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With frac sand boom in full swing, study to guide mine reclamation

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Mining companies, a Wisconsin county and the University of Wisconsin-River Falls are teaming up on a \$232,000, five-year study probing how the vast tracts of Wisconsin used for nonmetallic mining — including for frac sand — can best be reclaimed.

The project will focus on Chippewa County, a hotbed of the state's frac sand mining boom, where six industrial sand mining operations and 73 sand and gravel operations have already opened. Four more industrial sand mines are permitted.

“We really only have a limited background or knowledge base here in the county as to how to go about reclaiming these sites,” said Chippewa County conservationist Dan Masterpole, who oversees reclamation. The county's oversight of reclamation efforts, he added, has lagged at nonmetallic mining sites.

Tom Hunt, an emeritus professor of reclamation at the University of Wisconsin-Platteville, said serious environmental, human health and safety problems can occur if a site is not reclaimed.

“It can become a dumping ground,” Hunt said. “It can become a place for vermin and undesirable species. It can be a place for invasive species to colonize. It can be a place of potential pollution. It can be a place of instability and create safety hazards.”

In Marathon County in central Wisconsin, a few abandoned nonmetallic mines dot the landscape. Justin Cavey, a county land reclamation specialist, said they were mined and abandoned before a 1989 county program requiring operators to reclaim mined acres went into effect.

Some of these sites, Cavey said, have become dumping grounds. At the shallow ends of what are now ponds, he sometimes sees old tires or computers. In some spots, pollution threatens to leak from the ponds into the groundwater while sediment could run off the sites, polluting surface water, he said.

Cavey described the abandoned sites as “land with an opportunity missed.”

Current state law requires mining companies to reclaim disrupted land to an approved post-mining use, including wildlife habitat, prairie or cropland.

In the study, Chippewa County plans to work with UW-River Falls, Onalaska-based Mathy Construction and Texas-based Superior Silica Sands.

The study will be paid for with money from the county, frac sand permit fees, state and federal research grants and donations.

The collaborators want to study ways to cultivate vegetation on the dry soil often left behind at mining sites.

“For the wooded ridgetop sites, we face very significant challenges and will be starting by just seeing what types of grass and tree species could possibly grow there,” Masterpole said.

Wisconsin is the nation’s No. 1 producer of sand used in hydraulic fracturing, or fracking, a process to extract oil and natural gas. There are at least 124 permitted or operational frac sand mines, processing plants and rail loading facilities in the state, according to a tally by the Wisconsin Center for Investigative Journalism.

Hunt said local governments must get up to speed quickly to deal with the influx of permit applications. He speculated that some mining companies may “challenge the regulatory authorities with some push back or dragging their feet.”

Industrial sand mines and sand and gravel pits have different soil properties, so there could be different end uses, said project head Holly Dolliver, an associate professor of geology and soil science at UW-River Falls.

“We’re going to have a very valuable dataset on soil health, vegetative success and biological characteristics, and I hope that data will inform future reclamation decisions,” Dolliver said. She expects to launch the study in late spring and begin issuing annual reports in 2015.

If the study shows a certain type of reclamation is impossible, it could cause some companies to rework their reclamation plans, Masterpole said. But, he added, most companies have been “very conservative” in the kinds of reclamation planned.

Superior Silica declined comment; a representative of Mathy Construction was unavailable. Masterpole said the county will ask additional companies to participate.

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