



57th Annual Alberta Soil Science Workshop

February 2020

ALBERTA SOILS TOUR 2019

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History of the Alberta Soils Tour

- **1960s** – in 1962 the first Alberta Soil Science Workshop (ASSW) and the first Alberta Soils Tour were launched by the Alberta Advisory Fertilizer Committee (AAFC).
- **1960s-1980s** - with few gaps, the Alberta Soils Tours took place every two years organized by the Alberta Soils Advisory Committee (ASAC).
- **1990-2013** – since abolishment of the ASAC in 1989, the Alberta Soils Tours were led by groups of enthusiasts while ASSW played a role of a sponsor.
- **2017** – Alberta Soils Tour was adopted by the ASSW as its integral part and ASSW organized the Tour to Alberta Oil Sands Region

SOILS TOUR-1980

Solonetzic Soils-Deep Plowing

Forestburg-Gadsby Area

MAY 18 1984

Sponsored by:

Alberta Soils Advisory Committee

Canadian Society of Soil Science

LIBRARY, ALBERTA AGRICULTURE
2008 - 113 STREET, EDMONTON
ALBERTA, CANADA T6B 2B5

Held in conjunction with the AIC convention

August, 1980

ALBERTA SOILS TOUR

JULY 1985

North-eastern Region

Solonetzic, Salinity Plots,

S.C.A.P. Project,

K Trials,

Agriculture / Oilfield Interface

Sponsored By:

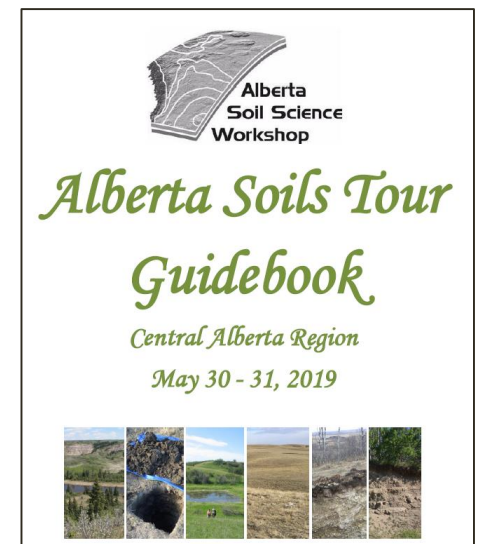
Alberta Soils Advisory Committee

Geography of Alberta Soils Tours

- 2000 – Brooks, AB
- 2002 – Edmonton to Wainwright and Lloydminster
- 2004 – Edmonton to Fort McMurray
- 2006 – Lethbridge to Milk River
- 2008 – Lacombe to Rocky Mountain House
- 2010 – Edmonton to Peace River
- 2013 – Lethbridge to Writing on Stone PP
- 2017 – Edmonton to Fort McMurray and Fort Hills
- **2019 – Red Deer to Drumheller**
- 2021 – Edmonton to Foothills/Rockies (in preparation)

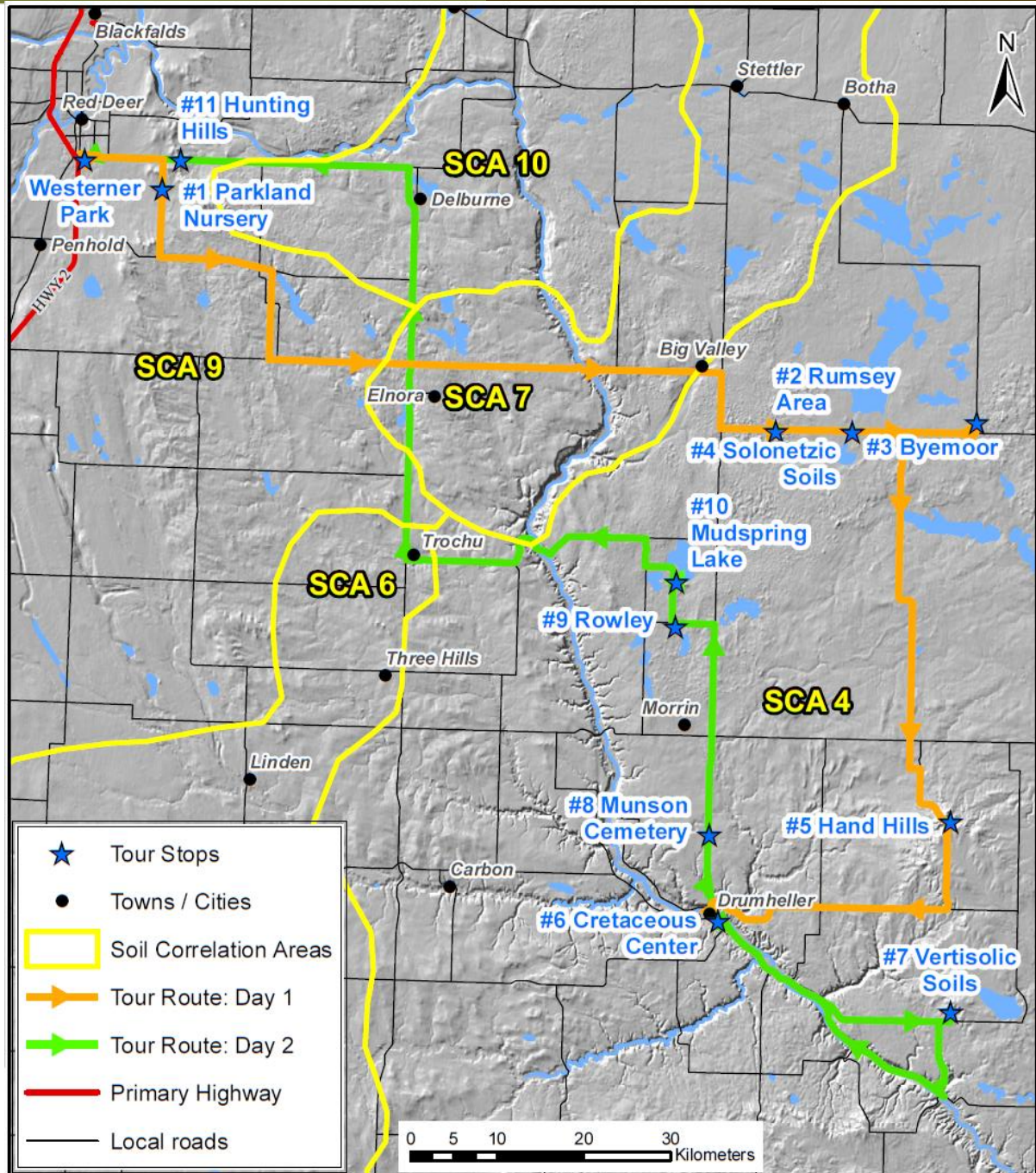
The 2019 Alberta Soils Tour

- The Tour brought together over 100 soil specialists
- This is the largest Alberta Soils Tour in recorded history
- Very positive response from all participants and volunteers
- New team of enthusiasts was built
- A comprehensive Guidebook is available as a reference material online at <http://soilsworkshop.ab.ca/history.html>



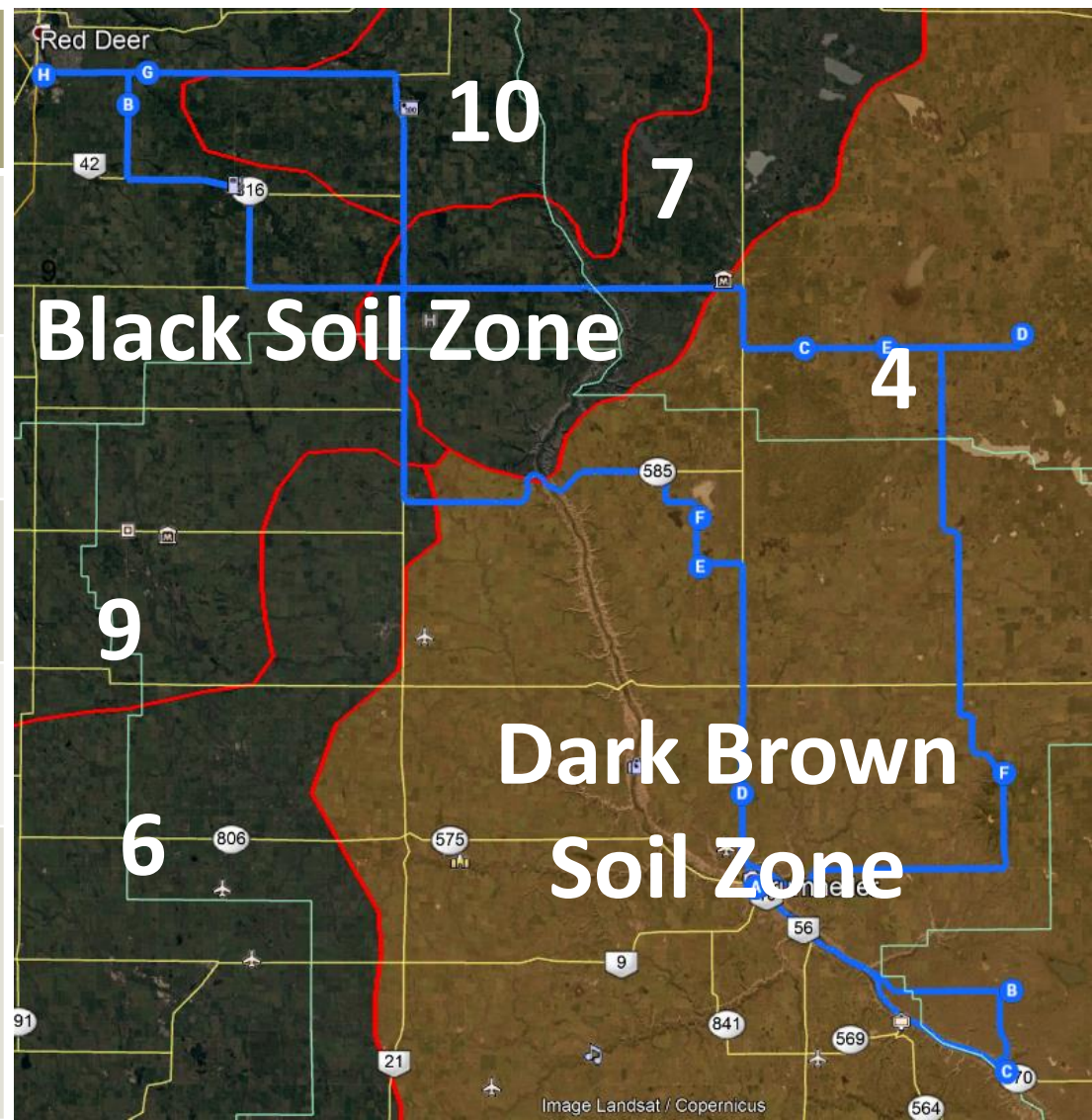
2019 Tour Route

- 11 stops in a figure 8 pattern
- From Red Deer to Drumheller and further south to Dorothy, AB
- Crossing Alberta badlands and Red Deer River Valley
- Crossing Hunting Hills and Hand Hills



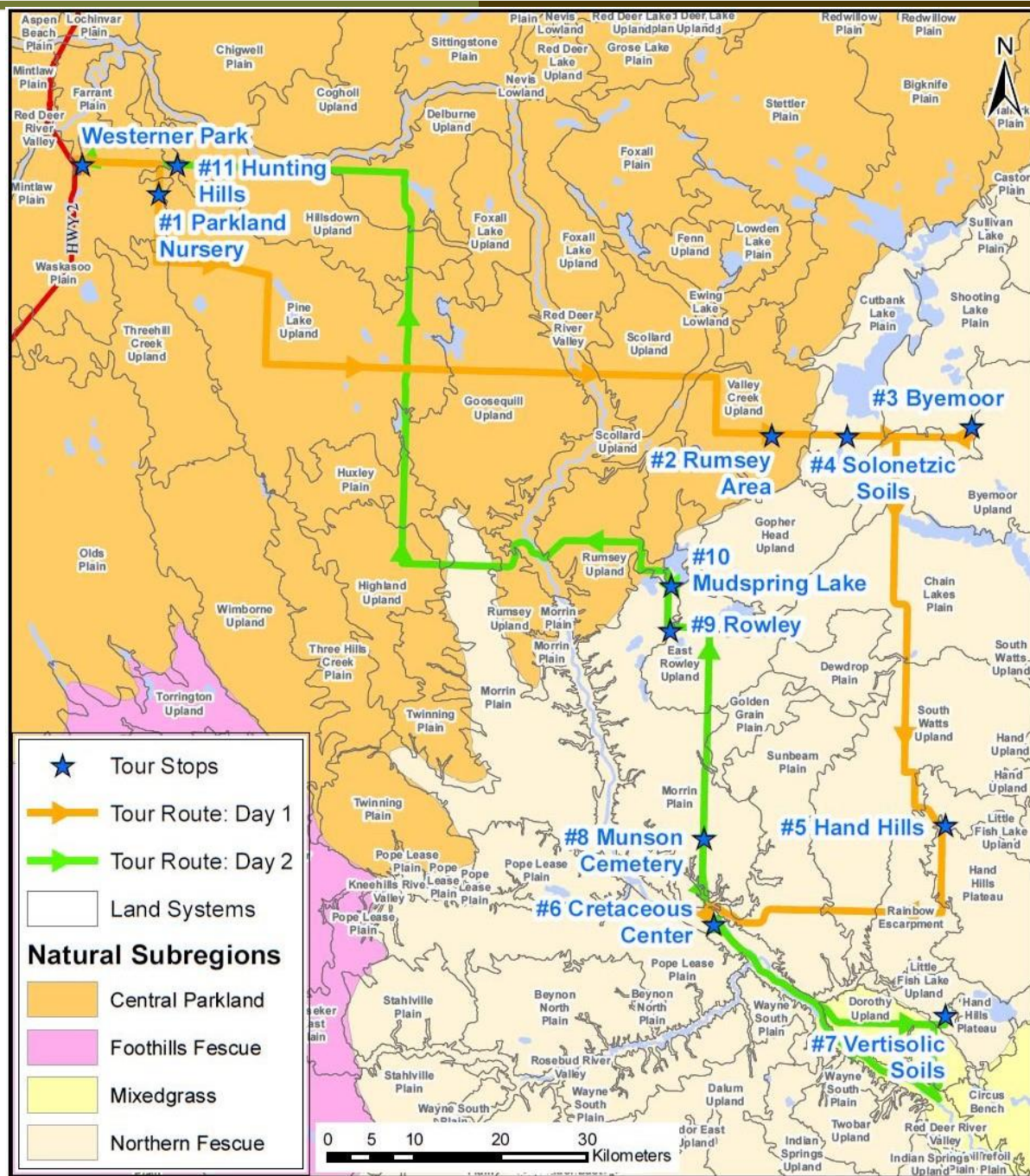
2019 Soil Tour and Soil Zones

SCA	Soil Zone	Dominant Soil Great Groups
4	Dark Brown	Dark Brown Chernozems
6	Thin Black	Black Chernozems
7	Thin Black	Black Chernozems
9	Thick Black	Black Chernozems
10	Thick Black/Dark Gray - Gray	Black Chernozems, Dark Gray Chernozems, Gray Luvisols



2019 Tour Natural Subregions

- Central Parkland
- Northern Fescue
- Mixedgrass at the south



Stop 1: Thick Black Chernozems

- Variants of Black Chernozems in cultivated landscape
- Bioturbation in Bm horizon (upper subsoil)



Stop 2. Rumsey Area

- Dark Brown Chernozems and Gleysolic soils in hummocky knob-and-kettle morainal landscape in Rumsey area
- Uncultivated Chernozem on upper slope had <10 cm of Ah



Stop 4. Solonetzic Soils and Chernozems

- Very complex soil landscape of a very flat lake basin
- Great discussion on Solonetzic soil evolution



Kent Watson in the Solod soil pit while Ed Karpuk and Bruce Walker listen

Stop 5. Pre-Glacial Gravels at Hand Hills

- Plateau at the top of Hand Hills was not glaciated
- Chernozems are developed in pre-glacial gravels
 - mid-Miocene to early Pliocene (14 to 4 Ma)
- Polygonal structures and naturally cemented gravels represent paleo-cryogenic conditions with characteristic ice wedges



Stop 6. Badlands near Drumheller

- With detailed presentation by Brent Nolad in mind, we crossed Red Deer River Valley and enjoyed the badlands view



Stop 7. Gilgai landscape and Vertisolic soils

- Dark Brown Chernozems surrounded the depression with gilgai microtopography near Hand Hills
- We did not find typical Vertisols
- Solonetzic soils and Vertic intergrades were shown in gilgai microtopography



Tony Brierley in Vertic Solonetz pit



Gilgai microtopography

Stop 8. Soil was moving at the cemetery

- Monuments were tilted and tombstones cracked at the Munson Cemetery
- This is the original site where Vertisolic soil series were identified in Alberta



Hamlet of Rowley



Bye, Bye Blues, The Magic of Ordinary Days and Legends of the Fall

Stop 10. Saline soils at Mudspring Lake

- Gleysols vary within a partially dried lake basin
- Saline phases of Orthic and Rego Gleysols were shown



Stop 11. Bedrock at Hunting Hills

- Sandstones of Paskapoo Formation were exposed during highway construction
- Lithic and paralithic phases of Chernozems were shown in an exposure along secondary Hwy 595
- Various levels of weathering defined phases of Chernozems at this site



Addressing Gaps in Education

- Alberta Soils Tour provides an opportunity for soil specialists to observe and discuss Alberta soils **outside their project areas**.
- **Field schools in pedology** are very limited in Alberta's post-secondary education.
- Addressing soil genesis in a **multi-disciplinary sense**, including hydrology, botany, geology, and geomorphology, is a unique feature of the event.
- Opportunity to meet and ask questions to **experts in regional soils** make the Tour a great networking event.

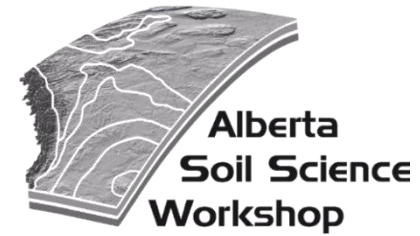


Support for the Tour

- Probably the most amazing thing for us as the tour organizers is the voluntary support the Tour gets across Alberta
- Sponsorship from multiple companies and ministries
- Technical support from companies
- A large number of volunteers taking part in the Tour preparation
- Farmers and local businesses accommodating the Tour on their properties



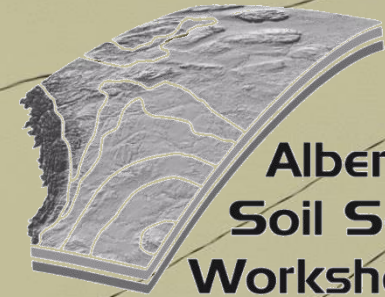
Support for the Tour



ALBERTA INSTITUTE OF AGROLOGISTS



Thank you



Alberta
Soil Science
Workshop

