

Forest service releases maps of element concentrations in Portland moss

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The U.S. Forest Service's Pacific Northwest Research Station today released a general technical report presenting raw data and dot maps for 22 elements measured in moss samples in 2013 as part of its Portland moss and air quality study.

The data and maps, which show the concentrations and distributions of elements in 346 moss samples gathered across the city, can help regulators, researchers, and citizens further investigate the importance and possible sources of moss-identified "hotspots."

The maps depict several areas within the city where moss samples contained relatively high concentrations of multiple elements of public health concern. The report and its data have been shared with the Oregon Department of Environmental Quality (DEQ), Oregon Health Authority, and the Environmental Protection Agency.

"Our work can serve as a screening tool that can help the DEQ, a collaborator in our research project, and others identify and prioritize areas for instrumental [air quality](#) monitoring," said Rob Mangold, PNW Research Station Director. "The moss data serve only as a screening tool, meaning that high concentrations of these elements in moss are suggestive, but not conclusive, of high concentrations in the air. We cannot stress enough the need for followup [air quality monitoring](#) and additional research, such as was done for cadmium, to establish the strength of the relationship between moss concentrations and air concentrations for these additional elements."

The report does not explore potential emissions sources, but provides the raw data necessary for other agencies and groups to do so.

In 2013, a Forest Service-led research team launched an exploratory moss study that gathered and chemically analyzed samples of Lyell's orthotrichum moss, a species that grows abundantly on the trunks and branches of hardwood trees across Portland. The first set of findings from the study showed the moss to be a useful bioindicator—a living organism that can help inexpensively monitor environmental health—of cadmium, a heavy metal of public health concern. Because moss lack roots, they absorb their water and nutrients from the atmosphere and inadvertently take up and store compounds in the air.

The new general technical report is accompanied by an interactive Web map that allows visitors to explore the [moss](#) data. Learn more online at <http://www.fs.fed.us/pnw/research/moss>.

Provided by USDA Forest Service

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