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Green cars in spotlight as lithium demand causes flamingo flocks to shrink

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Tesla Motors and General Motors' Chevrolet are preparing to bring out mass-market electric cars next year. If you plan to buy one and help save the planet, people who live near the Atacama salt flat in Chile ask that you spare a thought for the flamingos.

The vehicles will be powered by rechargeable batteries containing lithium, a silver-white metal found in brine deposits under the world's driest desert in northern Chile. The 3000-square kilometre Salar de Atacama is also known for wild flamingos, who feed and breed in its lagoons. Some locals say miners sucking water out of the earth to get to the lithium are starving the long-legged birds in the process.



A flamingo in the Atacama Desert in Chile.

"They are pumping up an absurd amount of water," says Rolando Humire Coca, a biochemist who heads the Naturalist Society of San Pedro de Atacama and is a member of Chile's National Institute for Human Rights. "If they keep using the same methods to extract water, the consequences will be disastrous. All forms of life will be destroyed."

Satellite images indicate some lagoons and meadows in the salt flat are shrinking or drying up, while the Chilean Forestry Commission has recorded a drop in the flamingo population. A parliamentary commission set up this year to look into the depletion of water resources across the country has yet to connect it to the lithium miners, leaving it to the local community to drum up interest in the fate of the flamingos.

The activists have asked the congressional commission for more research into the impact on water resources as they see their ancient way of life disappearing, while the companies say their own monitoring systems show little to no impact.

What's undisputed is mining companies are hard at work. One, Soc. Quimica & Minera de Chile SA, is pumping up 1500 litres of brine a second from the parched landscape; another, Albemarle Corp.-owned Rockwood Holdings, is pumping up 142 litres per second, and getting ready to increase its operations to 442 litres a second.

Whether the two are supplying Tesla or Chevrolet is anyone's guess. The mining companies have declined to identify their customers, and the car companies to comment. SQM will only say it sells to the "largest producers of batteries" and other products.

Rockwood and SQM say between them they monitor at least nine lagoons in or around the Atacama salt flat and there has been no consistent decline in water levels. Separate figures from the Forestry Commission shows no clear trend in levels at five lakes and a moderate decline in a sixth.

The two companies have more than 300 measuring stations across the area, recording water levels, salt content and the flora and fauna, and both say their early warning systems have not been activated. SQM said their operations "haven't affected directly or indirectly any aspect of the flamingo population".

Rockwood also denies any impact on the flamingo population and highlights its accord to pay a royalty of 3 per cent of its sales to the local community, which will also help monitor the local environment. Still SGA SA, the company that conducted an environmental impact study on Rockwood's expansion plans on the Salar de Atacama, said it is hard to estimate the impact because there is no public information on the location of SQM's pumps and how much water each is extracting.

The lithium deposits are formed from water leaching down from the Andes

mountains over thousands of years into dead-end valleys. Miners decant the brine into pools, where it evaporates over 18 months, leaving the minerals to be harvested.

"The salt flats are like a complex pipe system; if you take water from one side, it will affect the other," Humire Coca says. "Fifteen years ago I used to swim surrounded by flamingos in the Cejar lagoon, and today you are lucky if you see one there."

Flamingos flock to the area in search of food and warm weather starting in June. Yet on a recent visit, the only birds in the diminished Cejar lagoon were the ones pictured in the pamphlets guards hand out at the entrance. A few kilometres south, in the larger Tebenquiche lagoon, five were spotted. Neither Cejar nor Tebenquiche are monitored by Rockwood or SQM.

The average number of flamingos in the Atacama salt flat in the five years through 2014 was down 28 per cent from 1995 to 1999, according to the Forestry Commission. Of the three types that frequent the area, the Andean is classified as "vulnerable" while the Chilean and James are "near threatened". Less rain plus human and mining activity are reducing the amount of water in the salt flats, Forestry Commission spokesman Nelson Amado says. But the agency has no evidence mining activity is affecting the flamingo population.

Flamingos may be so scarce these days in the Tebenquiche lagoon because there's so little salt in the water, Humire Coca says. Flamingos feed off small crustaceans, which require salty water to survive, and as the brine is removed, salination levels decline.

Lagoons and meadows in the area started changing at the end of the 80s, when mining companies set up operations and rains in the mountains declined, says Manuel Salvatierra, who lives in nearby Cucuter. His family's flock of sheep used to drink water from Cejar and Tebenquiche, and fed from the grass around them.

"Back then, you could see 40 flamingos in one lagoon," Salvatierra says. Now "we see a different landscape".

At 79, Vicente Conzue has spent most of his life in the southern part of the salt flats. "There was water everywhere and there were lots of flamingos," he says from his traditional sun-dried brick house in Peine, a hamlet on the edge of the salt flat.

Once a year, the elders of the local indigenous community used to chose a group of about 25 people that were allowed to harvest vitamin-rich flamingo eggs. "We ate them boiled and in salads, we took as many as 50 eggs each and there were still enough left for the flamingos to keep breeding," Conzue says. That doesn't happen any more.

For an image of what may happen, people should look south to the Punta Negra salt flat that copper mines have drained dry, according to Alonso Barros, a lawyer who works with local communities. It was the events at Punta Negra that

prompted Congress to set up the commission that will investigate the state's failure to monitor mining operations in salt flats.

Lawmakers need to act quickly, says commission president Marcos Espinosa. Prices for battery grade lithium carbonate are expected to soar 40 per cent over the next ten years, according to a report from consultancy firm Stormcrow Capital. Total lithium battery demand is expected to increase 30 per cent over the same period.

"It might take years until we see the actual consequences of this phenomenon," Espinosa says. "But we must act now. From our point of view, the risks of not doing it can be fatal."

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