

# TOWARDS ZERO POLLUTION

4 June 2021

# Launch of the Global Assessment of Soil Pollution Report







Food and Agriculture  
Organization of the  
United Nations

# Soil Pollution Status: North America

**Geoffrey Siemering, University of Wisconsin, Madison, USA**

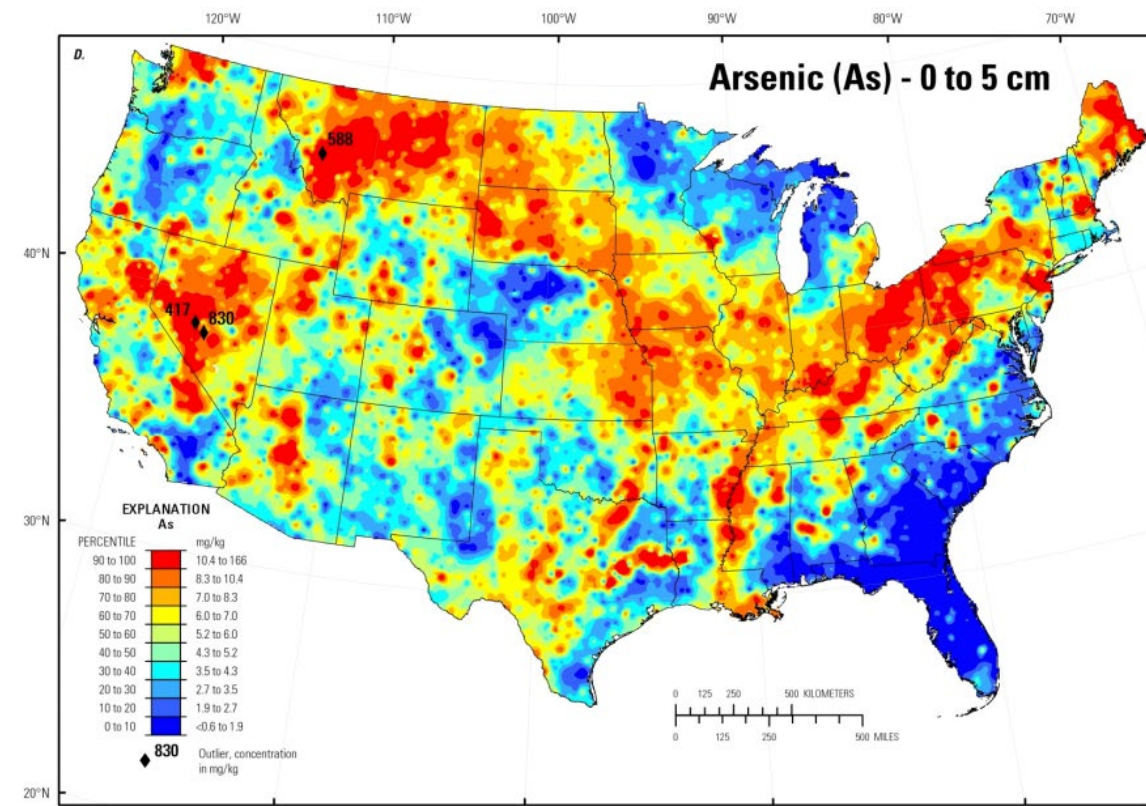
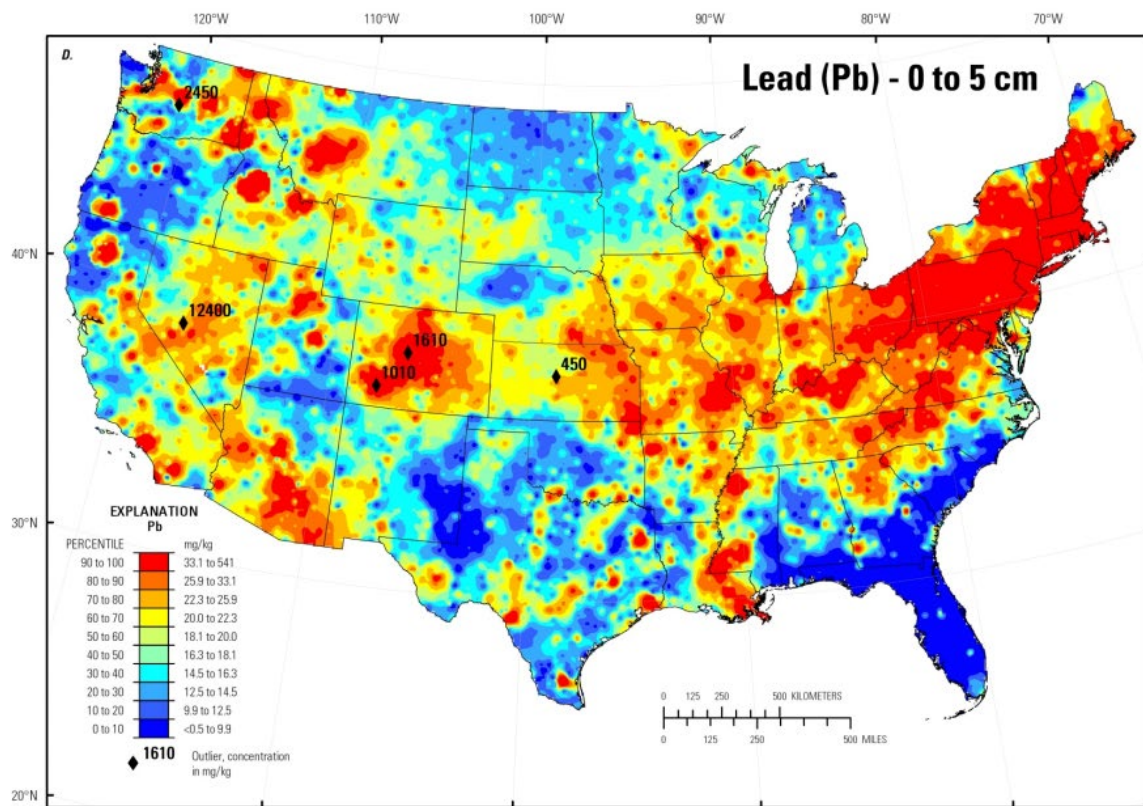




- Big countries + big economies = big soil pollution problems.
- The US and Canada are large countries (9.83 million km<sup>2</sup>, 327 million people and 9.98 million km<sup>2</sup>, 37 million people respectively) with large economies.
- In the US, 118 million people live within 5 km of one of 450 000 known brownfield sites and there are 23 000 abandoned mines in Colorado alone.
- In Canada there are over 23 000 contaminated federally owned sites, but there is no national register for privately owned contaminated sites.
- The largest and most severely polluted sites are tracked at the national level, but most tracked only at state/ provincial or local levels.
- No single information source tracks the extent of polluted land nationwide in either country.



# Geogenic Sources



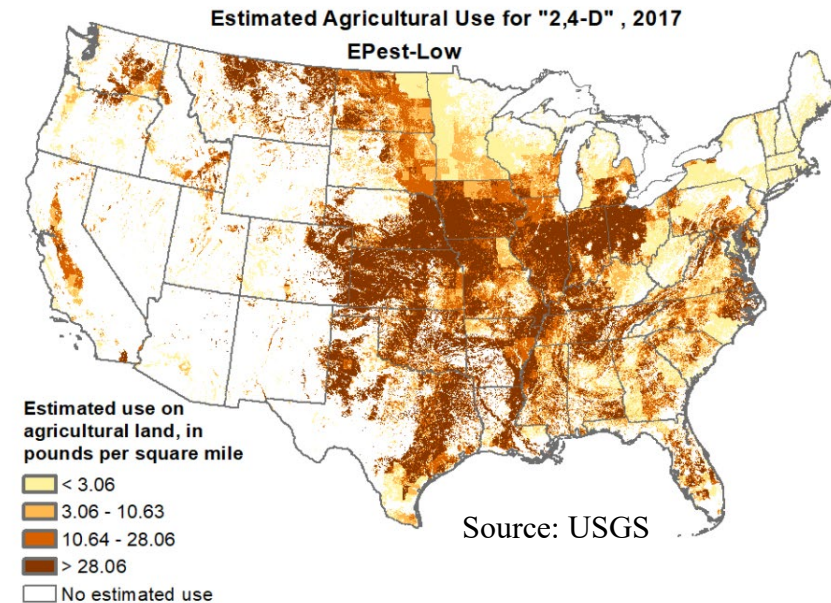
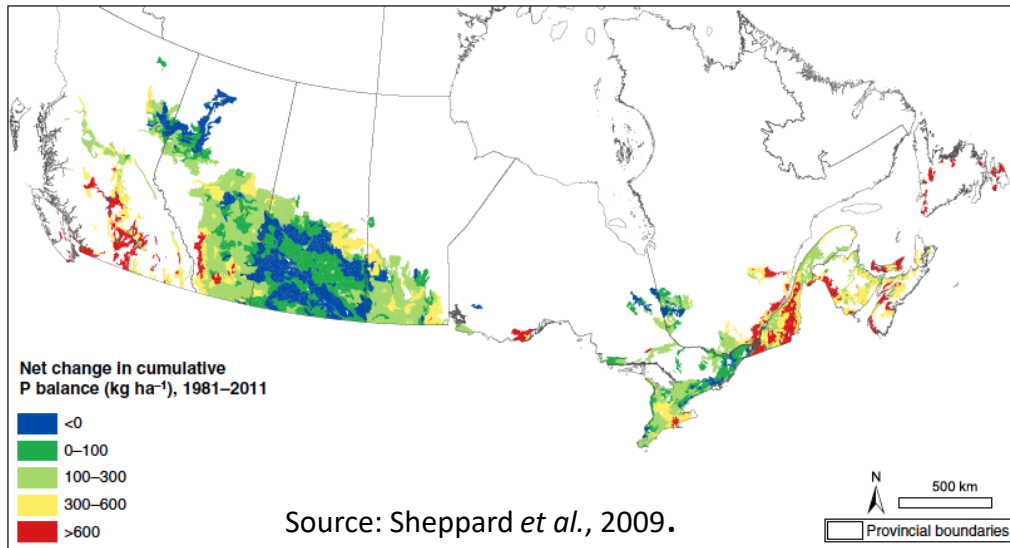
USGS maps of soil lead (Pb) and arsenic (As) concentrations in the conterminous United States. Source: <https://mrdata.usgs.gov/>

Launch of the **Global Assessment of Soil Pollution Report** | 4 June 2021



# Agriculture

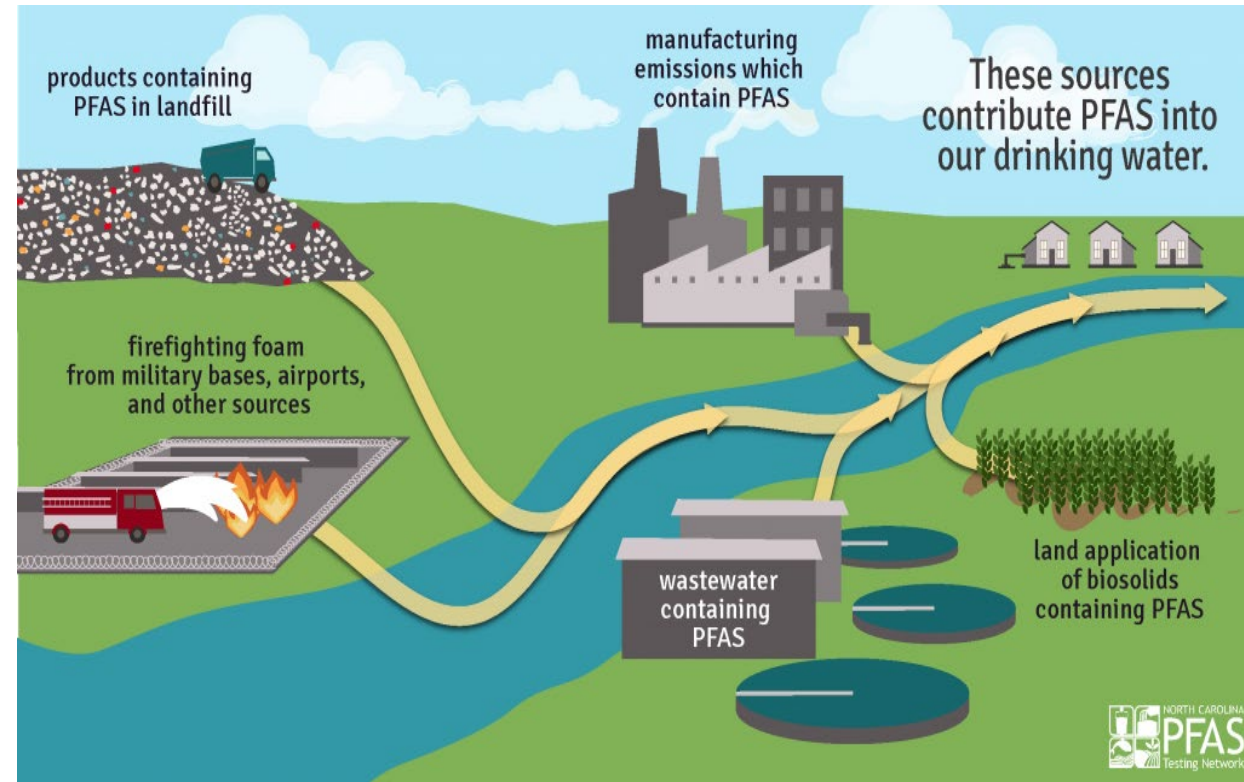
- Fertilizer usage increased 215% since 1960
- Transport impairs water quality
- Farm management can mitigate impacts
- Pesticide usage peaked in 1981
- Due to genetically modified seed use and conservation agricultural practices





# Polyfluoroalkyl Substances (PFAS)

- Per- and polyfluoroalkyl substances (PFAS) soil pollution has caused massive drinking water pollution at over 2 230 sites in 49 US states including drinking water systems serving an estimated 110 million people.
- In 2019, Canada promulgated soil screening values for PFAS compounds and US EPA has been developing PFAS analytical methods and providing states guidance as they develop PFAS regulatory standards.
- PFAS legal and clean up expenses estimated to exceed USD 10 billion for restoration of natural resources but not for personal injuries.



Launch of the **Global Assessment of Soil Pollution Report** | 4 June 2021



# Legal Structures

- The US and Canada have one of the world's oldest and most effective environmental partnerships.
- The extensive border, diverse geography and ecosystems shared by the two countries requires close cooperation among many US states, Canadian provinces, US Tribes, First Nations, and local and federal governments
- The two federal governments have implemented over 40 international agreements for the management and protection of environmental quality and ecosystems in the border area and there are over 100 additional such agreements between US states and Canadian provinces.





# Good news!

- Over the past 40 years, the percentage of US children with blood lead levels of  $10\text{ }\mu\text{g/dL}$  or more declined from 88.2 percent to less than 1 percent.
- Reducing soil lead contamination and exposure to contaminated soil has played an important role in this decrease.

