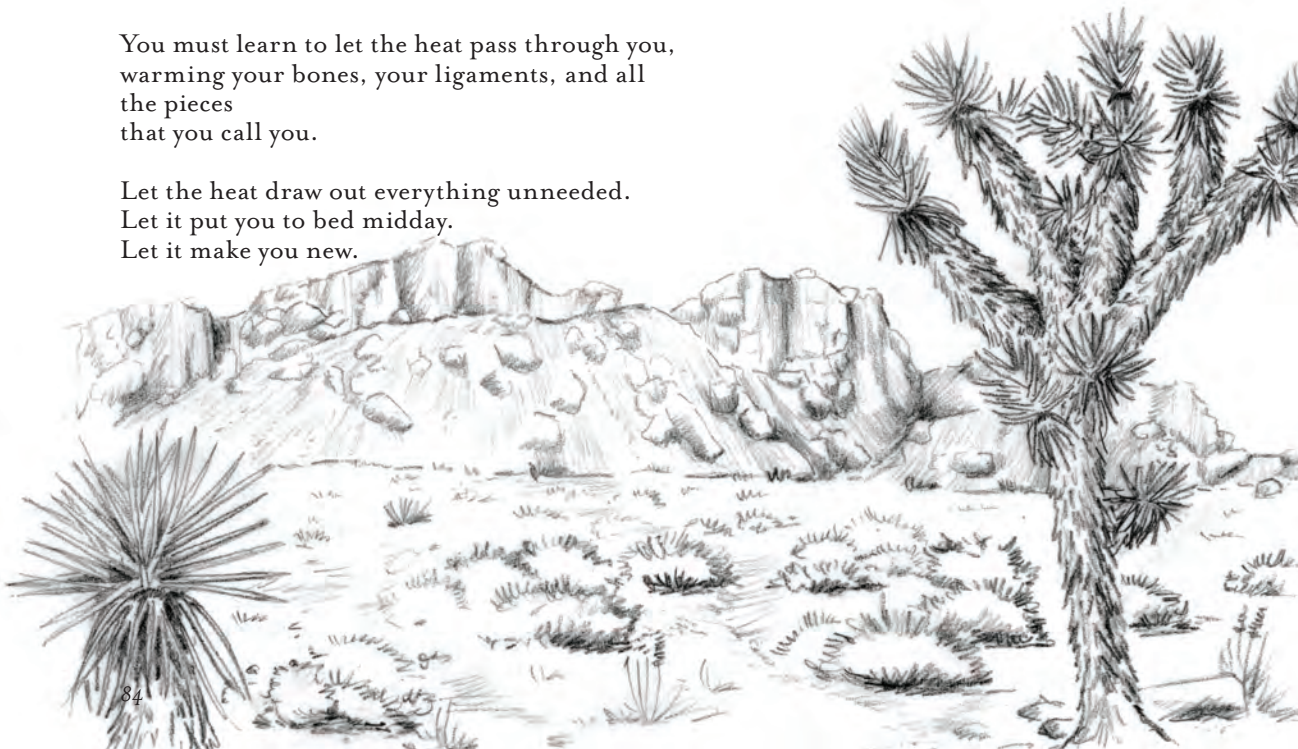
Sandstone

These sandstones in the Mojave Desert are, in a sense, alive, thanks to the cyanobacteria, microscopic plants that live in pore spaces just below the rocks' surfaces. Sandstone is translucent, meaning sunlight can shine through the surface, though not very far. When access to light is not obstructed by a closed canopy or by lichens growing on the stone surface, it is bright enough inside the rocks, and the cyanobacteria move in. After that, all that is needed is a drop of water, and the photosynthetic bacteria will do what plants do, breathing in carbon dioxide and breathing out oxygen. In a desert, such cozy times are preciously infrequent and short-lived, possible only after a shower, snowfall, or dew formation. The rest of time, summer especially, the rocks are bone-dry, with humidity in single digits. This is where the small, simple, and primitive approach is preferable to the big, complex, and advanced: these organisms can lose virtually all water from their cells and not die. They simply enter into a state of suspended animation and bide their time. In other words, these creatures are seemingly able to switch life on and off at will. Life between a rock and a hard place may not be luxurious, but it assures survival. If the climate in the Mojave Desert were to become more arid such that all the plants would be dead, the rock-inhabiting bacteria would still stand. HENRY SUN



Creative Prompt: Pause for a moment where you are, and notice what you can smell. Check the scents of specific plants, even rocks — what do their aromas remind you of? Do any of them evoke memories or other associations?

Where things might seem lifeless (rocks, dirt, the bark on a tree), can you spot any signs of life? Contemplate what it takes to survive in the desert, and how even sandstone can be alive with life.



Desert

ELAINE DALLMAN

This land is sand grains;
under walking feet Nevada shifts.

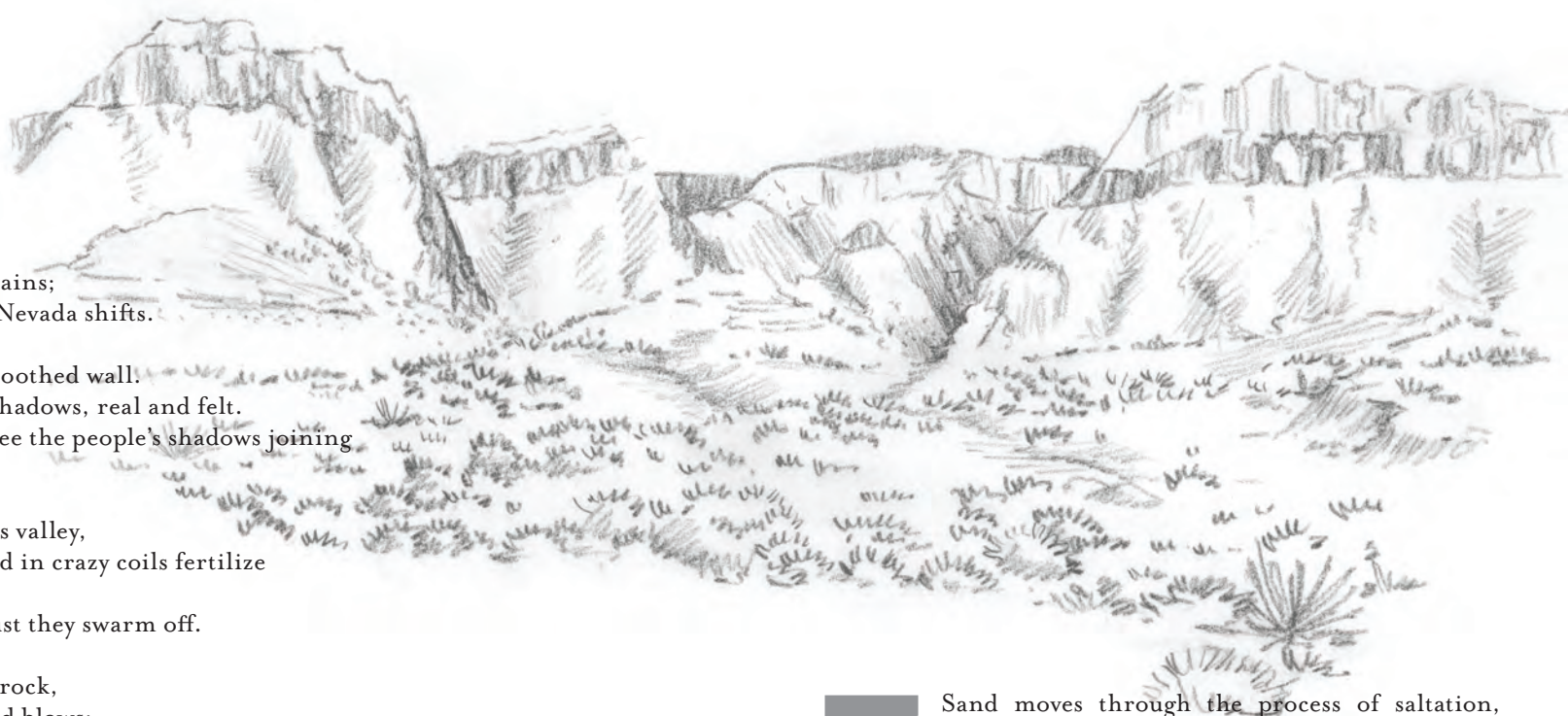
A rock resembles a toothed wall.
Desert stone drips shadows, real and felt.
The women call, "See the people's shadows joining
hands!"

In the middle of this valley,
wild wasps entangled in crazy coils fertilize
stamens.
Crowned in gold dust they swarm off.

Wind slams against rock,
a yellow sage blizzard blows;
rain drums like a demigod who holds the faith of its
people.
Rain cannot wash the circle of day away.

Fall suns accumulate beyond the town borders.

Soon, winter emits its slow hungering light.
One circle doesn't notice the sky's tired black.
The circle moves, ever so lightly.
Again winter at winter's center.
Awakening, a yellow eye flies beyond.



Sand

Sand moves through the process of saltation, where sand particles bounce and skip across the surface of the land. In desert environments with a relatively dense plant cover or topographic barriers, strong winds, and a steady to overwhelming supply of sand, various types of amazing sand dunes can form such as the Amargosa Dune (Big Dune) or the Nellis Dunes outside of Las Vegas. In other areas of deserts, where vegetation is limited, strong winds and a steady supply of sand can combine in places to form ventifacts, which are rocks abraded by windblown sand. Bouncing sand particles have enough energy to erode the surfaces of these rocks, creating pits, flutes, ridges, and faceted surfaces that point towards the prevailing wind directions. (For scientists, ventifacts can be particularly useful in providing data on past wind directions.) Ventifact Ridge in Death Valley is a particularly well-known location to view the results of this process, although ventifacts can be found around the Mojave Desert.

JD LANCASTER & TATIANNIA MENOCAL

Visitor's Guide: Wild Horse State Park

GAILMARIE PAHMEIER

The reservoir was named after those that roamed abundantly in the area. Ranching has restricted the horses' movement, but they can still be found on the Owyhee Desert to the west.

Do you see?

The countryside is a treeless high and cold desert. Big sage dominates with patches of quaking aspen in the hills.

The trembling?

Although the park is open year round, winter can be harsh. Spring and fall are unpredictable with the threat of winter weather at any moment.

Pay attention.

For more information during your visit, stop in at the visitor center. Hours will vary.

Note relative abundances.



Acknowledgments

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