

EL PINACATE | SCHUK TOAK Y GRAN DESIERTO DE ALTAR

EXPEDITION TO THE HEART OF THE SONORAN DESERT



SONORAN
ROVERS
TOURS



All Sonoran Rovers adventures begin at the Shop & Headquarters located in South Tucson, Arizona, where we are packed and ready to rove! Our expeditions to Sonora, Mexico, and our exciting local journeys in southern Arizona, are designed to initiate clients and special friends like you into the beauty, and natural and cultural richness of the Sonoran Desert and Southwestern Borderlands.

As we rove through our region's most spectacular landscapes, we practice field-based mechanics and learn about the ecology and human history of the Sonoran Desert, including the Cordilleran Sky Island Mountain ranges and grasslands.

We also make sure to show our gratitude and respect for the plants, animals, and human communities that make our spectacular desert home so special.

We look forward to welcoming you on a journey that will ignite your passion for overlanding, especially in our custom-fitted, classic Land Rover Defenders, and for learning more about the region that we are so lucky to call home.

Thank you for exploring with us!



Our Pinacate Expedition, winter 2022, group gathers outside the shop before embarking on an unforgettable adventure to the Pinacate, Great Desert of Altar, and Bahia Adair.

Sonoran Rovers is grateful to the Indigenous communities on whose traditional lands we operate – the Tohono O’Odham, Sobaipuri, Ndée, Comcaac, Opata, and Cocopah, among others. Native peoples have inhabited and cultivated the fertile plains of our region’s rivers and alluvial plains for thousands of years, and they are still present to this day, continuing their lcrucial egacy of active guardianship of their ancestral landscapes and its rich biodiversity.



Cerro Colorado as seen from the El Tecolote Lava Flow – El Pinacate Biosphere Reserve.



A big part of our mission at Sonoran Rovers is to make more people comfortable with traveling across the US-Mexico Border & to help foster bi-national tourism and cultural exchange.



If you are a hearty adventurer who doesn't mind a few consecutive days of desert camping, join us on an expedition to the 'El Pinacate y Gran Desierto de Altar Biosphere Reserve' - a UNESCO (United Nations) World Heritage Site.

Known as 'El Pinacate' for short, this federally protected area is a relatively undisturbed, ecologically, and culturally rich environment located just thirty miles South of the US-Mexico Border, in the northernmost state of Sonora, Mexico.

The joint protection of El Pinacate Biosphere and the Upper Gulf of California and Colorado River Delta - an adjoining marine and terrestrial reserve, occurred in 1993, thanks to the support of diverse stakeholders, including in the Mexican government, Tohono O'odham Nation, and in the Tucson community. We are very lucky to be able to visit this area with the special permission of CONANP - the federal agency in Mexico that manages the Reserve in coordination with its many partners.

El Pinacate is rich in biodiversity and showcases a wide variety of geological and volcanic features; it is one of the few places in North America where one can see cinder cones, craters, inselbergs, and lava flows all in one place, as well as North America's largest sea of sand - the southern Algodones dune complex, or Gran Desierto de Altar, which translates to the 'Great Desert Shrine.'

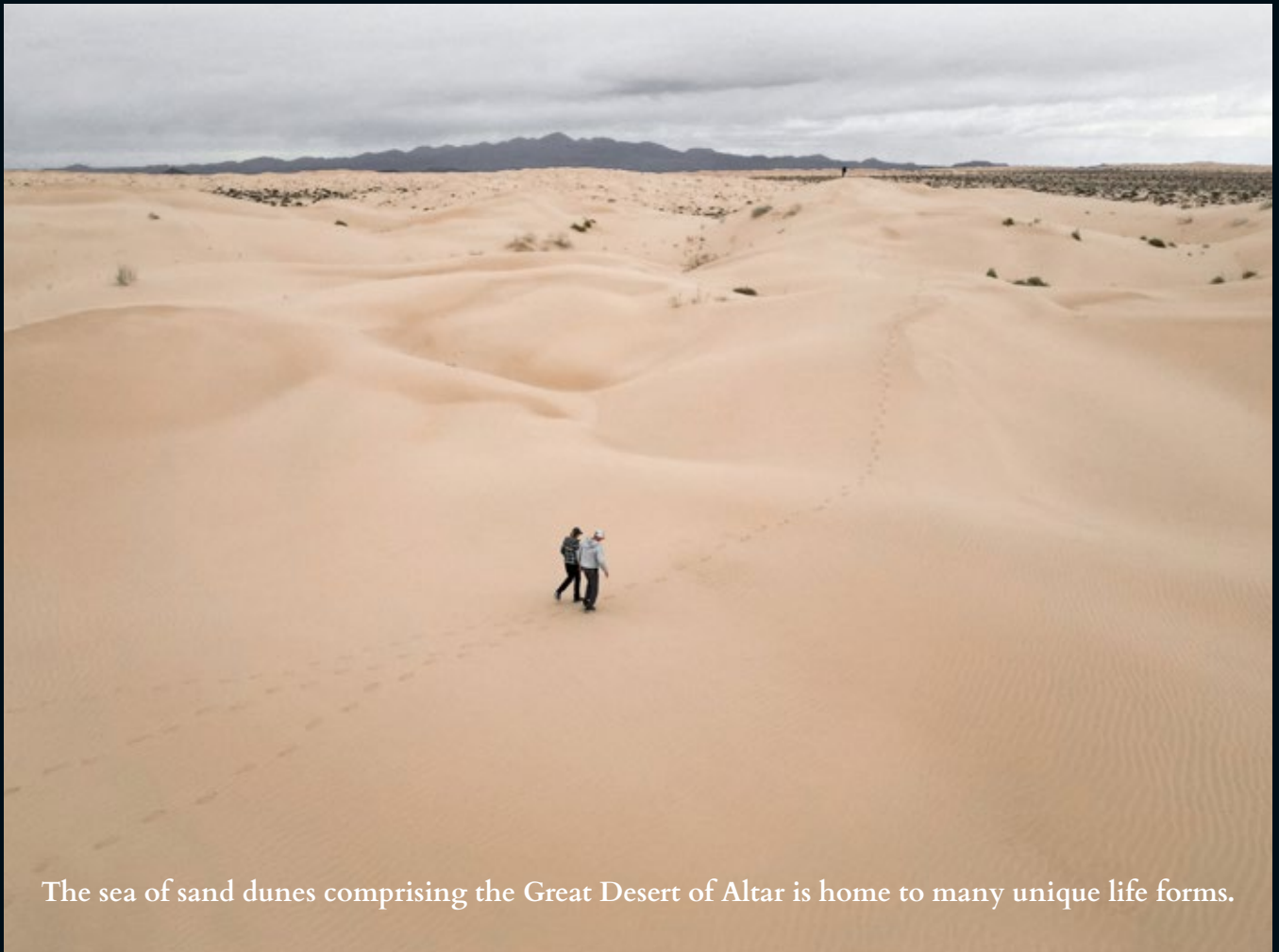


Our route South takes us through some of the most spectacular desert of southwestern Arizona, with views of Kitt Peak, Baboquivari Peak, and Organ Pipe National Monument. We cross the border at Lukeville/Sonoyta, an easy crossing via the 'no hassle zone' made for tourists - many of whom bypass the Reserve on the way to Rocky Point and San Carlos beaches.



The El Pinacate Biosphere includes the dark patch inside of the yellow polygon above – the dormant shield volcano –and the surrounding sea of sand dunes known as the Algodones complex, or Great Desert of Altar. The Reserve also includes the protected coastline of the northern Gulf of California and Bahia Adair – a critically important wetland habitat just south of San Felipe.

(Map courtesy of the Intercultural Center for the Study of Deserts and Oceans - CEDO)



The sea of sand dunes comprising the Great Desert of Altar is home to many unique life forms.

The subtropical climate of the Pinacate's desert environment is very hot, with an average annual temperature range of 18°C (64°F) to 22°C (72°F), and maximum temperatures averaging 49°C (120°F) and peaking at 56.7°C (134°F) in June.

In winter, nighttime temperatures can fall to -8.3°C (17°F), though this is a rare low. The highlands have somewhat lower temperatures than average, and are slightly more humid, but in general solar radiation is intense, evaporation high, and relative humidity low.

The average annual precipitation is less than 200mm, with most of this rain falling during the winter monsoon season. Despite being a hyper-arid environment, the area has some 23 semi-permanent, rain-fed waterholes known as *Tinajas*, which are formed by erosion in the lava and rocks, and which often last year-round due to the bi-seasonal monsoon rainfall.

These are crucial to the region's animals, and once supported the Pinacate's abundant human inhabitants, who would for millennia journey from one pool to the next via footpaths that are visible to this day.



There are dramatic changes in landscape and vegetation in the northern Reserve.

El Pinacate is at the heart of the Sonoran Desert bioregion – the confluence of the four Great North American Deserts – with the Chihuahuan Desert to the East, and the Great Basin Desert and Mojave Desert to the northeast. With many rare and endemic species, of both plants and animals, the Pinacate has some of the highest biodiversity found anywhere in the world.

Particularly famous among its flora are the giant saguaro, organ pipe, nopal, agave, yucca, cenita, and teddy bear cholla – cacti that grow in a variety of distinct communities, many of which flourish under the shade of the desert ironwood tree and among stands of ocotillo, chaparral, and salt bush – keystone engineers of the ecosystem. The fiery yellow flowers of the brittle bush and creosote in summer, and the orange and purple wildflower blooms in Spring, strike a beautiful contrast against the landscape’s dark obsidian floor.

Among its fauna, the chuckwalla, desert iguana, flat tailed horned lizard, peregrine falcon, Chihuahuan raven, golden eagle, Sonoran pronghorn, big horn sheep, ringtail, and lesser long-nose bat are some of the most sought after by wildlife enthusiasts, but there are many more critters to spot among the wealth of habitats, including in the abundant caves and tunnels of the lava flows.



A Sonoran Desert iguana (*Dipsosaurus dorsalis*) eats the berries of a creosote bush.



Dramatic changes in plant life occur in the northern Reserve.

The rich human history of the Pinacate is evident in a wide array of archeological sites and artifacts, from the wares and paths of pre-historic peoples, to 20th century Indigenous residents, to items left behind by 17th century colonial explorers like the Spaniard Melchior Diaz, and Italian Jesuit Missionary, Father Eusebio Kino, to the leavings of cowboys, outlaws, miners, explorers, scientists, and astronauts who came onto the scene in the 19th and 20th centuries, many traveling along the famed ‘*Camino del Diablo*,’ or ‘Devil’s Highway,’ which extends from Sonoyta east towards Yuma along the northern boundary of the current Reserve.

El Pinacate is held sacred by the Tohono O’odham, and the volcano is central to their cosmology. The O’odham people have long journeyed to El Pinacate, and to the sea beyond, sometimes in search of precious salt and seashells, and its most recent residents – the ‘Hi’a Ced O’odham,’ or ‘people who live in the sand,’ who inhabited the Reserve for more than ten thousand years, are closely related to other O’odham groups living as far North as Phoenix.

El Pinacate is also greatly valued by the academic community, including multi-national ecologists, geologists, biologists, and archeologists working across borders to understand and bring recognition to the area’s unique flora, fauna and archeology – including ancient walking paths, stone tools from the early Clovis Era, epic geo-glyphs, petroglyphs, and pottery. All the Pinacate’s treasures and historic leavings are protected as significant markers and disturbing them is strictly prohibited. What is more, as a vastly important spiritual place for the O’odham, the area merits the respect one would show at any of the world’s most sacred sites.



An abandoned mine from the turn of the century – before the area was protected.



(Top Left) A mortar hole used by ancient peoples to grind food stuffs.
(Top Right) Eric Druhv checks out the desert pavement.
(Bottom Right) El Trebol, or Clover Crater, where NASA trained for the Apollo Missions in the 1960's.

El Pinacate is what is known as a “shield volcano,” because from a bird’s eye view it looks like a giant warrior’s shield. The dark areas comprise of extensive, hardened lava flows along with hard-packed, wind-swept, multi-layered sediments known as ‘desert pavements.’

Santa Clara Peak is the highest peak, with an elevation of 1,190 m (3,904 ft). The name ‘El Pinacate,’ used to refer specifically to this mountain, comes from *pinacatl*, a Náhuatl word for a black stink beetle that is endemic to the Sonoran Desert and that you will no doubt come across among the sand dunes. The mountain’s graceful summit looks like the abdomen of this shiny black insect when it stands on its front legs in a defensive pose. In the O’odham language the peak is called *Schuk Toak*, which simply means the ‘black mountain.’

The Pinacate’s now dormant volcanoes erupted sporadically for a period of about 4 million years, with the earliest eruptions taking place 15–12 million years ago, and again sometime from 10 to 1.5 million years ago. The most recent activity likely took place sometime from 7 – 11,000 years ago, and was no doubt witnessed by the areas’ nomadic residents, who have passed these experiences down through the generations via oral traditions.



El Tecolote Lava Flow, at a boundary where the molten magma cooled and ceased flowing, becoming a river of jagged rock known as an “a’a” type flow.



(Above) Our group enjoys the warmth of the campfire at El Tecolote (Pygmy Owl) Camp.
(Below) Our group gathers in front of McDougal Crater.





An image taken by drone of the magnificent Sykes Crater.

El Pinacate's main attractions are twelve craters, eight of which are huge, Maar (meaning "crater lake" in German) type craters. These are formed by rising magma heating underground aquifers and creating pockets of pressurized steam that eventually, and sometimes repeatedly, pop like a bubble, collapsing the ground above them while also ejecting steam-blasted clay and ash to form cones of "tuff breccia" - material cemented by pyroclastic blasts and made up of colorful ash and older sedimentary rocks embedded into it.

The crater floors, once filled with water, are mostly flat, full of fine sediments, and host small groves of dryland trees such as mesquite, which thrives in these now-dry, ancient lakebeds, or playas. During monsoon season, some water still gathers at the center, attracting big horn sheep, mountain lions, and other thirsty desert denizens.

Some craters we like to visit, with specified permission from CONANP, include, MacDougal, Trebol, Sykes, El Elegante, and Cerro Colorado - each unique in its depth, diameter, shape, and habitat. It is truly difficult to decide which crater is more beautiful and moving, and each has a different view and hosts unique communities of plant and animal life.



(Above) Our group poses in front of Cerro Colorado, a tuff cone and crater.
(Below) The steep walls of Cerro Colorado are 300ft high!



Just South of El Pinacate, still contained in the Reserve's buffer zone, is Bahia Adair, a RAMSAR Convention Wetland Conservation Site of international significance. This hyper-saline 'negative estuary' hosts an incredible array of coastal-marine life, including a wide array of resident and migratory seabirds and wading birds. Perhaps the most abundant is the long-billed curlew, and there are also a great number of sandpipers, herons, egrets, dowitchers, skimmers, and many more.

Bahia Adair is also notable for its mud flats and salt-tolerant, or halophytic, plant-life, such as *Salicornia* - which has been used as a biofuel. The Bay's long, winding tidal channels crucially bring nutrients in and out, providing a foundational supply for the entire marine food web of the upper Gulf of California (Sea of Cortez).

Estuaries like this support around half of the Gulf's fisheries, including blue crab, shrimp, and diverse fish, and they are also crucial 'sponges' for carbon gas.

We partner with local communal land holders called *ejidatarios* to be able to camp just South of the bay, practically on the beach. The area is still resisting the over-development seen further South and feels like a wilderness, and coyotes can be seen feeding on crabs among the endless tidal flats created by the second largest tidal flux in the world.



Bahia Adair - a crucial wetland among the desert sands.



(Above) El Pinacate and its skirt of sand dunes as seen from Bahia Adair.

(Below) Our group stops to birdwatch in the internationally significant wetland habitat.





After several exciting days spent in the volcanic fortress that is El Pinacate, the wide-open beaches of the northern Gulf of California feel like a welcome breath of fresh air.





(Above) After a delicious fish fry on the beach, we relax by the beachside fire on the last night.



At the end of an expedition there's nothing quite like sharing a cold pint with our new friends at Moto Sonora Brewery, just next to our HQ, and exchanging numbers and stories before we head home for a well-earned rest. We can't wait to see you on our next adventure!

Sources

- UNESCO Online Resources
- CONANP Online Resources
- SEMARNAT Online Resources
- “*Land of Black Volcanoes and White Sands, The Pinacate and Gran Desierto de Altar Biosphere Reserve,*” Larry G. Marshall & Clark Blake, 2009
- “*The Devil’s Highway,*” Luis Alberto Urrea, 2021
- “*The Sierra Pinacate,*” Julian D. Hayden, 1998

Acknowledgments

- Photography by Caleb Trainor
- Text & Photography by Alan Ruiz Berman
- Permits from CONANP
- Guiding from Alan Ruiz Berman, Eric Dhruv, Miguel Grageda

