

2020 MSSS Soil Safari and Mounting the Trophies as Monoliths

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Background

- COVID-19 restrictions thwarted many extension activities, but the 2020 MSSS Soils Tour functioned as a self, drop in, physically distanced event where participants were able to extract a monolith for later mounting.
- This poster outlines the steps and video instructions are hosted on the MSSS website at: <https://www.mbsoils.ca/education/>

Step 1: Extracting soil monolith from the field



- Select monolith area with characteristic features, - horizons, structure, mottles, krotovenas.

Krotovena = filled in animal hole



- Carve soil face to fit within extraction box.
- Be gentle when carving and preparing to detach the soil monolith from the soil pit!



- While supporting soil within extraction box, excavate behind and lean soil away from pit face.



- Carve off excess soil from extracted monolith.



- Wrap monolith with saran to support while in transit and to retain moisture until mounting.

<https://youtu.be/2TZr6Ppm1aA>

Step 2: Undressing the monolith and scrapping soil flush with the box



Cut saran with knife to expose soil.



While soil is still moist carve it back flush with the extraction box. Allow to dry.

<https://youtu.be/Kbj8z7WorhY>

Steps 3 - 4: First and second soakings with glue:water mixtures



- Prepare a white glue:water mixture. More dilute mixture for clay soils (1:10) versus for sand and loam soils (1:5).
- Apply mixture liberally to soil to soak deeply – typically 500ml per application. Allow to dry.
- Apply a second application of a stiffer mixture (1:5 for clay, 1:3 for sands, loams). Allow to dry.

<https://youtu.be/A56qCABvejY>

<https://youtu.be/LmBywXagCDI>

Step 5: Removing the boards and gluing to mounting board



- Unscrew side boards from extraction box.



- Apply full strength glue to soil face.
- Then apply a double thickness of cheese cloth & work into glue.



- Set the mounting board over the soil face.



- Once in place, screw securely, then place weights on top until dry.

<https://youtu.be/8rsZA835Jvg>

Step 6: Flip the soil and start preparing the soil face



- Once dry, carefully flip soil monolith over.
- Pick away excess glue and soil on the soil face to expose representative structure and features (like roots, wormholes, mottles, krotovenas).
- Brush or vacuum the face to remove loose soil.

<https://youtu.be/Jz0U6RCzCAU>

Steps 7-8: Third and fourth gluings of soil



- Apply 2 applications of glue:water mixture as in steps 3-4.

https://youtu.be/OVOw8qIM_vk

<https://youtu.be/QJIB8NGM528>

Step 9: Remove glue from board, paint, then label



- Sand or scrap to remove excess glue from board.
- apply 2 coats of white latex paint to the board.
- Affix labels of soil name and horizons.

<https://youtu.be/8CYBMGv7WkA>

Step 10: Display or present



- Finished monoliths presented to host farmers of the Red River, Almasippi and Dezwood soil tour sites of 2020.

These instructions and videos are posted at the MSSS website: <https://www.mbsoils.ca/>

References:

Belohlavy, F. Making Soil Monoliths using white glue as a fixative. Soil Survey Horizons. Vol 35, Issue 3