EXPLORATION

Volume 2, Number 1

Quarterly

We shall not cease

ABOVE: Sunset in the Simpson Desert (29°1'43.57"S, 133°17'36.06"E); Roseann Hanson photo. OVERLEAF: Horses grazing in the Khurkh Valley, Mongola (48°16'48.918"N, 110°29'33.138"E); Heather Fortune photo. COVER: John Longstaff's "Arrival of Burke, Wills and King at the deserted camp at Cooper's Creek, Sunday evening, 21 April 1861" (National Gallery of Victoria; oil on panel).

EXPLORATION

Vol. 2, No. 1 (July 2025) *Quarterly*

"WE SHALL NOT CEASE FROM EXPLORATION

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time." – T.S. Eliot

Welcome to ***Exploration Quarterly,*** the publication for those who do not cease to BE CURIOUS . . . to LEARN . . . to EXPLORE . . .

We define exploration in the broadest sense:

Exploration can be geographical.

Exploration can be fractal.

Exploration can be introspective.

Exploration can be expansive.

Exploration can be structured.

Exploration can be unplanned.

Exploration can happen every day.

Exploration is continuously seeking new places, new ideas, new knowledge.

Exploration is the essence of being human, what brought us from the forests into the savannahs, and beyond the horizons of Earth to the edges of the known universe.

We shall not cease from exploration.

Thank you for joining us.

Jonathan Hanson Roseann Hanson

Founders, Curators, Editors, Designers

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GROUND ZERO

AUSTRALIA

by Jonathan Hanson

What do you say if you're the Australian prime minister Robert Menzies, five years after the end of WWII, and you get a phone call from UK prime minister Clement Attlee along the lines of, "I say old chap, would you mind terribly if we detonated a few nuclear devices in one of your worthless stretches of uninhabited desert? Oh, and perhaps on an island or two?"

What Menzies *did* say, essentially, was, "Er . . . sure, why not?" In fact, according to Elizabeth Tynan in her book, *Atomic Thunder—British Nuclear Testing in Australia*, he didn't even bother to confer with his cabinet, much less Australian voters, much *less* the Australian Aborigines (who had no vote) who actually did inhabit those worthless stretches of uninhabited desert.

Crossing the Red Center

By Jonathan Hanson

Images and art by Jonathan and Roseann Hanson

560 Miles
1,138 Sand Dunes
2 Untested Land Cruisers

"And this is here . . . *why*?" said a voice.

The four of us looked up from our combo plates of overpriced, overcooked kangaroo, crocodile, and emu.

The manager of the Overlanders Steakhouse—a venerable institution founded in 1971 and considered a mandatory stop for anyone transiting Alice Springs in a 4x4 vehicle—leaned over Roseann and with one imperious finger slid her bread plate back from the convenient location where Roseann had placed it to its correct spot at 10:00 off the main dinner plate. While we gaped after her, she swooped off to critique the place settings of other diners. Probably their postures, too. Before we'd finished chewing down the last of our carbonized meal she had swooped by two or three times again to relocate a wayward salt shaker or rebellious bottle of sauce. (I swear we didn't move them deliberately.) It was as if Emily Post had joined the Gestapo and moved to Australia to run a restaurant. Interestingly, she never once asked, "Und how iss your mils?"

Roseann and I, along with our friends Graham Jackson and Connie Rodman, had driven our two Land Cruiser HZJ75 Troop Carriers—each bought, rather recklessly, sight-unseen over the internet—1,700 miles from Sydney to Alice as a mild shake-down run. The next day we were to begin the real shakedown run: crossing the Simpson Desert to Birdsville; 560 miles of sand track traversing 1,138 dunes—the longest way across the longest parallel dunes on earth.

It wasn't originally going to happen this way. In fact, Roseann and I *originally* had been planning a trip to England to visit friends. But the high-season rates Roseann found online were in the same stratosphere where the airliners fly. Then, while she was searching, an Air New Zealand ad popped up: "Round-trip L.A. to Sydney: $770!" I heard a voice from the other room: "Hey, Jonathan. Wanna go to Australia?" A quick email brought Graham and Connie on board, and it turned out Graham already had an idea for an Australian journey—a traverse of the Simpson Desert via the historic Madigan Line.

Done.

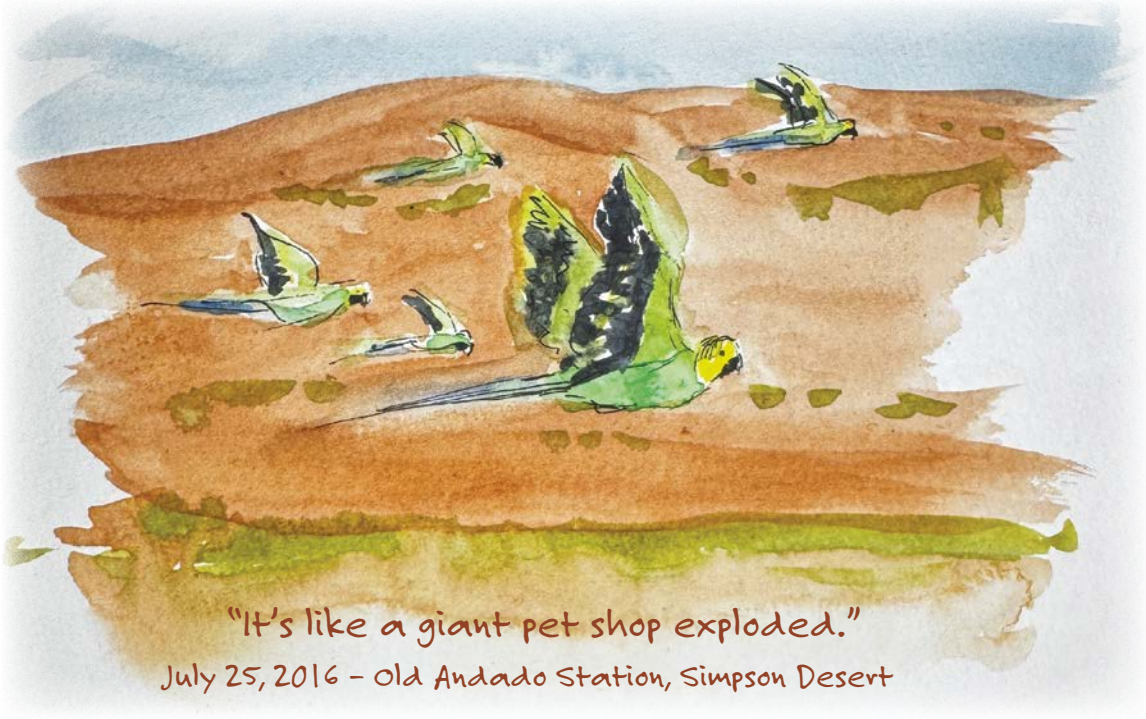
equal ease. The troughs where more water collects were shaded by coolabah trees (yes, the ones that also grow by billabongs ...). Overhead and in the bush Australian bird life resembled, as Graham put it, the explosion of a pet shop. Species Americans are used to seeing in pretty domed wire cages fly here where nature intended them to: budgerigars, cockatoos, zebra finches. At a lunch stop I was watching the menagerie through my expensive Swarovski binoculars when a budgie landed on my hat, chirpily defining the word irony. Connie actually grabbed an iPhone image before it twittered off.

The Madigan Line is named after explorer Cecil Madigan, who forged this route across the desert in 1939 in 25 days, with nine men and 19 camels, filling in the last great blank in the map of Australia. During the trek Madigan used shortwave radio to broadcast reports to the nation on ABC. He also named the desert after Alfred Allen Simpson, a philanthropist and geographer who was president of the South Australia chapter of the Royal Geographical Society of Australasia. The first person to negotiate the Madigan Line in a four-wheel-drive vehicle was Denis Bartel, in 1979—in a tiny LJ80 Suzuki with a 41-horsepower engine. In 1994, David Owen and Robert Correa, co-owners of an outback touring company, installed metal plaques at the locations of each of Madigan's camps. During their eight-day effort they collected no fewer than 54 tire punctures from spinifex daggers.

We camped just past the Camp 1A plaque that night, and—displaying starkly the difference between camel and Land Cruiser travel—stopped between Madigan's camps 6 and 7 next afternoon.

The weather was, luckily, glorious. (Things could have become very interesting if there'd been heavy rain while we were in the middle of the track.) It was generally around freezing when we woke, and usually topped out in the mid-70s Fahrenheit. Despite our location in the middle of the continent, elevation hovered between 400 and 600 feet most of the way. Each day became a pleasant repetition of the previous one and a foretelling of the next: fire up the volcano kettles at dawn to make coffee and tea, cross . . . 20? 30? . . . dunes, powering smoothly up to the crests, glissading down the other side, then following the meandering track through the spinifex and wildflowers to the next crest. Stop for a leisurely lunch and walk. We added more birds to our Australian life list (we don't count species; it's strictly for memories): black kites, ravens, brown falcons, a meter-tall Australian bustard. Stop early after crossing another 30 or 40 dunes, pull off the spare-tire-mounted grill, select cuts of defrosted meat for dinner,

LEFT: Crimson chat and little corella. THIS PAGE: Budgerigar that landed on the author's head. Red-backed sand dragon.



ABOVE: A red kangaroo gives us the once-over before leisurely bounding off. Journal entries of budgerigars and bustard by Roseann Hanson.

PORTABLE FIRE

Suitable for Prometheus as well as mere mortals

by Jonathan Hanson

One of my favorite Far Side cartoons depicts two cavemen holding, respectively, a lizard and a mastodon roast over a fire with their bare hands, while sweating and grimacing in agony. A third says, "Hey, look what Zog do!" pointing at a fourth—suitably if impossibly attired in nerdy spectacles—who's holding his roast over his own fire . . . on the end of a sharp stick.

Zog was an innovator—and, we hope, had the foresight to quickly patent his invention—but for a couple million years, the genus *Homo* cooked basically the same way: over an open fire.

The first evidence of a stone ring to control that fire (and give Zog a place to rest his skewer) dates to an astonishing 1.5 million years ago, in Kenya. Things probably did not change much for a long, long time after that, until the invention of fired ceramic cooking vessels sometime around 20,000 years ago. At that time a standard "three-stone" hearth would have been the easiest way to support such a vessel stably over a fire—and this cooking arrangement is still used by millions of people worldwide.

Once we moved out of caves and into enclosed structures, the open fire became a problem. Just leaving a hole in the roof didn't really accomplish much as there was no active draft. (An aside: the Native American teepee's conical shape and top draft flap reportedly created a very effective draft, keeping the interior smoke-free.) The first chimneys designed to actively draw away smoke appeared between 3,000 and 2,000 years ago in China; kilns in the Middle East around this time also had chimneys. The clever Romans invented central heating with the *hypocaust*—a floor built on pillars over a void in which heat from a fire circulated; the smoke vented out a side chimney.

windscreen such as those from MSR too closely around the stove. Only once in my decades of use did the valve pop open on me, as I was cooking dinner next to a pool in a stream in the mountains north of Tucson. I have no idea why it happened, but one second the stove was burning normally, the next a hissing foot-long tongue of flame shot out of the cap. I grabbed the pan off the stove, stood up, and kicked the entire thing ten feet into the pool. I figured that was the end of my Svea, going from blast-furnace hot into 60-degree water—but I fished it out, dried it off, lit it gingerly, and never had a problem with it again.

ABOVE: Bruce Douglas' late1960s Svea 123 (purchased for $9.99) and its original box. RIGHT: The author's Svea, which he bought a few years later for $11.99; click to play video and hear the legendary stove in action.

In 1969 Primus bought the Sievert company, and introduced the Svea 123R, identical to the original with the exception of a built-in orifice-cleaning needle. You can tell the difference in models instantly because the valve and key of the original sit at a downward angle to the vaporizer tube, while the 123R's is perpendicular.

Beginning in the early 1970s, more sophisticated backpacking and mountaineering stoves became available, for example the MSR line of liquid-fuel stoves, and then various canister stoves. The MSR stoves such as the GK beat the Svea's boiling time handily, although they, too, required priming (by means of a pump on the separate fuel bottle). MSR's later Whisperlite was also considerably quieter—as were canister stoves, which needed no priming.

Over the years I've owned and/or tested a huge range of backpacking/mountaineering stoves, from MSR, Primus, Optimus, Coleman, Snow Peak, Soto, Jetboil, and others I've forgotten. The canister stoves are seductive with their effortless and quiet operation—but canister fuel is expensive, and you're left with an empty canister that, at best, can be recycled, and at worst is landfill. I also dislike having to guess how much fuel remains in each canister and so usually carry the weight of a spare even on short trips.

The MSR Whisperlite and its kin are excellent stoves—fuel efficient, powerful, and quiet. But they are more complex, with numerous parts and a mostly plastic pump that needs rebuilding now and then.

And none of these is as warmly beautiful as the solid brass of the Svea. If you consider that the basic function of the Svea 123 was perfected a century and more ago, it's astonishing how well it holds up to modern stoves. It's as fuel-efficient as any competitor, its reliability and durability have never been equalled, and a 50-year-old eBay example advertised as "not tested" will in all probability fire right up. If not, the simple parts for a rebuild are easily available. (You can, in fact, still buy a Svea 123 new; however they are now made in Taiwan.) In my case, a least, the Svea's enduring practicality is just icing on a half-century and more of fond memories.

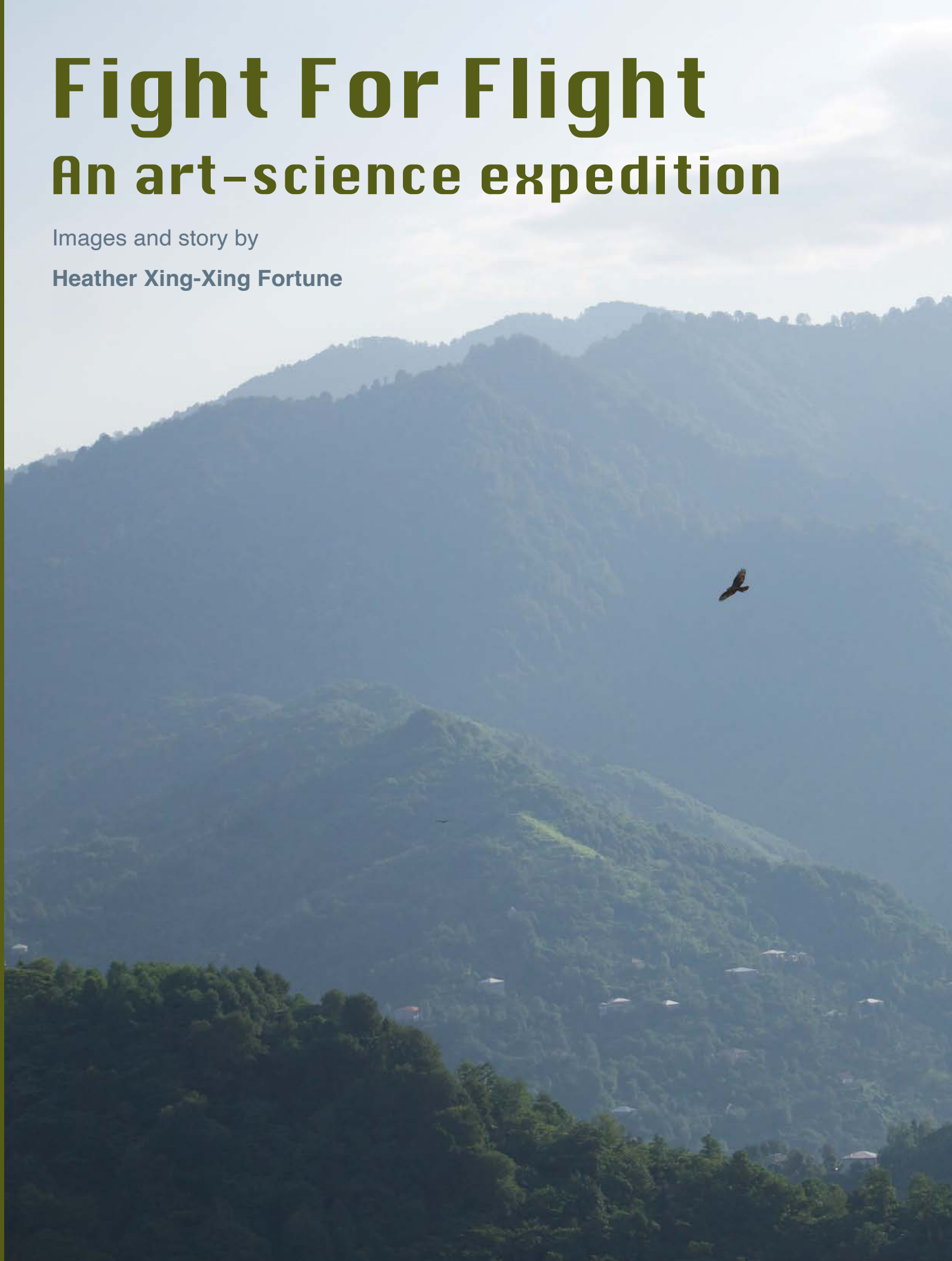
There's one more thing I love about my Svea 123: After the coffee is made, or the eggs scrambled, or the freshly caught trout fried, turning off the lovely thing *really* makes you appreciate the silence of the wilderness.

Fight For Flight

An art-science expedition

Images and story by

Heather Xing-Xing Fortune



"There was something about birds that made us, even just for moments at a time, lift our eyes away from our lives and up to the skies."

— Dr. Mya-Rose Craig (@birdgirluk)

Knees tucked to my chest, I sit alone on the grassy slope of the Khurkh Valley in Khentii Province, eastern Mongolia, looking out across the vast steppe. Twenty kilometers northeast of Khurkh Village, and a bumpy nine-hour drive from Ulaanbaatar, never have I been somewhere that more closely resembles 'the middle of nowhere.' With few trees around, I can see for miles and miles. The rolling hills are painted in layers of colour, the tone changing with the shift from day to night. The distant thrum of a motorbike—someone herding their sheep through the valleys below—cuts through the silence, otherwise disturbed only by the squeaky song of a red-throated pipit or whisper of the breeze.

I watch the comings and goings between the little log cabin and white ger, the traditional round tent, below. Set up in 2015 by Wildlife Science and Conservation Center of Mongolia (WSCC), this is Khurkh Bird Ringing Station (KBRS), Mongolia's first ringing station, where I am staying (ringing is synonymous with bird-banding, which involves affixing tiny, numbered metal bands onto birds' legs so they can be tracked globally by scientists who set up nets during migration seasons and record data on thousands of birds). The center is reliant on local and foreign volunteers, and I have joined the team to help with the autumn monitoring season.

As evening falls, the sharp nip of mosquitos brings me back to reality, and I rub my bare arms, bumpy from previous bites. Amur falcons descend to their night roosts in nearby trees, and I, too, begin to think of my sleeping bag. I take in the hilltop view one more time, before beginning the clamber down from our "internet café"—the only way to get cell service out in rural Mongolia.

She demonstrated how to secure a lightweight, harmless metal band with a unique number onto the bird's leg so that it could be identified upon recapture in future years and / or at other locations. We also took morphometric measurements such as weight and wing length, before releasing the bird, all done in a matter of minutes.

Net checks continued until around 12:00 or 13:00 most days. We had to just grab a bite to eat or bathroom break whenever there was a spare moment. Some days totaled up to 450 birds of an astonishing range of species including Siberian rubythroats, azure tits, and yellow-browed warblers, the majority of which I had never heard of before.

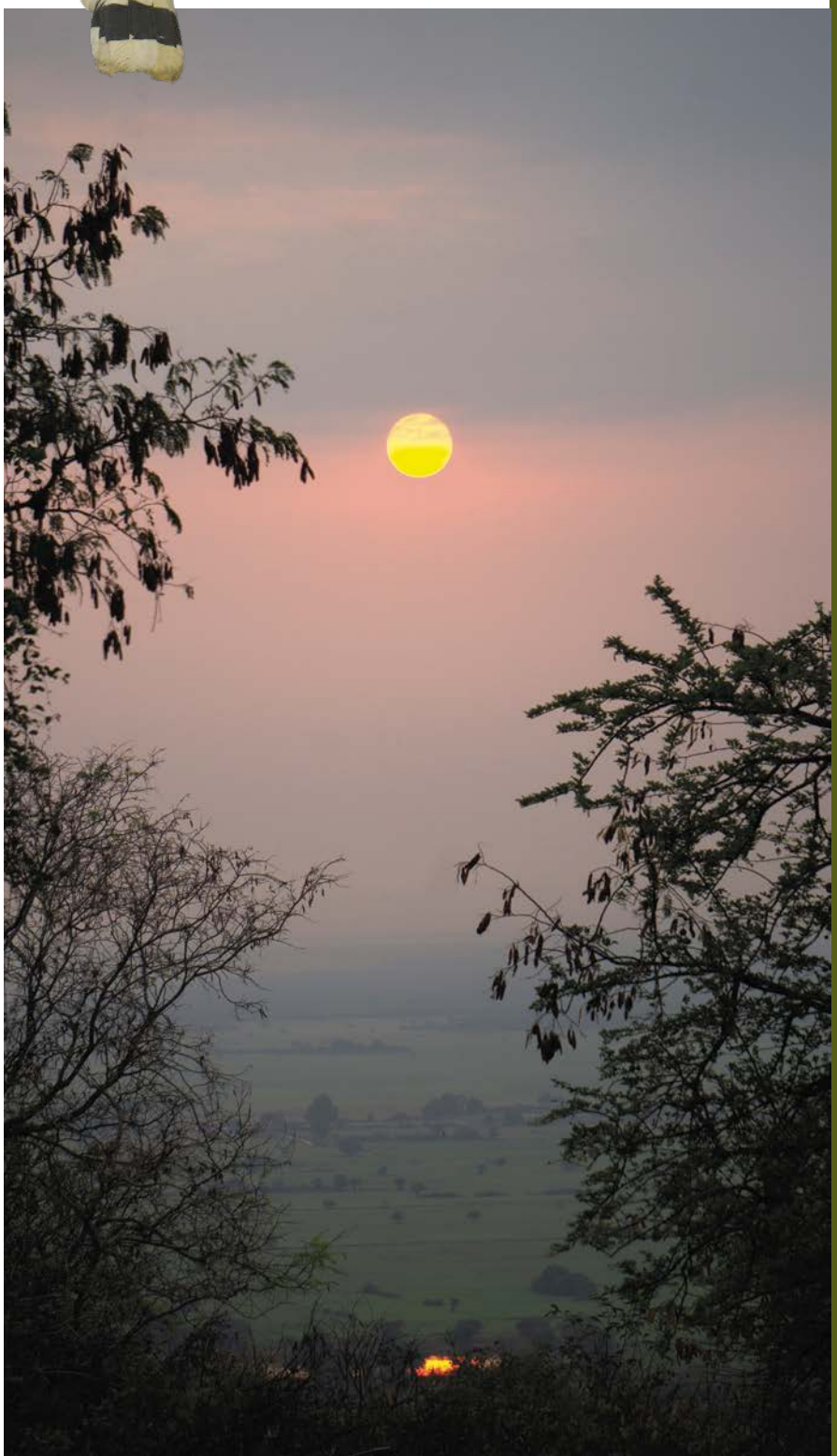
Station life was also very different to anything I had ever experienced. The small wooden cabin with our bunks was also where we ate and ringed the birds. We fetched drinking water from a nearby spring, chopped wood for the fire that heated our cabin, and had to climb to the top of a hill to get any phone service (thus its nickname the 'internet café'). The toilets were pit latrines, and we washed ourselves, our clothes, and dishes in river water.

With an average of six volunteers living in the station at any one time, daily duties were on rotation, including cooking, which was done in the *ger* over a portable gas stove. Tuvshee taught us to make delicious "*buuz*" (буүз), traditional Mongolian dumplings, from our limited ingredient stock.

Temperatures dropped below 0°C by the end of September. We needed sunlight to defrost the nets before opening, allowing us a well-deserved lie-in. Tuvshee wore her traditional pink *deel*—a thick overcoat—to keep warm, and we began to spend more of our free time indoors. We played card games with rangers Bayka and Nasaa, which was a fantastic way to connect despite the language barrier. Bayka loved to play pranks on us, swapping the sugar for the salt, or hiding things. Fireside conversations with Tuvshee taught me a lot about the traditional nomadic lifestyle—herding sheep and horses—which is still practiced by approximately 25 to 30 percent of Mongolians.

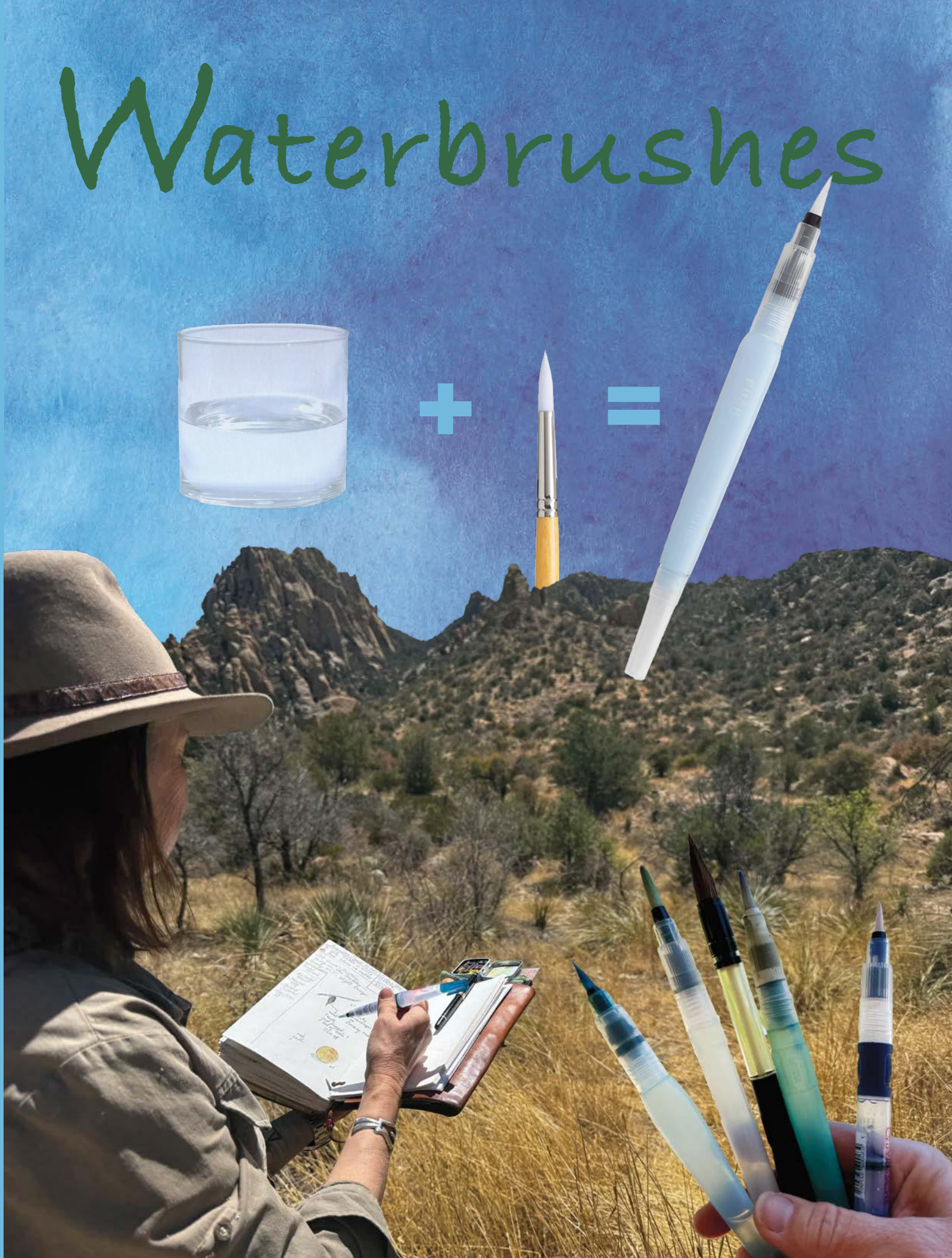
However, this way of life is struggling more and more because of increasing livestock populations, which result in overgrazing and ultimately habitat destruction. This poses a problem for many of the migrating passerines which stopover at Khurkh Valley, especially for critically endangered species such as the yellow-breasted bunting (*Emberiza aureola*), which also face trapping in their breeding grounds. Most herders fully understand that they have too many livestock but are forced to continue since it's their only source of income. Although WSCC run workshops on alternative, sustainable income sources, like felting from raw wools, or making and selling cheese, it will take time for these to have as much economic impact.

With the arrival of November, I continued to Thailand, where I was grateful for the warmer climate. Here I was guided by Kimmim, Noom and Nuch from Bird Conservation Society of Thailand (BCST) on my hornbill research. These enormous birds, characterised by bills with a casque, are found in the tropics and subtropics of Asia and Africa, and are important seed dispersers in forest ecosystems. However, they are threatened by habitat loss, especially the conversion of tropical rainforest to agroforestry plantations in Southeast Asia. Here I was tasked with running a foundation study to determine where hornbills can be



FROM LEFT: A beautiful monument stumbled across whilst birdwatching at Lvea Aem, Cambodia. Learning to identify the local birds with Nong Ribbin at her home in Bannkaotheppituk, Southern Thailand (photo by Nuch, BCST). Sharing an evening meal with Nong Ribbin and her family in Bannkaotheppituk. Male great hornbill (*Buceros bicornis*). Sunrise at Phnom Krom, Siem Reap, Cambodia

Waterbrushes



. . . a field arts love (hate) story

by Roseann Hanson

A waterbrush is the clever child begot of a union between a standard paintbrush and a water reservoir. Results vary widely in performance of features by brand and within individual units of one style, so much so that there can be a real love-hate relationship for users. There is now a bewildering array of offerings, and the latest good review I could find (courtesy Jess at Greenleaf & Blueberry paints) is seven years old. Time for a new look.

Chihiro Tanaka, inventor of the waterbrush.

I resisted waterbrushes for a long time because . . . aesthetic, for one. I just love the look and feel of a proper squirrel-mop on a wooden handle fastened with classic quill-and-wire. And then of course there is the issue of plastic, the environment, and health. As you know from my fountain pen article (Vol. 1, No. 2), I strongly resist using throw-away plastic pens simply due to the fact once in landfills, these pens (and waterbrushes) break down into microplastics that do not go away. They seep into our freshwater supplies and oceans, creating potentially serious health issues for us and wildlife.

At least with waterbrushes, depending on factors such as how much you paint, if you use a lot of handmade soil watercolor, and how rough your paper is, you might throw away 3-4 a year because the bristles degrade, versus the four pens a month I was going through when using Microns instead of refillable fountain pens. (Something to note regarding durability: take great care when you replace the cap on synthetic-bristle waterbrushes: if you crimp any, it's permanent, and you have to pull or cut them out.)

Admittedly there is a lot of attraction to the convenience: grab-and-go, literally, once filled with water. No little water pot to juggle on your journal or clipped to your palette-holder while field sketching, and no nasty heavy-metal-laced cups of water dumped in sensitive environments to soak into our water supplies (yes, modern paints contain elements such as chromium, cadmium, copper, and manganese).

Convenience is what inspired Japanese artist Chihiro Tanaka in the 1990s to take his ink-filled calligraphy brush pens, empty out the ink, and fill with water. He published art books and in them were images of him using his *mizu-fude* (water-brush). Japanese art supply companies took note, and soon developed commercial versions.

On the negative side, besides the above-mentioned aesthetics and plastic issues, they can be difficult to control—or, difficult to learn to control (as in most cases it's possible to adapt to your

Kseniya Lapteva

Michael Boardman

Image: Lisa Hupp, USFWS

"I want to be able to advocate for beings that can't advocate for themselves, for places that people may not go to, or for things they may not understand or appreciate."

Growing up with Acadia National Park almost adjacent to his family's backyard, Michael Boardman was shaped by Maine's rugged wild coast and inland forests, rivers, and bogs, its craggy rocks covered with moss and lichens, and its diversity of wildlife.

"I grew up in the age where your parents kicked you out of the house and said, 'Go entertain yourself for a while!' which was awesome—and we were lucky to have 100 acres of land, fields and forests, so we'd go exploring when we weren't doing chores and taking care of the garden. I was very into reptiles and amphibians at that time, and there were a few vernal pools where I could look for salamanders and frogs, and for snakes in the rock walls."

He started drawing at a very young age: "My parents saved drawings of mine as far back as second and third grade. I was drawing critters from National Geographic and stuff." By high school, art was his passion ("it was pretty much the only thing I was good at; sports were not in my repertoire"). With a laugh, he says, "But at the time I didn't realize all the patching and putting together you have to do as a creative artist (to survive)." Fortunately he found a way to combine his art with a steady income stream by selling his

wildlife art on t-shirts that are available online (Coyotees.com) and at park visitor stores and nature shops.

Although the t-shirt business was doing well, Michael said about ten years ago he started wanting to move more toward fine art and also to do more drawing and painting in the field. At a friend's urging, he applied as an artist-in-residence at Baxter State Park, home of Maine's highest mountain, Katahdin. "To my great surprise, I got it! I spent two weeks there as an exploratory artist with my sketchbook, outside, no cell phone service. That really turned me on to pushing my artwork that way—to be more experiential, to let things happen as I wandered outside."

After another residency at Acadia National Park, Michael applied to an Alaska artist-in-residence program called Voices in the Wilderness. Paired with rangers and researchers in one of a dozen participating parks and refuges, the artist sees the park through their eyes—the people who are protecting it, studying it, ensuring it endures. Michael's application was successful and he spent several weeks in Glacier Bay. "My first morning I woke on East-Coast-time—4 am in Alaska—and in June it's light out, so I walked down to the edge of the bay and I started sketching and within a few minutes, sea otters were over off to the side in the seaweed doing their thing, so I sketched those; there were some oystercatchers right on the beach, so I did little sketches of those guys; I was just sitting quietly. Then these sea lions came into the bay, and I was like, 'Wow that's really cool!' But then 10 minutes later I started hearing cetacean exhalations—I looked up and two orcas came into the bay. It was incredible!

"I tell this story because when you stop to draw, to be part of the landscape, you are focused on things around you, but you're not actively looking for things. It's meditative. You become more part of the landscape when you do that. Other creatures react to you as part of the

Image: Jonathan Hanson

A Field Artist's Kit

Michael carries a field bag—which his wife calls his "man purse"—made in Maine by Anchor Pak. His approach is minimalist, with a few drawing tools, one paint kit (which he swears he cleans twice a year, whether it needs it or not), a sketchbook, and only a few other tools.

A – Stillman & Birn Alpha Series 7x10-inch spiral-bound journal (100 lb. (150 gsm), medium texture watercolor paper

B – Wildlife track-measuring and photography ruler (KeepingTrack.org).

C – Spare contact lenses and reading glasses.

D – Pencil bag (swiped from his daughter).

E – Small stainless steel water cups that clip to the journal. (JacksonsArt.com).

F – Small spritz bottle for refreshing palette colors (old lens-cleaner bottle).

G – At least one wadded piece of paper towel.

H – Drawing implements: Faber-Castell Grip 2001 HB pencil; various Blackwing pencils (different degrees of hardness), including a cool Jerry Garcia design; Koh-i-noor


6.24
Marsh Fork - Landing strip + campsite area -
Poop site - piles of caribou droppings, at least
4 piles of wolf scat on small knoll right next to
our tent site - showing signs of caribou (hair)
and ground squirrel (bone) predation -
Moss campion
wolf scat -
Caribou hair
older - greenish
tinge from algae
numerous scats
near the tent area.
Vetch of some sort

The Unseen Thread

Radio Lifeline for Vehicle Travel

by Scott Jensen

Imagine a convoy of vehicles winding through a remote landscape. The convoy is a unit, yet each vehicle is a self-contained island, maintaining enough separation to allow the dust to settle and keep the views clear. The terrain shifts from rocky inclines to sandy washes and back again, and the lead vehicle crests a rise and disappears from view. When the second one gains the crest, the first is nowhere to be seen, and soon a fork in the trail forces a guess: which way? A glance at the iPhone reveals no signal.

Without a reliable means of communication, even a simple conundrum like this can devolve into a series of frustrating delays and potential hazards. This is where radio communication steps in, transforming a group of individual vehicles into a cohesive, responsive, and confident team. In the world of overland travel and vehicle-dependent exploration, radio is not merely a gadget; it's a vital tool. Mobile phones have a place, but their reliance on cellular networks makes them unreliable in remote areas where explorations often lead. And satellite telephones, while they offer reliable global connectivity, have expensive per-minute costs.

In contrast, radio communication provides a direct, immediate, and *intimate* link between vehicles, regardless of the presence of cell towers or the very real latency delays in voice communication.

If you have no interest in an involved technical discussion, allow me to fast-forward and tell you what I think is the best option for backcountry inter-vehicle communication in the U.S. today: an affixed GMRS radio with a high-gain antenna, along with handheld FRS radios to accompany it.

How Radio Communication Works

Radio waves comprise a small section of the much larger electromagnetic spectrum, which includes a huge variety of radiation, from very low-frequency radio waves to visible light to very high-frequency gamma rays. Just like light, radio waves are made of photons, and all are distinguished by their frequencies and wavelengths.

Radio communication involves the transmission of signals within the radio frequency (RF) spectrum. These radio waves have both a *frequency* (measured in Hertz, or how many cycles or waves per second) and an associated *wavelength* (measured in meters or fractions thereof). Different wavelengths possess different properties, which affect their ability to travel across short or long distances, as well as how they interact with the Earth's atmosphere.

For practical applications of voice and data communication, we can consider three different frequency ranges:

High Frequency (HF): Ranging from 3 to 30 MHz and 100 meters to 10 meters in wavelength. HF frequencies are known for their ability to travel long distances, sometimes worldwide. This is due to a phenomenon called "skywave" propagation, in which radio waves are refracted by the ionosphere. However, HF is highly susceptible to atmospheric interference and is best suited for certain times and atmospheric conditions.

Very High Frequency (VHF): Covering 30 to 300 MHz and 10 meters to 1 meter of wavelength. VHF frequencies are suitable for shorter distances, especially where a line of sight exists between antennas. They are less prone to atmospheric interference than HF, making them more reliable and convenient for regional communications.

Ultra High Frequency (UHF): Spanning 300 to 3,000 MHz and 1 meter to 10 centimeters of wavelength respectively. UHF frequencies also primarily utilize line-of-sight propagation, sometimes to a fault. UHF is popular with smaller handheld radio devices consistent with the smaller wavelength.

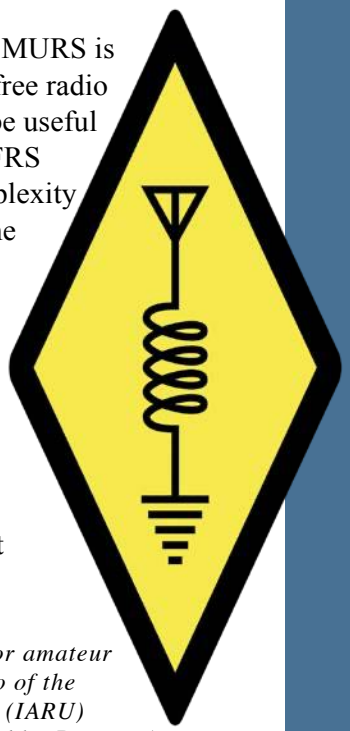
With these frequencies in mind, let's consider several specific radio services available for consumer use in the United States:

Citizens Band (CB) Radio: CB radio, operating in the HF band around 27 MHz, has a history rooted in simplicity and accessibility. In the US, it's been license-free since 1975, making it a readily available option for basic communication. It is widely known for its use by over-the-road truckers. However, CB's low maximum regulated power output (4 watts AM, 12 watts SSB) and limited range make it less than ideal for our purposes. In many countries, CB radios have fallen out of favor with travelers and adventurers because of the proliferation of mobile phones. Despite this, CB radios remain relatively inexpensive and have a basic usefulness that is appealing to some. Don't rule out CB for international travel, where other U.S.-centric radio services are not recognized (legally) and license-free communication is desired.

Amateur Radio: Amateur radio—often referred to as "ham" radio—is *not* a specific radio or a frequency as many assume. Rather, it is a licensed service that provides access to an array of frequencies and modes of communication. It requires passing an exam to obtain a license by demonstrating knowledge of radio theory and regulations. This license grants access to significantly higher power levels and expanded communication capabilities than CB or other license-free radio services. The diverse nature of ham radio means it is suitable for public service, emergency communications, and experimentation. Ham radio licenses are very often recognized internationally. The first-level license in the United States is the Technician Class license, which does not require proficiency in Morse code.

Multi-Use Radio Service (MURS): MURS is another option for personal, license-free radio use. Businesses often use it but can be useful for groups that want a step up from FRS (see below) but do not need the complexity of a ham. It is limited to 2 watts in the U.S.

Family Radio Service (FRS): FRS is designed for basic, low-power (maximum 2 watts), license-free communication. It is not designed nor intended for long-distance communication and is often used by families in close proximity such as at



RIGHT: The international symbol for amateur radio. This also appears on the logo of the International Amateur Radio Union (IARU) (Image: Denelson83 / Wikipedia, Public Domain.) OPPOSITE PAGE: Heading into the Red Desert, Wyoming (by Jonathan Hanson). Communicating with the convoy (by Scott Jensen).

Braai, the Beloved Cookery

by Roseann Hanson,
with Graham Jackson

One cannot overstate the importance of braai in South Africa. It is held in people's hearts as dearly as religion—possibly even more dearly than football (soccer, that is). It is more a culture than a mere way of cooking. But one thing it is not: it is never, ever called or assumed to be synonymous with "barbecue."

Braai—it rhymes with cry (apologies to Alan Paton for the headline)—is the shortened form of *braaivleis*, the Afrikaans word for grilled meat. Afrikaaners are descendants of colonists who began arriving in 1652 at the Cape of Good Hope with the Dutch East India Company. The region became the Cape Colony and remained under Dutch colonization for two more centuries, after which it was annexed by Great Britain around 1806, upon which time commenced the two Boer Wars—the first successful for the Afrikaaners and the second not, whence England assumed control.

But braai thrived still among the Afrikaaner community, and is extremely popular today among almost all races in Namibia, Botswana, Zimbabwe, and Zambia as well as South Africa. The latter's national heritage day was actually renamed National Braai Day at the initiative of world-famous braai-master Jan Braai. South Africans take off work and school September 24 to celebrate the diversity of their many cultures, traditions, languages; play the official anthem "Our Heritage" by the Soweto Gospel Choir; and they braai. Bishop Desmond Tutu, one of the supporters of National Braai Day, once noted there are 11 official languages in South Africa, and braai is the one word common to each of those languages. However, according to ethnographer Duane Jethro, an expert on heritage-formation and nation-building in post-apartheid South Africa, while the meaning may be widespread, its practice is not universal: "Some people use an open-fire cooking method for subsistence cooking on a daily basis; they don't call that a braai. A braai is effectively a fire you make in your leisure time for special foods that you buy with surplus income. It's not everyday food. It's reserved for special days, special occasions."

Thus defined, as a word, braai has evolved culturally into at least four forms:

braai (/ braɪ /)
- ***noun:*** meat
- ***noun:*** the apparatus upon which you cook the meat
- ***noun:*** the gathering for the eating of the meat
- ***verb:*** to grill or roast (meat) over open coals

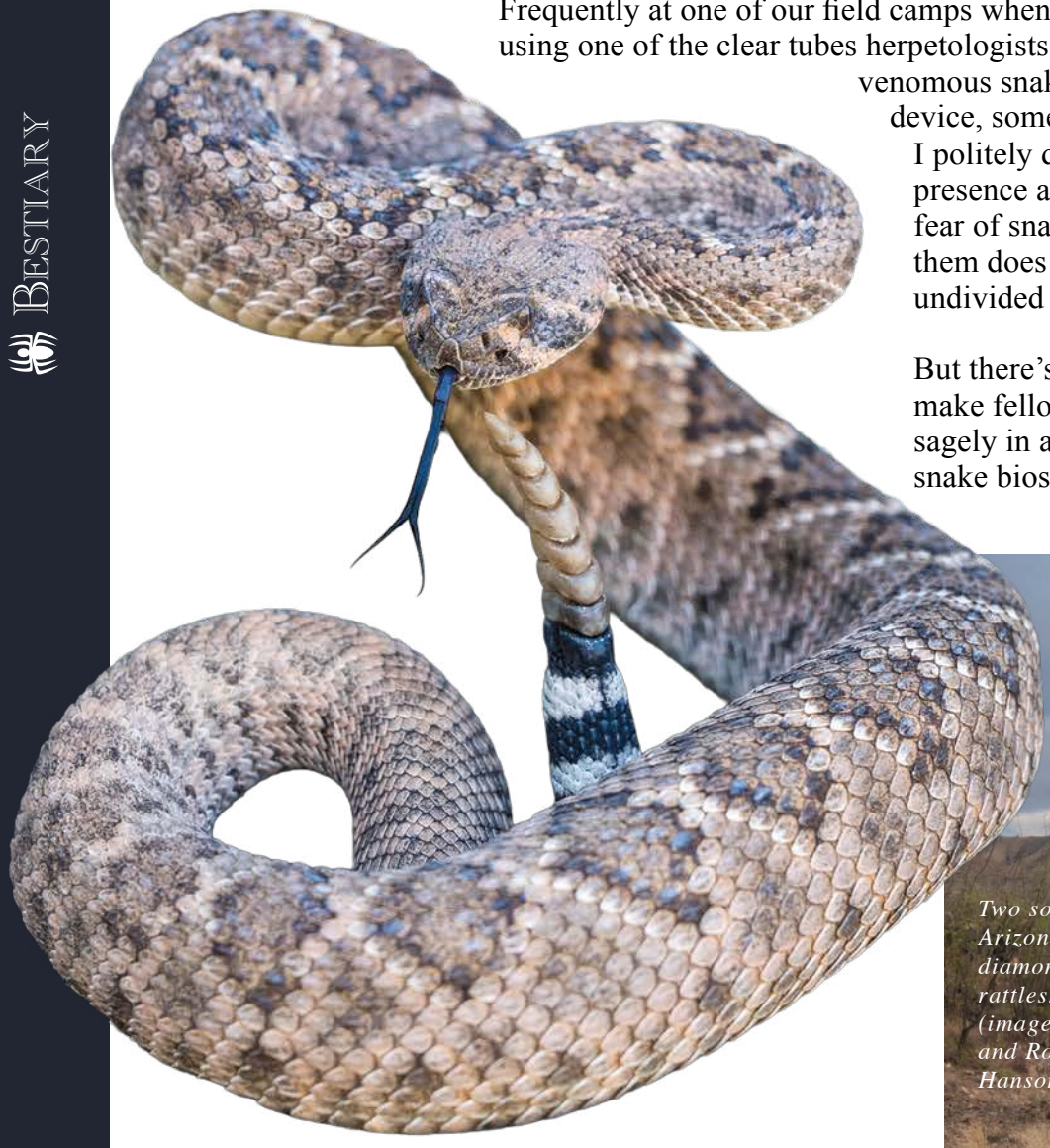
The One True Thing about braai for most southern African braai fans is that it must be cooked over a real wood fire. None of those gas-powered for-lazy-arsed-cooks gizmos (although they are gaining ground, one imagines users doing so rather furtively, like one would behave if you drank wine from a box and your friends have wine club subscriptions and curated cellars). Central to the ritual of the braai is the creation of the perfect bed of coals, which takes time and loving care by a dedicated braai master. This all-important time is spent chatting with friends whilst enjoying a beverage. Accompaniments are prepared also as a group activity, with more enjoying of libation. And then the final feast, with more good conversation and libation. You get the picture: braai is a way to slow down and to celebrate good food and friends, ideally in beautiful places—your lovely garden or in the bush / wilderness. It is the foundational core of living a good life.

RESPECT—*Not Fear*

(With One Exception)

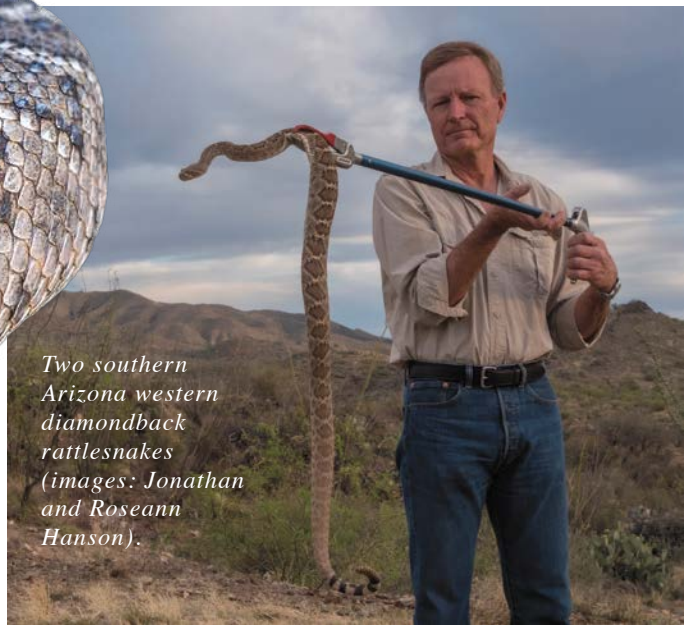
By Jonathan Hanson

Anyone who's been around me for any length of time knows I have no fear of snakes. I caught and kept many as a kid—including harboring in secret a couple of venomous individuals under the ever-suspicious eye of my venomous stepfather, who would have happily put me on the street if he'd found them. As an adult I've been on call many, many times to rescue and/or relocate snakes from neighbors' properties—although except in the case of rattlesnakes I try hard to convince the worried or fearful property owner to leave it be, while explaining the important role snakes play in the ecosystem. (Don't want packrats chewing your car's electrical wiring? Throw that gopher snake a welcome party.)



Frequently at one of our field camps when I am showing a rattlesnake to the group, using one of the clear tubes herpetologists employ to safely and gently contain a venomous snake while sexing it or implanting a tracking device, someone will comment on my "bravery." I politely deny this. To be "brave" requires the presence and overcoming of fear. Since I have no fear of snakes (as opposed to *respect*), handling them does not take bravery on my part, just care and undivided attention.

But there's one—just one—exception, that might make fellow herpetologists either laugh or nod sagely in agreement. Following are a few global snake bios. See if you can pick out my *bête noire*.



Two southern Arizona western diamondback rattlesnakes (images: Jonathan and Roseann Hanson).

Deadliest Snake on Earth

Image: XLerate / Wikipedia (Creative Commons Attribution-Share Alike 3.0)

The only way to describe the lethality of Australia's inland taipan (*Oxyuranus microelepidotus*) is with superlatives. For example, one bite from an adult inland taipan delivers on average about 44 milligrams of neurotoxic venom. That is just .0015 ounces. Divide that single dose into 100 portions—drops almost too small to see—and inject yourself and 99 friends. You'll *all* die.

Another metric: Biologists use the term LD50 to refer to the potency of snake venom. "LD" refers to "lethal dose;" the "50" indicates a 50-percent mortality rate in laboratory animals, traditionally using the murine test, which conscripts hapless lab mice with no recourse to collective bargaining. So LD50 is, theoretically, the amount of venom that constitutes a fatal dose in half the animals bitten. The figure is a ratio in milligrams of venom per kilogram of body weight of the victim. The lower the figure, the more lethal the venom, and since it is a ratio the reference is essentially as relevant to a human bitten by the snake as to a mouse.

The LD50 of the western diamondback rattlesnake of my own American Southwest is 7.8—that is, 7.8 milligrams of this venom per kilogram of your body weight gives you a 50 percent chance of dying (note: that's without any treatment). The LD50 of the Mojave rattlesnake is a potent .31. The LD50 of the much-mythologized black mamba of Africa is just .30.

And the inland taipan? It scores .010.

But here's the astounding thing: there are *no* documented human deaths from the inland taipan. Zero.

Why? Partly it's simple geography—the habitat of the inland taipan is extremely remote, even for Australia. More important, the species is exceptionally shy and retiring, far more prone to fleeing and hiding than biting in the off chance it is discovered in the first place. (Certainly I've never discovered one, despite diligent searching when we were in its range.) I could find only 11 recorded bites from inland taipans—all, apparently, from captive snakes and all successfully treated with antivenom.

Long and Fast

Image: Courtesy Neels Bothma (see page 98).

Then there is the black mamba of sub-Saharan Africa I mentioned above. *Dendroaspis polylepis* is possibly the world's second-most famous venomous snake after the cobra (of which there are many species). Aside from the black mamba's potent venom, it also attains truly impressive dimensions. Eight-foot black mambas are relatively common, and the species can grow to 14 feet in length—roughly bumper to bumper on a Toyota Corolla. The larger the snake, obviously, the more venom it is capable of delivering. Want more? The black mamba is also recognized as possibly the

Evening in camp near Sossusvlei, Namibia, making journal entries, having a tot of whisky; drawing definitely gets better with drinking (- 24°30'10.5552"S, 15°48'40.8852"E). Photo, Jonathan Hanson

Sunday, September 5, 2021 — Deadhorse, Alaska (Prudhoe Bay — 70°12'38.862"N, -148°26'18.0348") — 5:00 p.m. — That time you reached the end of the Dalton Highway, crossing Atigun Pass in a blizzard, skirting fog, and dodging semi-trucks on the Coastal Plain, feeling pretty chuffed and overland-y, and you find a Ferrari 308 in the parking lot. (*You can follow @briansquestionable decisions on Instagram*.)

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"There's no sense in going further—it's the edge of cultivation,"
So they said, and I believed it—broke my land and sowed my crop—
Built my barns and strung my fences in the little border station
Tucked away below the foothills where the trails run out and stop:

Till a voice, as bad as Conscience, rang interminable changes
On one everlasting Whisper day and night repeated—so:
"Something hidden. Go and find it. Go and look behind the Ranges—
"Something lost behind the Ranges. Lost and waiting for you. Go!"

– Rudyard Kipling,
The Explorer (1898)