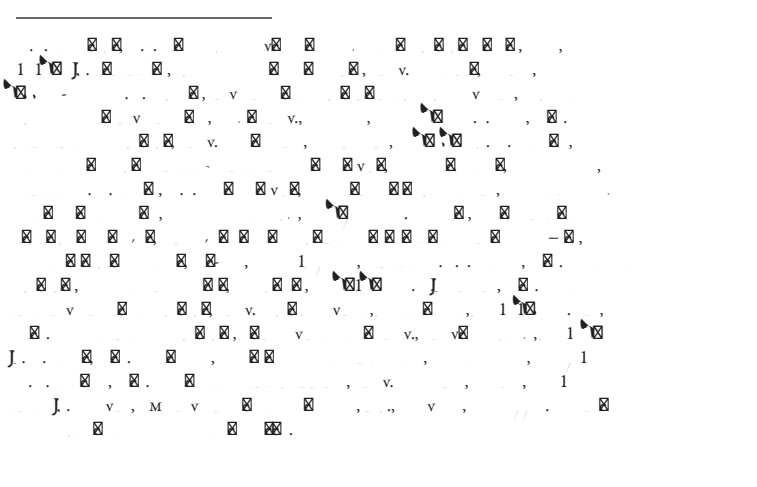
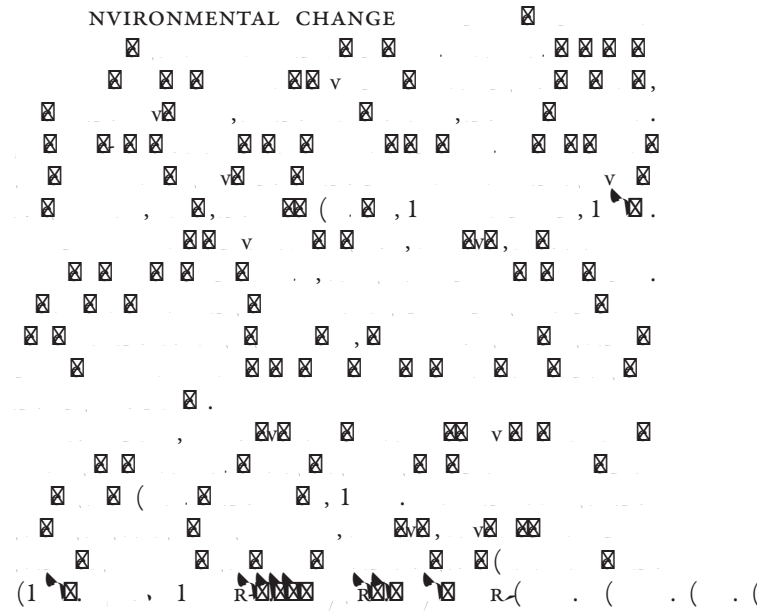
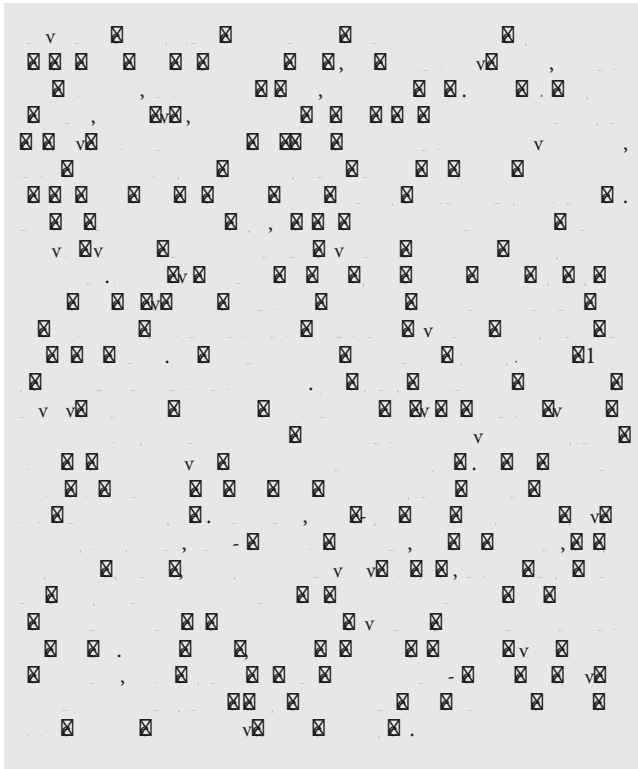


Measuring Environmental Change in Forest Ecosystems by Repeated Soil Sampling: A North American Perspective

Gregory B. Lawrence,* Ivan J. Fernandez, Daniel D. Richter, Donald S. Ross, Paul W. Hazlett, Scott W. Bailey, Rock Ouimet, Richard A. F. Warby, Arthur H. Johnson, Henry Lin, James M. Kaste, Andrew G. Lapenis, and Timothy J. Sullivan





Spatial Variability

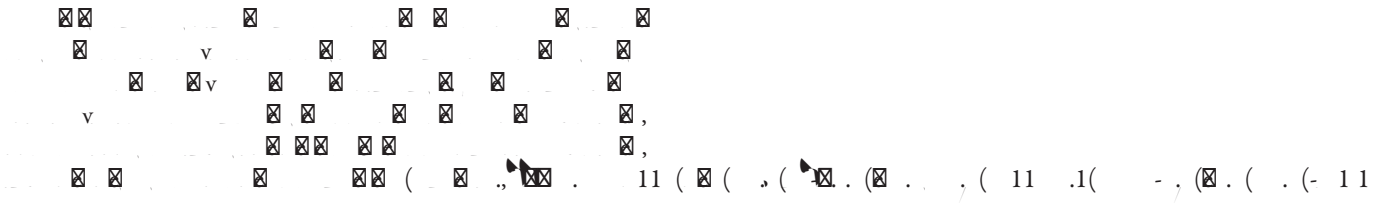


Table 2. Selected forest soil resampling studies in North America.

Location	Time interval yr	Sampling design	Studied variables	Results	References
Adirondack Mountains, New York					

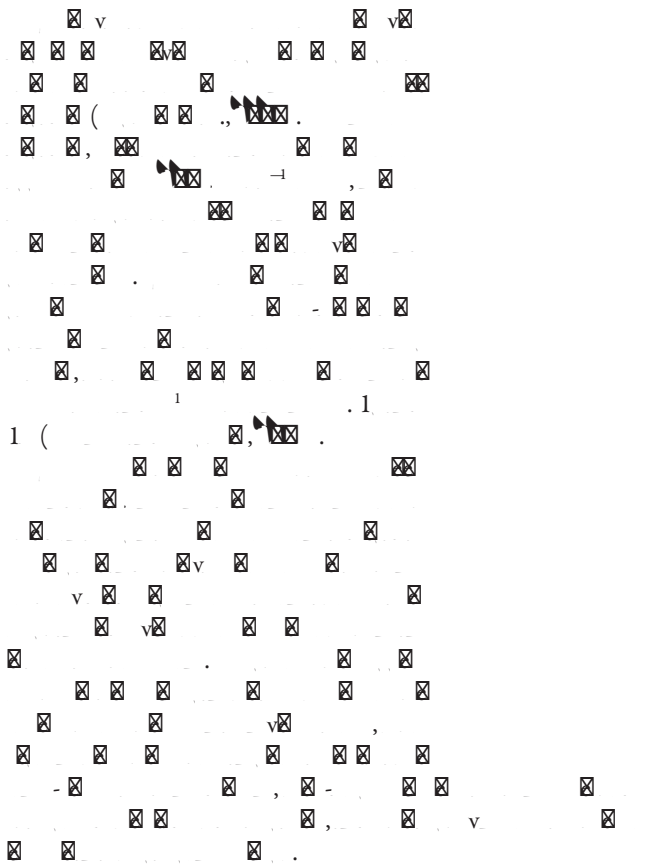
The soil sampling process involves several steps. First, the sampling area is identified and marked. Then, a soil pit is excavated to the desired depth. The soil is then sampled from the pit using a soil sampling tool. The samples are then analyzed in a laboratory.

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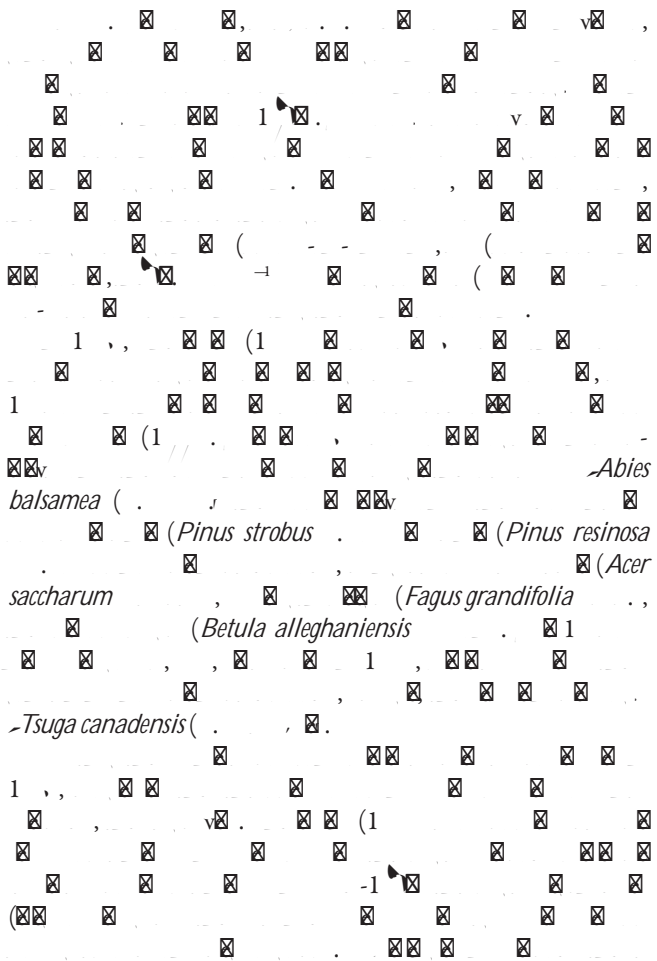
Soil Sampling Techniques

Soil Pit Excavation

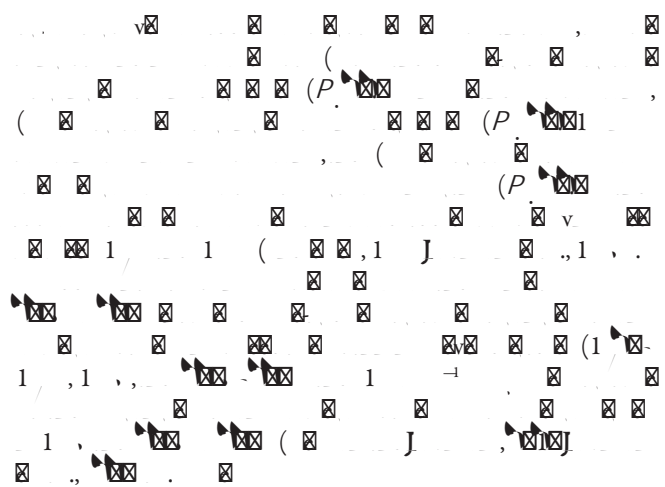
Soil pit excavation is a common soil sampling technique. It involves digging a pit into the soil to a depth of 10-15 cm. The soil is then sampled from the pit using a soil sampling tool. The samples are then analyzed in a laboratory.

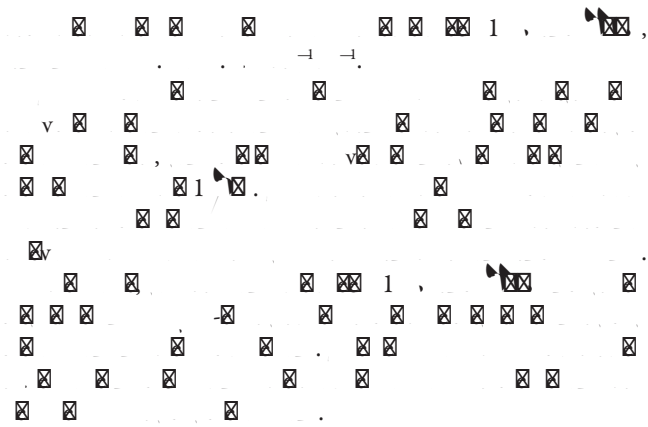


Resampling of the Heimburger Plots

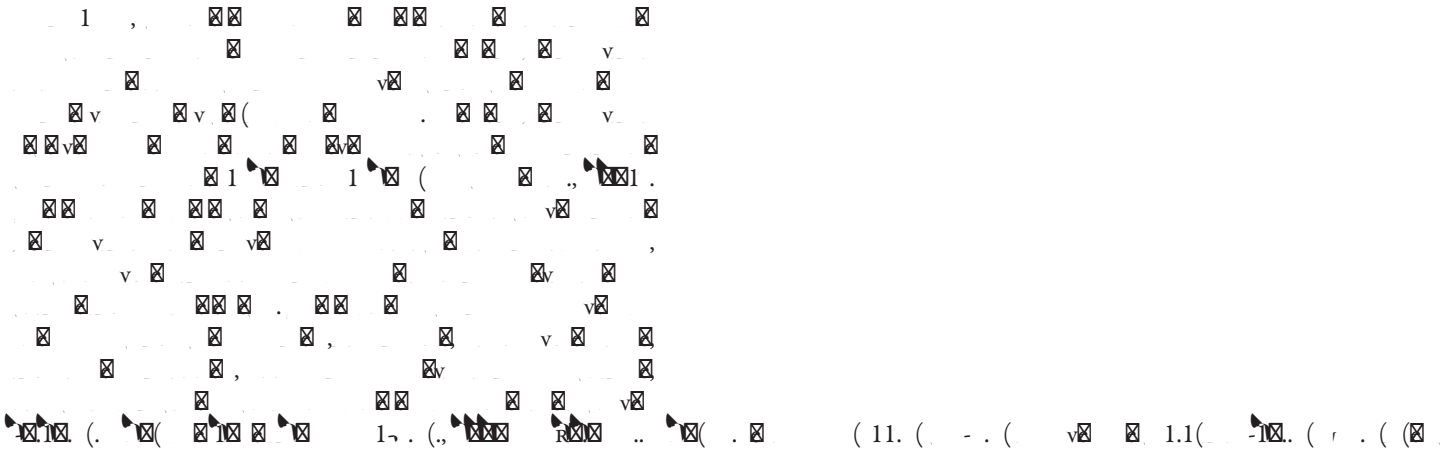


Abies balsamea ()
Pinus strobus () *Pinus resinosa* ()
Acer saccharum () *Fagus grandifolia* ()
Betula alleghaniensis ()
Tsuga canadensis ()





Resampling in the Allegheny National Forest after 30 Years



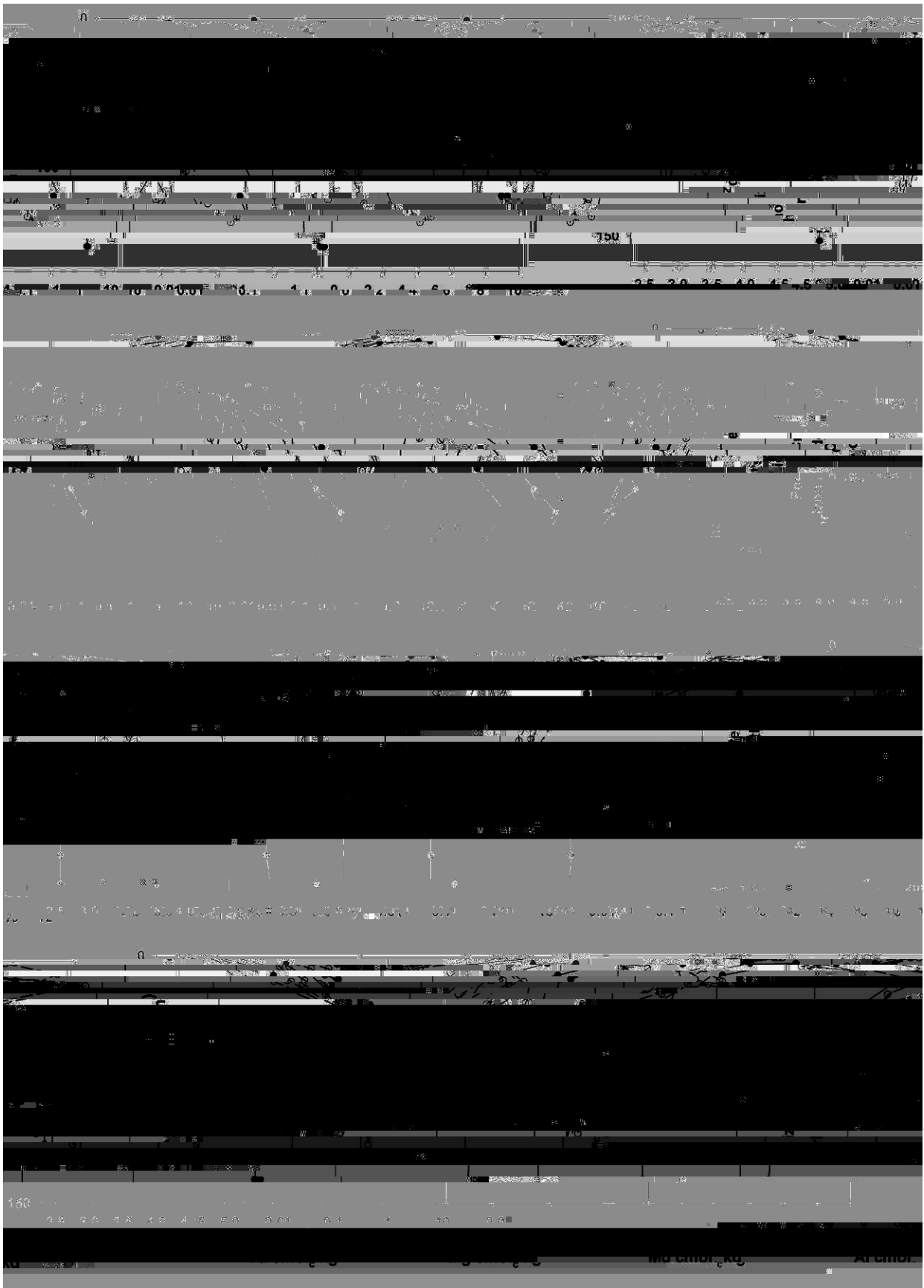


Fig. 3. Depth pro

Resampling Forested Soils in the Northeast to Detect Changes in Heavy Metal Content

Abstract: This study examines the impact of forest management practices on soil heavy metal concentrations in the Northeastern United States. Data from 1990 and 2010 are compared to assess changes in lead, cadmium, and copper levels. Results indicate a general decrease in heavy metal concentrations over the 20-year period, likely due to reduced atmospheric deposition and increased soil sequestration. The study highlights the importance of long-term monitoring and the role of forests in maintaining soil health and reducing environmental contamination.

