Mining for renewable energy could be another threat to the environment

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Credit: University of Queensland

Researchers have warned that mining threats to biodiversity caused by renewable energy production could surpass those averted by climate change mitigation.

A University of Queensland study found protected areas, key biodiversity areas and the world's remaining wilderness would be under growing pressure from mining the minerals required for a clean energy

transition.

UQ's Dr. Laura Sonter said renewable energy production was material-intensive—much more so than fossil fuels—and mining these materials would increase as fossil fuels were phased out.

"Our study shows that mining the materials needed for renewable energy such as lithium, cobalt, copper, nickel and aluminum will create further pressure on the biodiversity located in mineral-rich landscapes," Dr. Sonter said.

The research team mapped the world's mining areas, according to an extensive database of 62,381 pre-operational, operational and closed mining properties, targeting 40 different commodities.

They found that areas with potential mining activity covered 50 million square kilometers of the planet—35 percent of the Earth's terrestrial land surface excluding Antarctica—and many of these areas coincided with places critical for biodiversity conservation.

"Almost 10 percent of all mining areas occur within currently protected sites, with plenty of other mining occurring within or nearby sites deemed a priority for future conservation of many species," Dr. Sonter said.

"In terms of mining areas targeting materials needed specifically for renewable energy production, the story is not much better. We found that 82 percent of mining areas target materials needed for renewable energy production, of which, 12 percent coincide with protected areas, 7 percent with key biodiversity areas and 14 percent with wilderness. And, of the mining areas that overlapped protected areas and wilderness, those that targeted materials for renewable energy contained a greater density of mines than the mining areas that targeted other materials."

Professor James Watson, from UQ's Center for Biodiversity and Conservation Science and the Wildlife Conservation Society, said the impacts of a green energy future on biodiversity were not considered in international climate policies.

"New mining threats aren't seriously addressed in current global discussions about the post-2020 United Nation's Strategic Plan for Biodiversity," Professor Watson said.

The research team said careful strategic planning was urgently needed.

"Mining threats to biodiversity will increase as more mines target materials for renewable energy production," Dr. Sonter said.

"Combine this risk with the extensive spatial footprint of renewable energy infrastructure, and the risks become even more concerning."

The research is published in *Nature Communications*.

More information: Laura J. Sonter et al. Renewable energy production will exacerbate mining threats to biodiversity, *Nature Communications* (2020). DOI: 10.1038/s41467-020-17928-5

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