Mounding Techniques

How mounds are made matters in peatlands

Mounding is a common seismic line restoration technique. Typically, an excavator digs out and flips a mound of soil to restore lost microsites and promote tree growth. However, in peatlands, deeper layers of peat have different properties and flipping these layers can alter ecosystem functions.

At wooded fens in Alberta, two new mounding techniques—upright mounding and hummock transfer—were compared to the classic inverted mounding technique.

Inverted mounding

Digs and flips to create a classic mound

Creates bare ground and reduces moss cover — resetting succession

Inverts peat layers, creating the greatest differences in peat properties

Upright mounding

Digs and places a mound without flipping

Minimal changes to peat properties by not inverting peat layers

Hummock transfer

Takes a natural hummock from the adjacent peatland and moves it onto the line.

Most disturbed — Lowest Carbon/Nitrogen ratios

Mid disturbed — Slightly lower Carbon/Nitrogen ratios

Least disturbed — No difference in Carbon/Nitrogen ratios

INVERTED MOUNDING

- Increases compaction which can create more waterlogged and anoxic microsites, inhibiting tree growth
- Alters substrate quality by lowering organic matter content and exposing highly decomposed peat

UPRIGHT MOUNDING AND HUMMOCK TRANSFER

- Allows some recovering vegetation to survive while increasing soil aeration to promote tree growth
- Similar organic matter as natural hummocks and low-lying areas

Upright mounding and hummock transfer may be more beneficial to peatland ecosystems, while still supporting tree growth.

KLEINKE ET AL., 2022 DOI:10.1139/CJFR-2022-0015

INFOGRAPHIC BY FUSE CONSULTING