

How Plants Could Clean Up Abandoned Mines—And Extract Metal in the Process

By Mary Beth Griggs

August 13, 2014



Abandoned, unremediated mines, leaking a steady stream of toxins into soil and stream, contaminate (if they don't outright kill) the organisms that live nearby. But cleaning up these messes using conventional methods is expensive. One group of scientists thinks, though, that plants could do a better job.

At [Co.Exist](#), Laurel Allen, a writer for the California Academy of Sciences, where this research is taking place, [explains how](#) plants could extract toxic metals from these sites and turn them into a valuable part of the metal supply chain. The mines, she writes, could produce not just metal, but hydrogen and ethanol, too:

In the Walker Ridge hypothetical, these plants are harvested up to six times a year and mixed into a live slurry. Microbes break the slurry down--creating sellable carbon-neutral ethanol as a byproduct--and metal production begins with the material that's left. During the process, massive amounts of hydrolysis occur, allowing hydrogen to be captured, stored, and converted into electricity that helps power the plant. "And all this could be done right now," says Burge. "No waiting. All you need is a botanist, an abandoned mine, and a tech startup that's good at scalable solutions."

Scalability is key. The tiny plants that the researchers are currently working with are too small to really produce a good harvest. But, according to Allen, engineering larger plants to take on those accumulation properties could result in a more viable business model.

But this high-tech approach isn't the only way plants can help remove toxins from the soil. [Other projects](#) have focused on using organisms like sunflowers and mushrooms to remediate soils in urban environments (and, in some cases, turn the results into [art projects](#)). These projects have had varying levels of success and scientific rigor, but optimistically, plants could be helpful in cleaning up our messes.

<http://www.smithsonianmag.com/smart-news/how-extract-metals-ground-using-plants-180952335/?no-ist>