BREWSTER COUNTY

# Rare earth minerals discovered on Brewster County ranch

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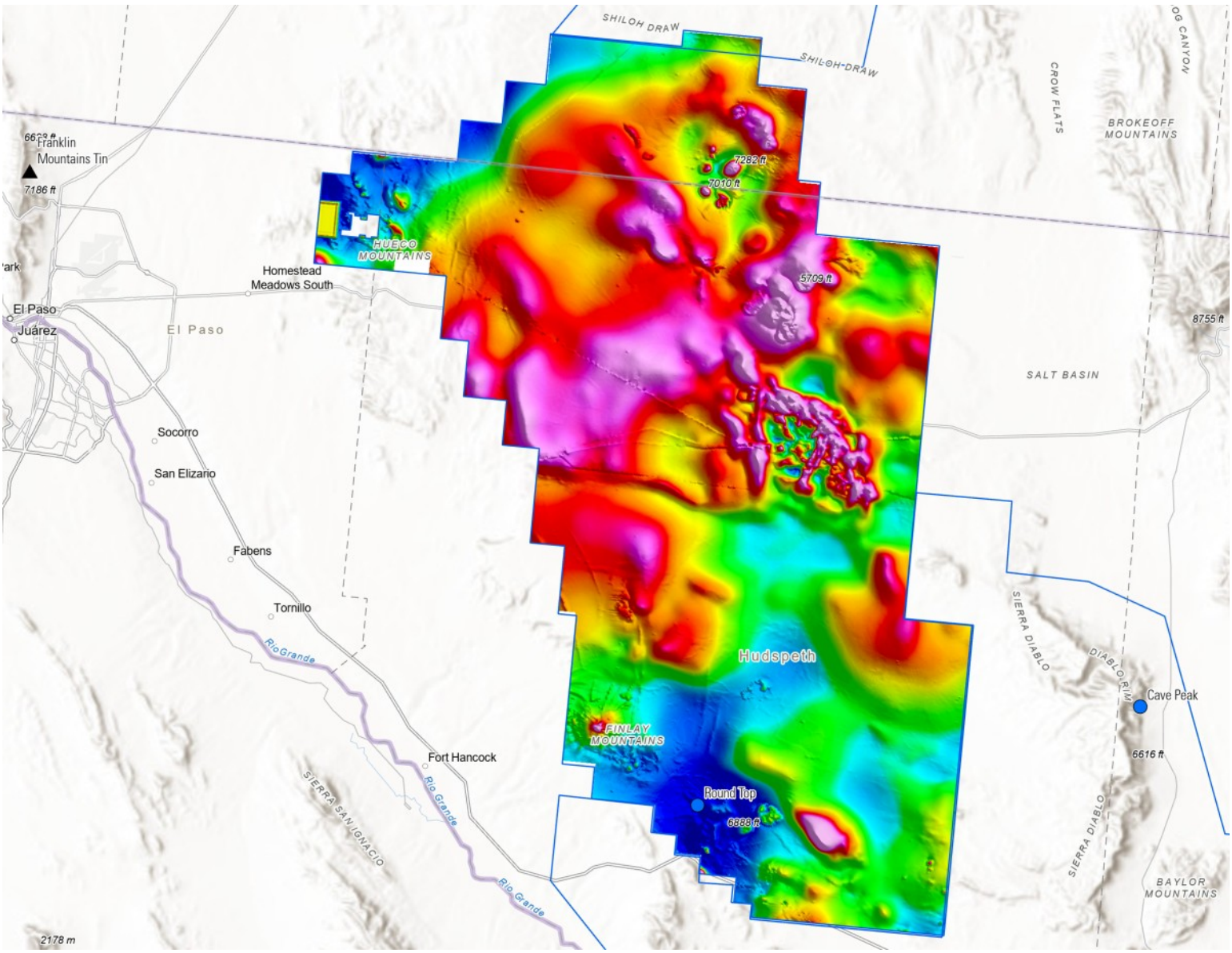



Locations of critical mineral-bearing deposits in Far West Texas. Warm colors are rocks that are more naturally magnetic, whereas the cool colors are rocks that are either less magnetic or reversely magnetized. Map courtesy of USGS Earth MRI.

***Sierra Blanca Round Top mine launch still years out***

BREWSTER COUNTY — Rare earth minerals were recently discovered on a 353,785-acre ranch in Brewster County **purchased by the General Land Office** (GLO) last fall. The finding coincides with a national push to map and develop the resources, which are mined and used to power everything from smart phones to military weapons to renewable energy infrastructure.

A GLO spokesperson told *The Big Bend Sentinel* opening a rare earth mine on the property would likely be extremely complex, but it is not something the agency has ruled out. "A survey was completed that shows the presence of rare earth minerals. As of now, there is no active mining underway on the property," the GLO spokesperson said. "Given the rugged terrain and remote location, any exploration or extraction would require significant planning; however, the GLO is open to exploring these options in the future."

The GLO declined to provide specific information about which rare earth minerals were found and where. The state agency also owns land in Sierra Blanca, which it leases to company USA Rare Earth who is in the process of **developing the Round Top rare earth mine**. The project is being pursued to decrease the United States' dependence on China, which has long dominated mining and processing of critical minerals. According to **the state comptroller**, Round Top is one of the largest U.S. deposits and, once operational, will be able to meet 17% of projected U.S. demand for rare earth magnets with $140 million in annual sales.

Earlier projections estimated mining operations would be underway at Round Top by 2023, but the endeavor has proven to be exceedingly complicated, and the opening of the mine is likely still years out, according to USA Rare Earth CEO Joshua Ballard, who shared updates with *The Sentinel* via a written statement this week.

He said the company is still working through how to "safely, quickly, economically and sustainably" pull rare earth minerals out of the rock. "Each deposit has its own unique mix of minerals, which means there is not one 'standard' way to get the ore out of the rock," Ballard wrote. "At Round Top Mountain, we need to figure out how to separate the valuable tech metals from others like calcium, iron and aluminum, which are plentiful here."

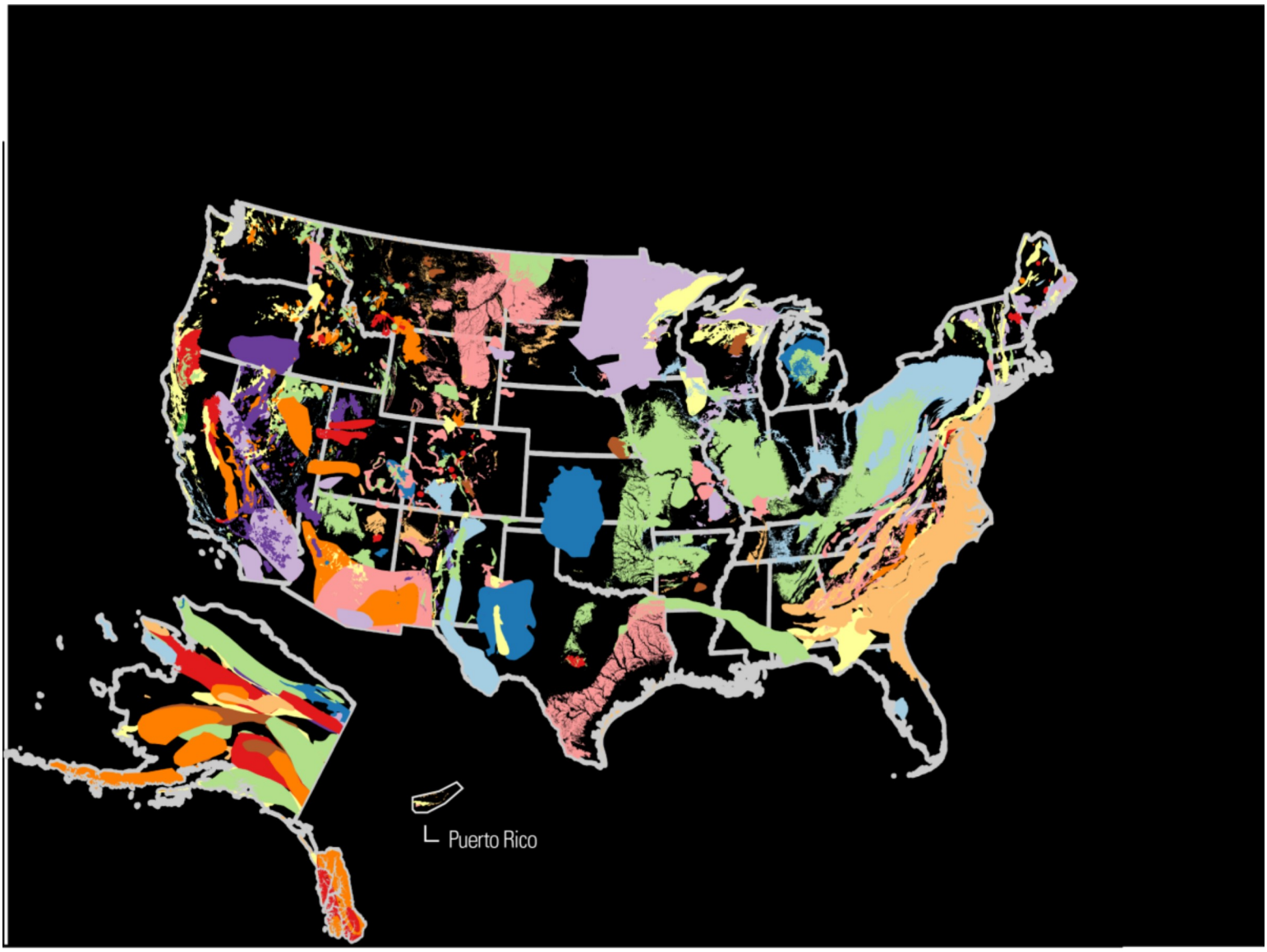
Figuring out how to mine and process the minerals is the first stage in a series of five stages the company is embarking on, Ballard wrote. A pre-feasibility study — which will establish the value of the deposit and the project's return on investment — and the construction of a pilot plant are planned to be completed in the next couple of years, Ballard wrote, at which point the engineering and construction of the mine itself will still need to take place. The project will also need to apply and secure permits through the Texas Commission on Environmental Quality (TCEQ.)

Ballard wrote that the status of the project has been communicated to local Hudspeth County officials. “We meet with local officials as often as necessary at this stage, and will increase the frequency as we get closer to developing the mine,” Ballard wrote.

But some Sierra Blanca residents, including environmental activist Bill Addington, have expressed concern that the forthcoming rare earth mine could negatively affect the health of the small community. Addington continues to raise issues about the dangers of inhaling beryllium, a mineral that will be mined at Round Top, as well as the open pit mine and multiple heap leaching pits included in preliminary plans for the site.

“Keep in mind, this is a highly toxic project that uses lots of water and does lots of surface destruction because they’d be doing open pit mining using dangerous chemicals,” Addington said.

“My community is real opposed to that,” he added.




Map showing the 23 mineral systems identified by the Mineral Resources Program and Earth Mapping Resources Initiative.

Brewster County Judge Greg Henington said he was aware that the Brewster County ranch owned by the GLO was suspected to contain rare earth minerals but not that an official survey had been conducted. He said due to the complex and potentially hazardous nature of the rare earth mine, it didn't seem likely that the GLO would pursue leasing the land for the development of another mine in the immediate future in the Big Bend.

"I don't get the sense that rare earth is one of their plans," Henington said. "If it was, it's probably years away, just because of the difficulty of getting in there and getting [rare earth minerals] out, and what do you do with them? Who can process them?"

Henington said it was his understanding that the Brewster County ranchland was currently being used for revegetation and ranching, and that the GLO was exploring a range of ideas for the future of the property including ecotourism. A spokesperson for the GLO confirmed there are currently multiple leases on the ranch for hunting, grazing and other uses. "The entire ranch is leased for agriculture," they wrote.

Jamey Jones, a science coordinator with the **Earth Mapping Resources Initiative** (MRI) — a division of the United States Geological Survey (USGS) Mineral Resources program — said rare earth mineral mining projects are difficult and slow to develop due to permitting requirements, market forces and the geologic uncertainty of the systems.

"It's one thing to discover an anomaly. It's another thing to discover a concentration of something of economic value. It's even another thing to turn that into a deposit that could actually sustain economic development for any meaningful period of time," Jones said. "A discovery doesn't necessarily translate into a mine, there has to be a lot of things that work together to make that discovery into a deposit, into a resource, into a mine."

The Earth MRI program started in 2019 and was initially funded by an $11 million congressional appropriation in response to an executive order to identify domestic resources of critical minerals. That funding increased up to $75 million in 2022 when the USGS received a massive stimulus, set to sunset in 2026, from the Bipartisan Infrastructure Investment and Jobs Act to accelerate mapping efforts.

"We have this massive addition to our funding that we are trying to use as smartly, as regionally and as cooperatively as we can," Jones said. "We've basically taken our whole portfolio that we used to do prior to the supplemental funding, and we've put it on steroids."

Lately, Earth MRI has been mapping critical minerals in Far West Texas, which sits along a belt of igneous rock that extends along the western margin of the U.S. "We call this province the alkaline igneous belt, and it extends regionally from Mexico up into southern Colorado," Jones said. "The rocks in this belt are really enriched in a lot of different elements that you don't find in a lot of other rocks."


A typical survey airplane. Similar planes have been flying around Far West Texas to map critical rare earth minerals. The magnetic sensor is placed in an extension on the back of the airplane to reduce the impact of the airplane's own magnetic field.

The data collection program involves utilizing airplanes — a team was recently working out of the Marfa airport — to collect high quality magnetic and radiometric data that, combined, help paint a clearer picture of rare earth mineral resources.

"What the magnetic data allow us to do is to connect geologic features at a regional scale," Jones explained. "We can figure out what the signature of the rocks that are under Round Top look like, for example, and we can then map that signature into other areas that are part of the same geologic belt but may not have been mapped using those techniques."

"Radiometric data measure the natural radioactive signature of minerals at or near the earth's surface," he continued. "If there are minerals that are at the earth's surface that are emitting low level, naturally occurring radioactivity we can actually measure that. We can use that technique to map other minerals that might have elevated uranium or thorium or potassium concentrations."

Earth MRI works in tandem with state geological surveys, like UT's Bureau of Economic Geology, which perform boots on the ground surveys, collecting geochemistry that can help detail concentrations of the elements at a given site. They are also working with NASA, which was recently flying over West Texas, collecting high resolution reflectance data of earth's surface to map mineral composition of soil, sediment and rock from 70,000 to 80,000 feet.

Jones said the Mexican Geological Survey is also working on mapping critical rare earth minerals, and while there is no formal collaboration currently in place, "at some point it would be fantastic for us to merge those

data sets across the international border.”

*To view an interactive map of the Earth Mapping Resource Initiative, visit* ***ngmdb.usgs.gov/emri/#1064***

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