



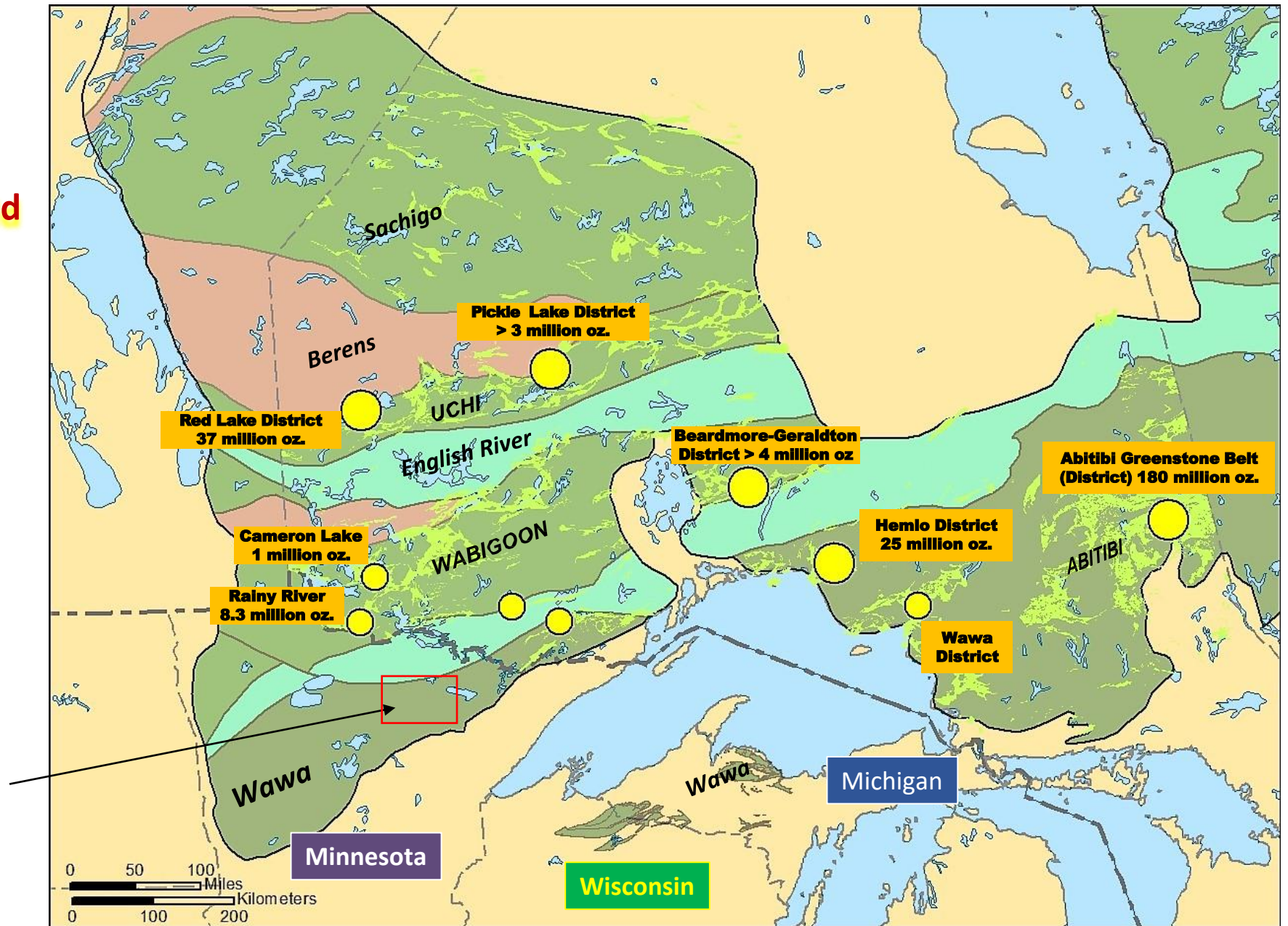
**Exploration  
for  
Orogenic Gold Deposits**

**Vermilion Greenstone Belt, Minnesota**



## Exploration for Orogenic Gold Deposits in Minnesota's Vermilion Greenstone Belt

- Orogenic gold deposits produce more gold than any other deposit type.
- Greenstone belts in the Superior Province are the world's largest producer of orogenic gold.
- Vermillion Gold was founded in 2006 to evaluate the underexplored potential of Minnesota's Vermilion greenstone belt.



## **EXPLORATION and DEVELOPMENT STRATEGY**

### **A Multiple Target Program :**

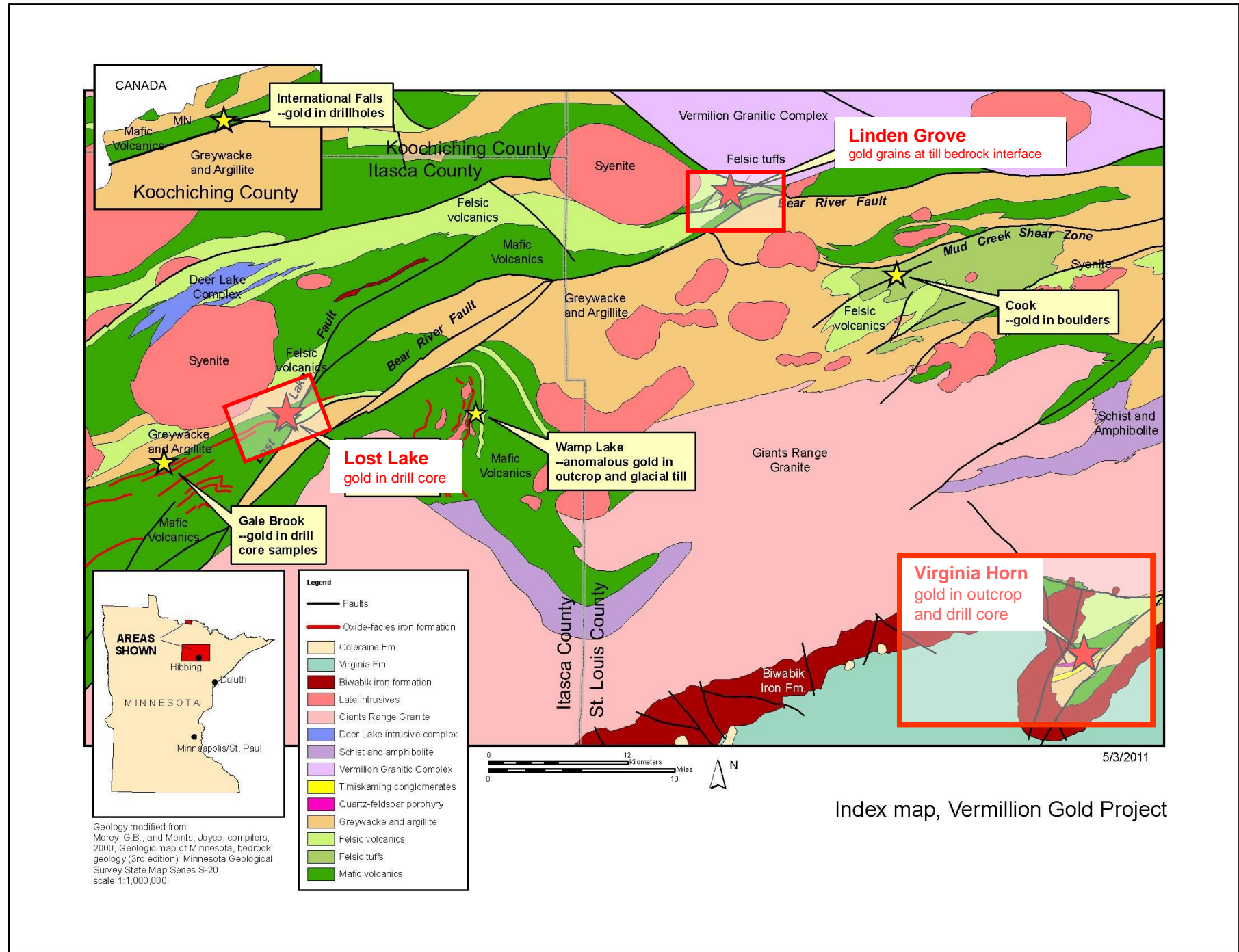
- **Use existing geophysical, geochemical and geological data to identify targets with good potential for deposit-size gold mineralization (most data is from the 1980s).**
  - **Acquire a controlling property interest on the selected targets.**
- 
- **Enhance targets to demonstrate high potential for commercial gold mineralization.**
  - **Form joint ventures with gold exploration companies.**





# Exploration Project Areas

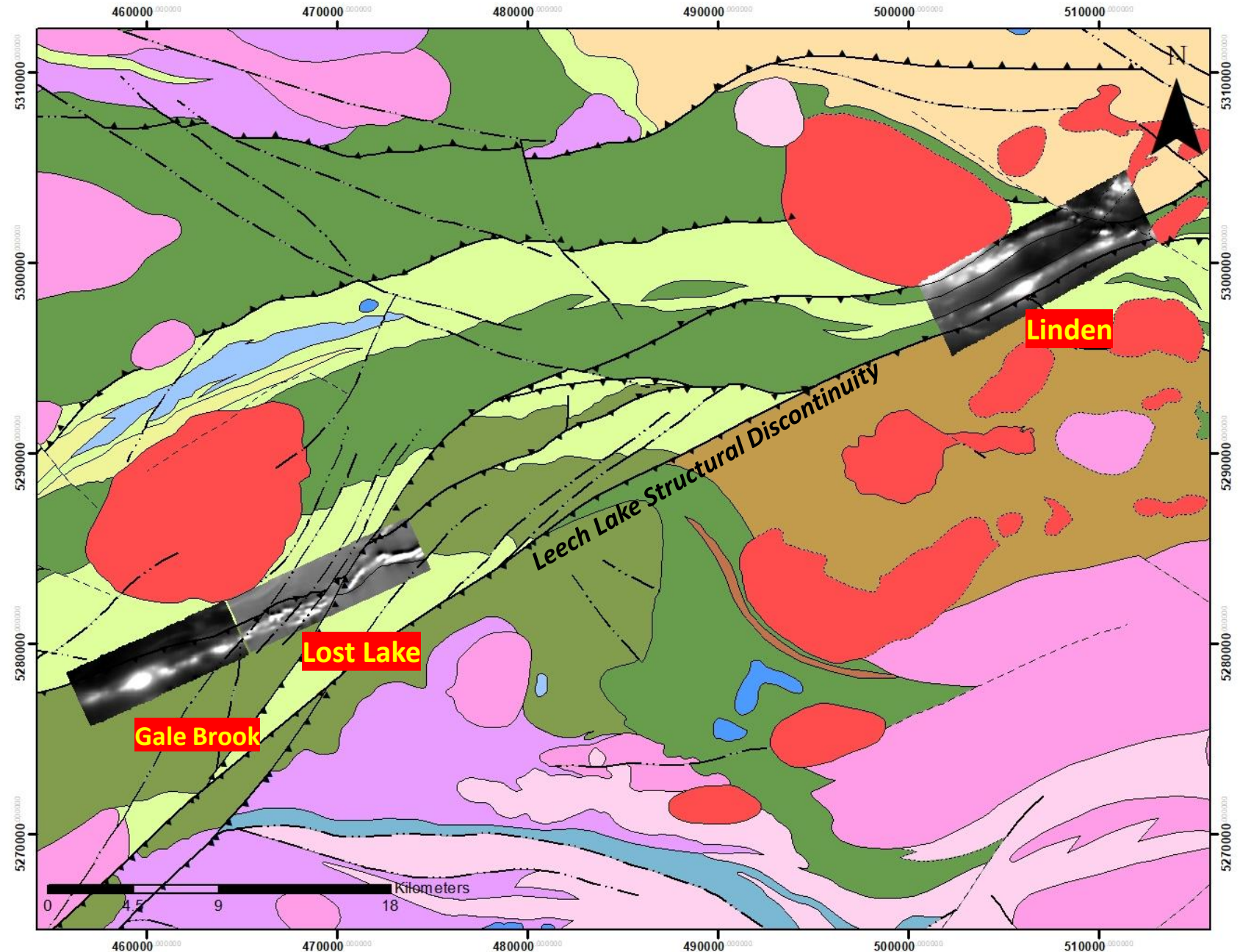
- Since starting the company in 2005 Vermillion has taken mineral lease positions on 7 targets.
- Vermillion is now focused on 3 target areas:
  - Linden Grove*
  - Lost Lake*
  - Virginia Horn*
- In the fall of 2020 Vermillion entered into an earn-in/joint venture agreement with **Centerra Gold** and has begun to systematically evaluate these priority prospects.





## Linden Grove and Lost Lake Projects

- Both properties are located proximal to the Leech Lake Structural Discontinuity.
- Numerous alkali intrusives, porphyries including the Linden sanukatoid pluton.
- Glacial till cover thickens from east to west across the Vermilion greenstone belt. Without outcrop geophysics becomes a very important exploration tool.
- 2009 and 2010 Vermillion conducted airborne magnetic/VTEM geophysical surveys focused on the Linden and Lost Lake-Gale Brook target areas.

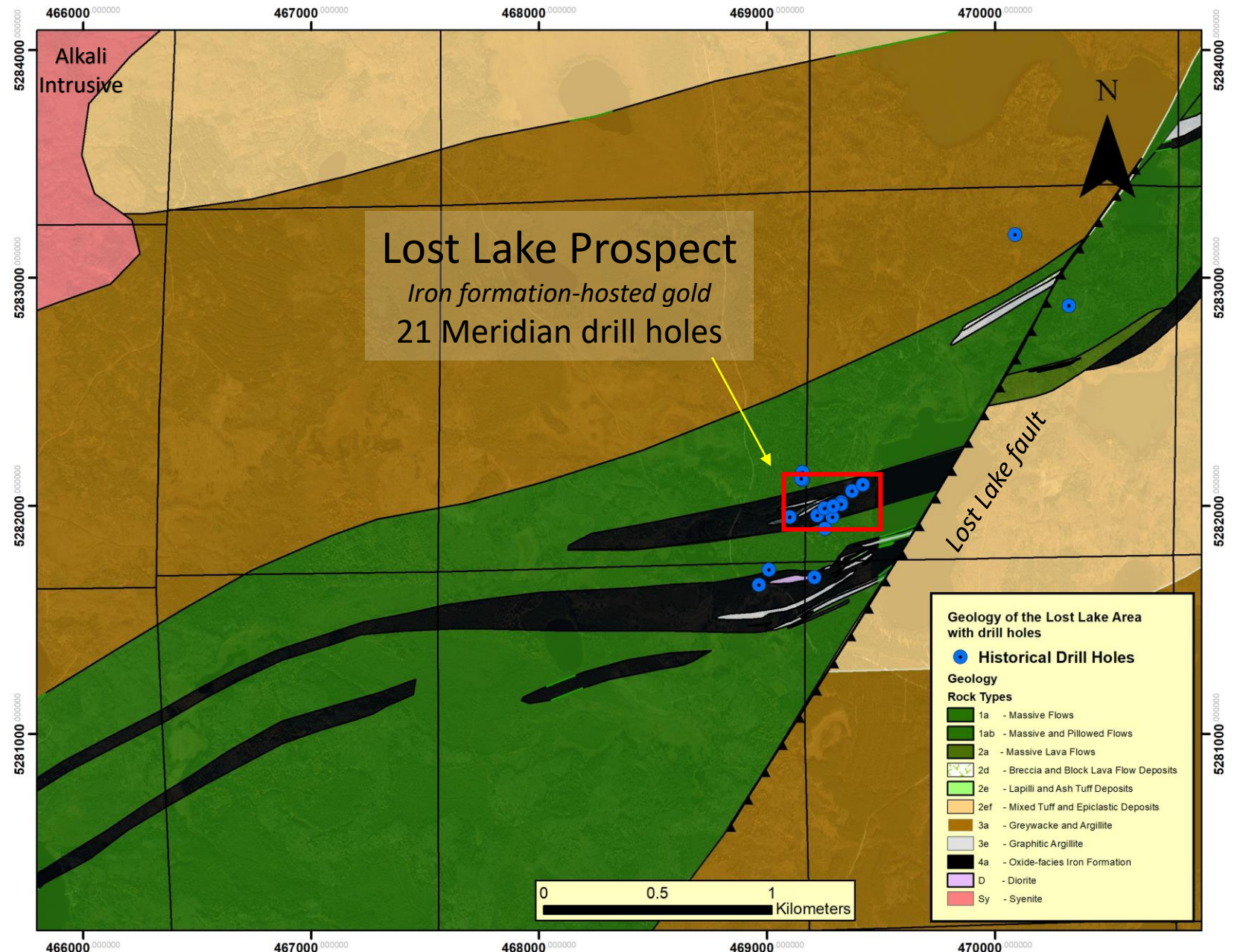






## Lost Lake Project Historical Drilling Programs

- Prior exploration (1980s) by Meridian Gold outlined a zone of iron formation-hosted gold mineralization with values up to 5.4 gpt / 5 ft.
- Gold mineralization is associated with sulfidation of iron oxide.
- Sulfidation produces diminished magnetics and increased conductivity that can be identified by geophysical surveys.

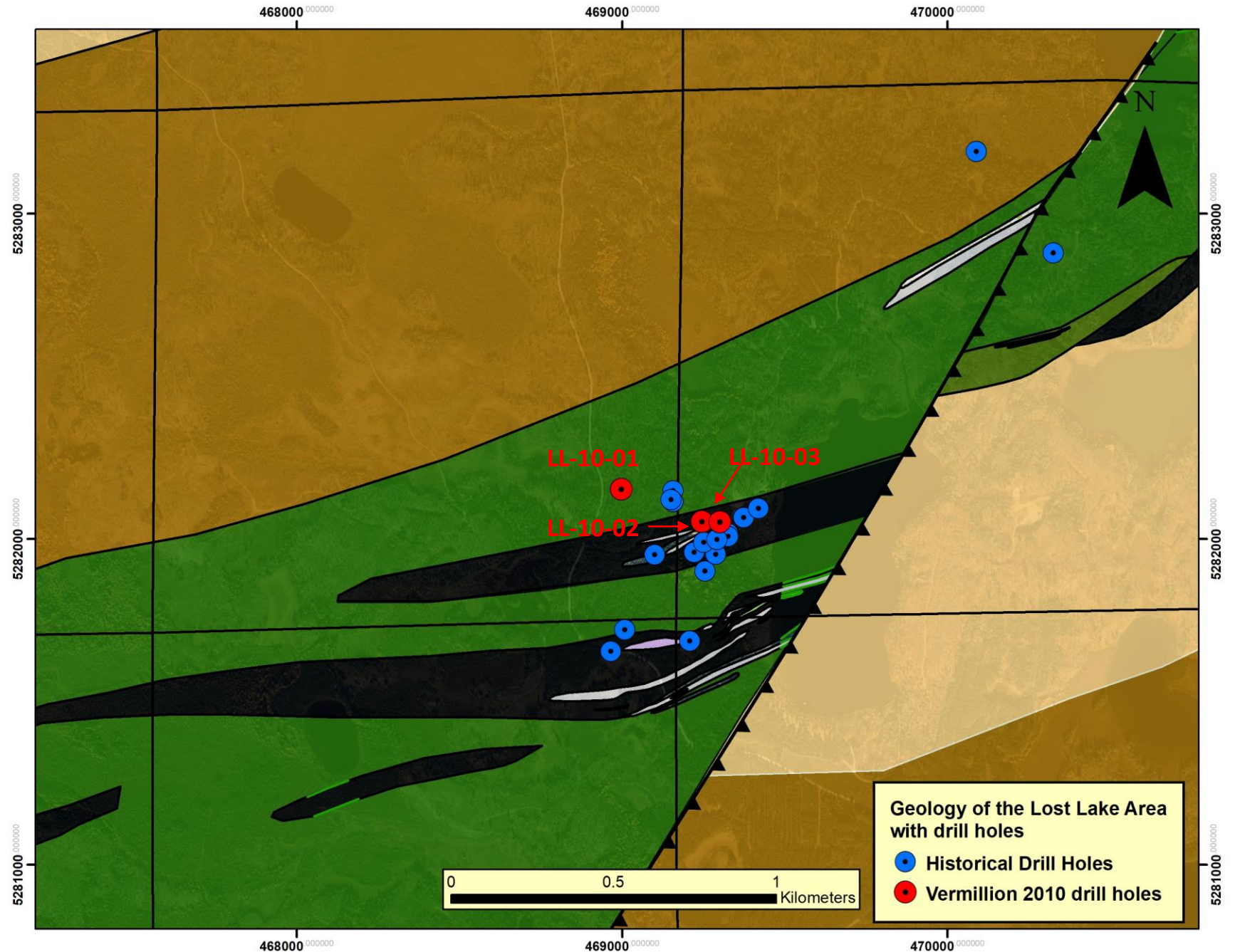






## Lost Lake Project

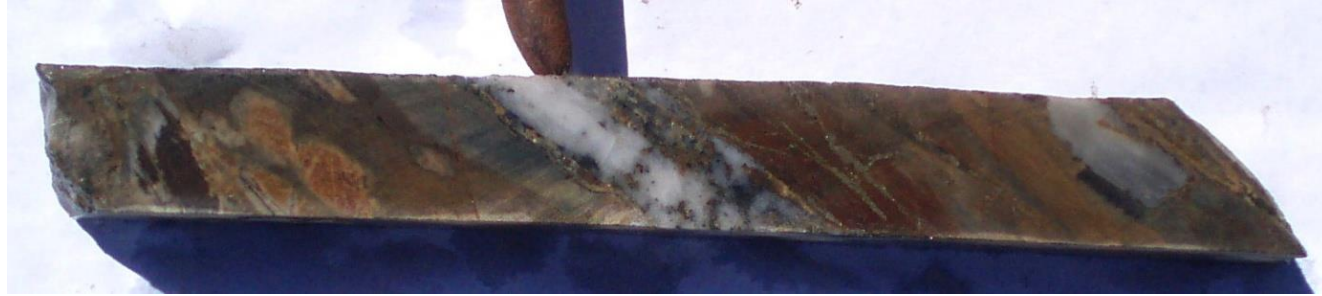
- In 2008 Vermillion Gold completed a helicopter VTEM survey over the area. Results revealed excellent untested geophysical targets.
- During the winter of 2009-10 Vermillion completed 3 diamond drill holes designed to validate results from the historical drill holes.



## Lost Lake Project

### Meridian and Vermillion drill core samples

- Gold mineralization is associated with brecciation, sulfidation and quartz flooding.



*Meridian 1987 drill hole 87-13*

*brecciation, quartz veining and sulfidation of oxide iron formation (5.4 gpt Au/1.52 m)*



*Vermillion Gold 2010 drill hole LL10-3*

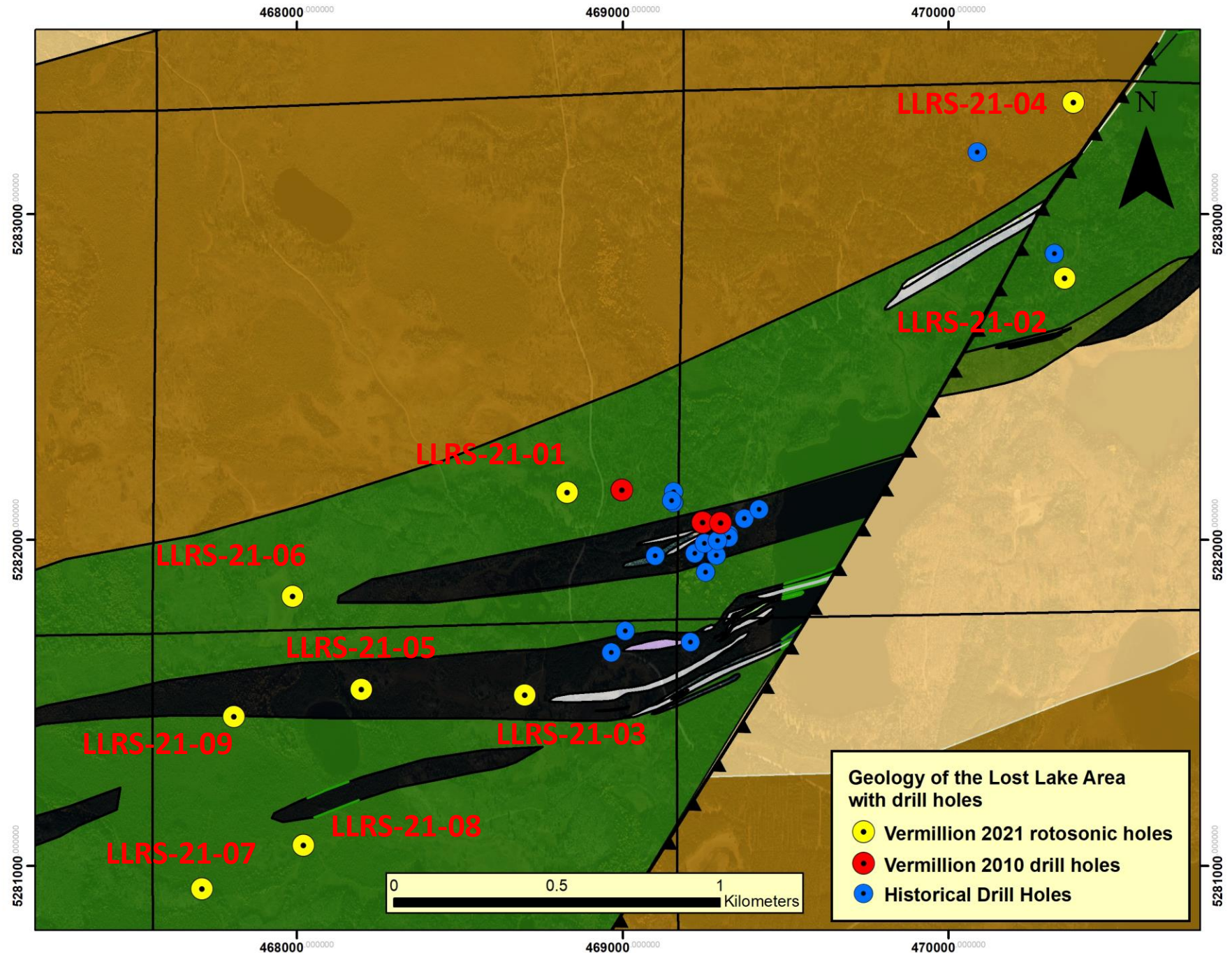
*highly fractured iron-formation with quartz and sulfides*





## Lost Lake Project 2021 Rotosonic Drilling Program

- During January and February Vermillion completed 9 rotosonic drill holes.
- Samples were taken from the Rainy till and 5 ft. of bedrock. Till has been sent for gold grain and heavy mineral analyses and bedrock for geochemical analyses.
- Results should be available in late April or May.

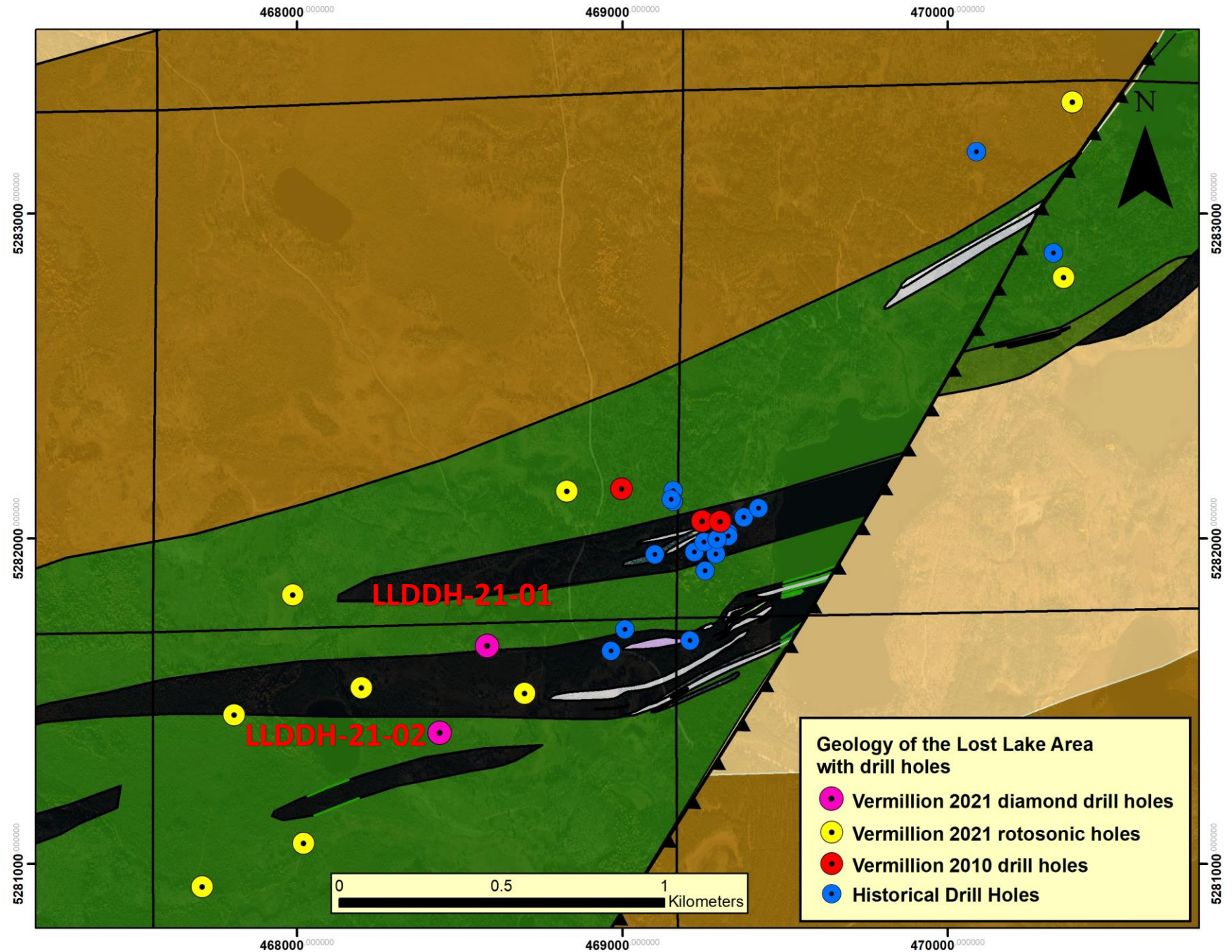






## Lost Lake Project 2021 Diamond Drilling Program

- From January to March Vermillion completed 2 diamond drill holes testing geophysical targets.
- 191 drill core samples were sent for analyses.
- Results should be available in late April.

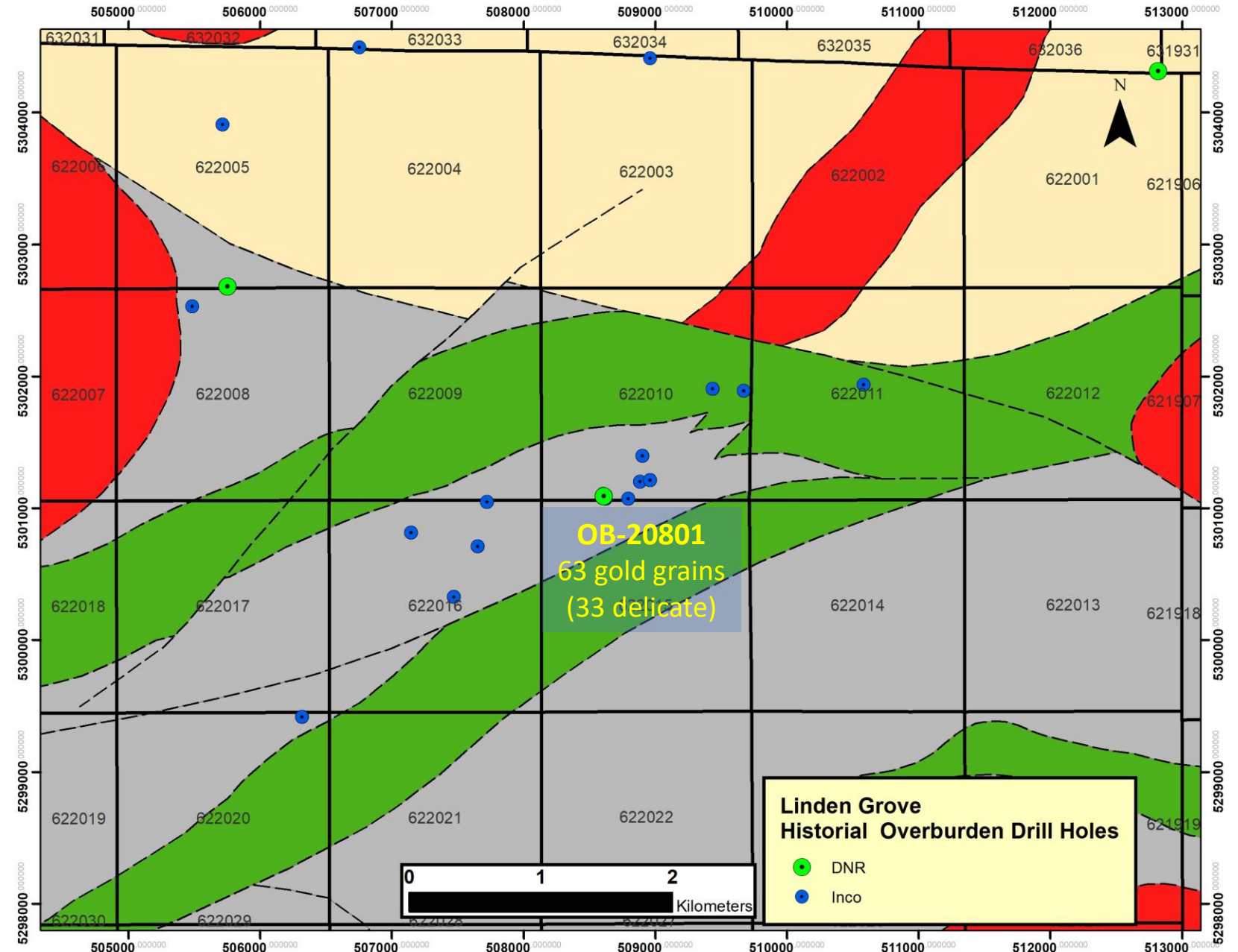






## Linden Grove Project Historical Till Sampling Drill Holes

- During the mid 1980s an overburden drilling program conducted by the DNR identified highly anomalous gold grain counts in the Linden area. In drill hole OB-20801 over half of the gold grains were delicate, indicating a proximal source.
- Based on the DNR drilling program, American Copper and Nickel (INCO) acquired mineral leases and completed 22 overburden drill holes in the Linden Grove area.

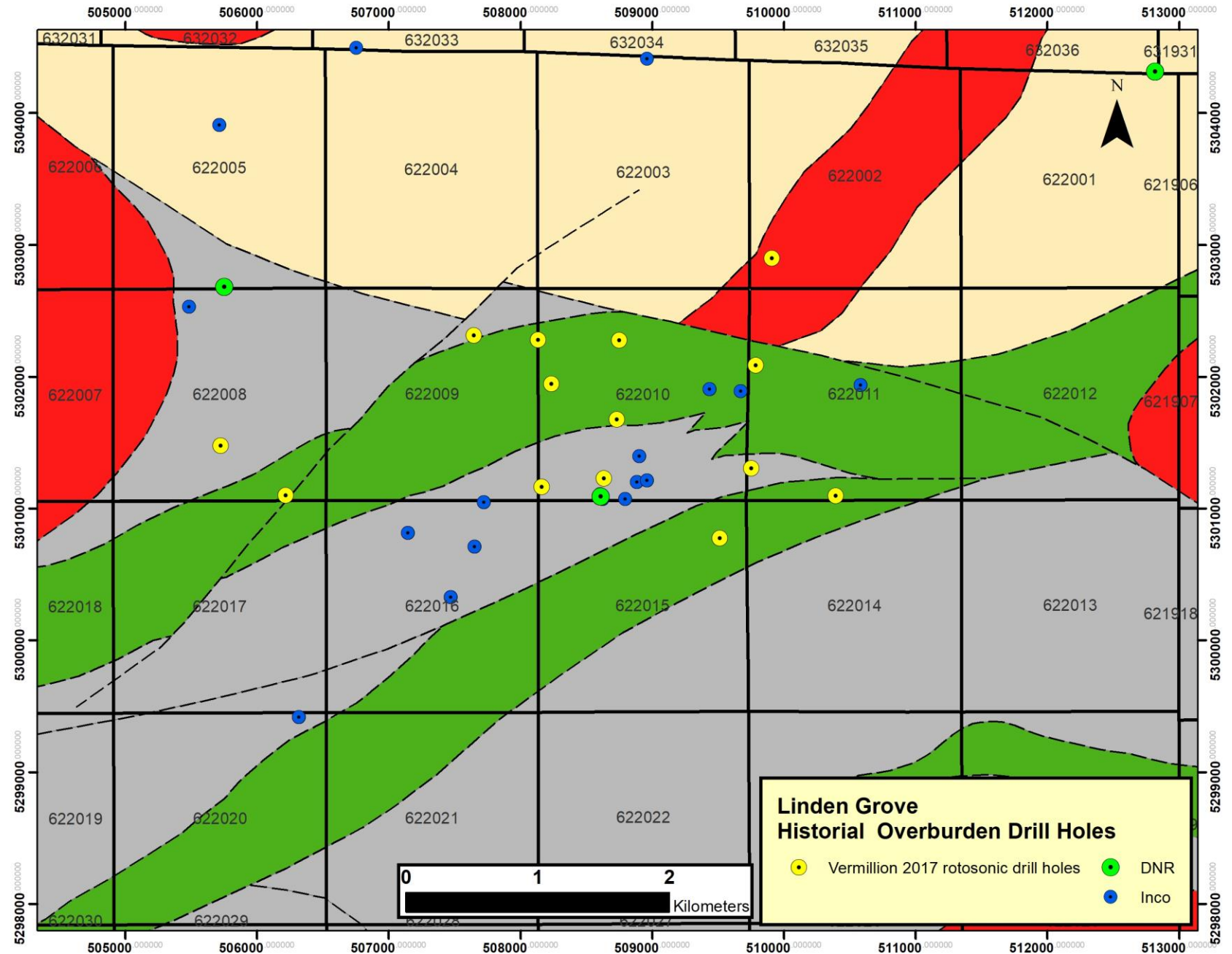




## Linden Grove Project

### Vermillion 2017 Rotosonic Drill Holes

- In the mid 2000s Vermillion acquired mineral leases in the Linden Grove area.
- In 2017 Vermillion gold completed 14 rotosonic drill holes to further evaluate the project area.
- Anomalous gold, arsenic, copper, and silver values were obtained from heavy mineral concentrates from several drill holes.



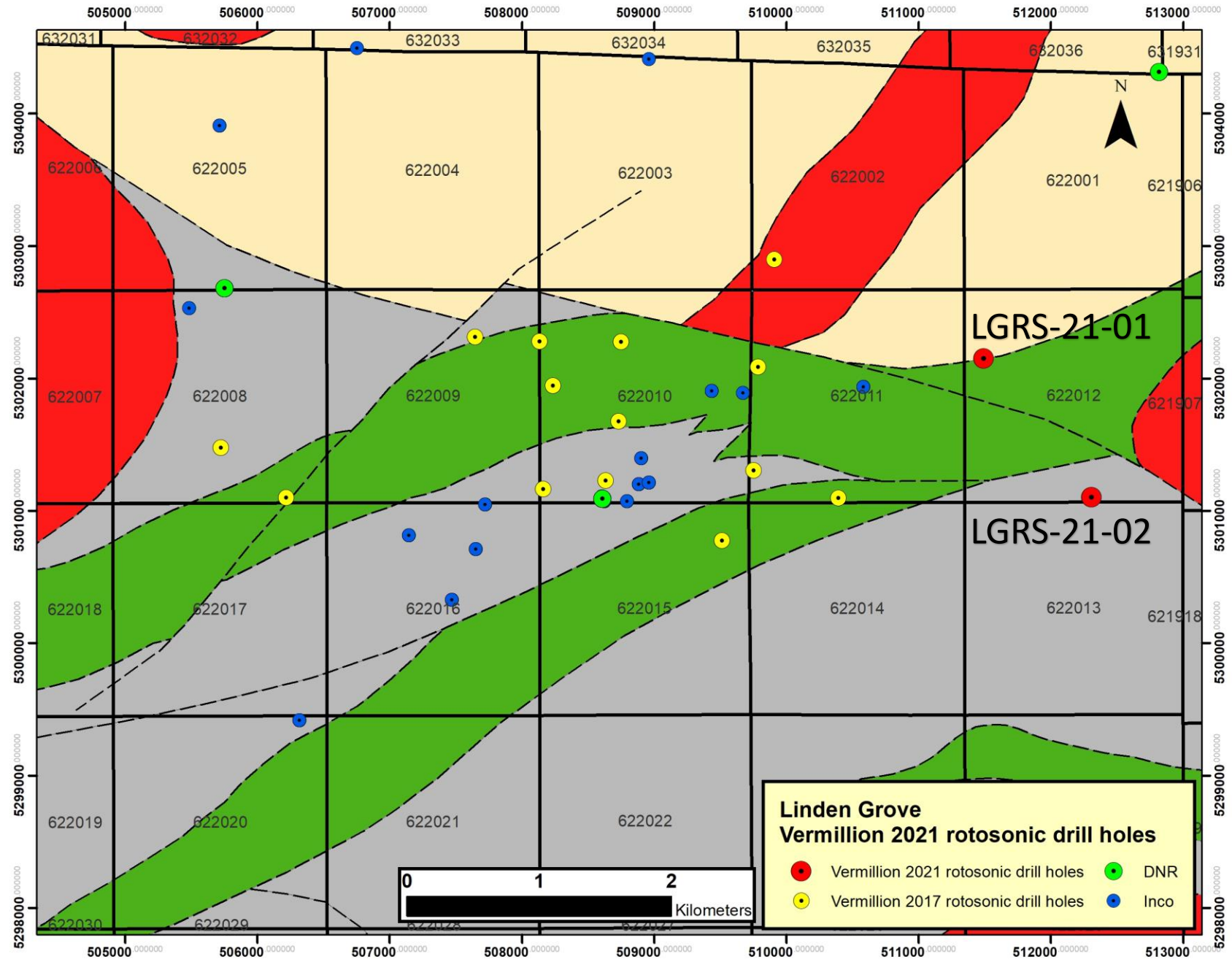




# Linden Grove Project

## Vermillion 2021 Rotosonic Drill Holes

- In March of 2021 Vermillion Gold completed two rotosonic drill holes located to the east of historical drill holes.
- The drill holes primarily targeted geophysical anomalies.
- Results for till and bedrock samples should be available by the end of April.

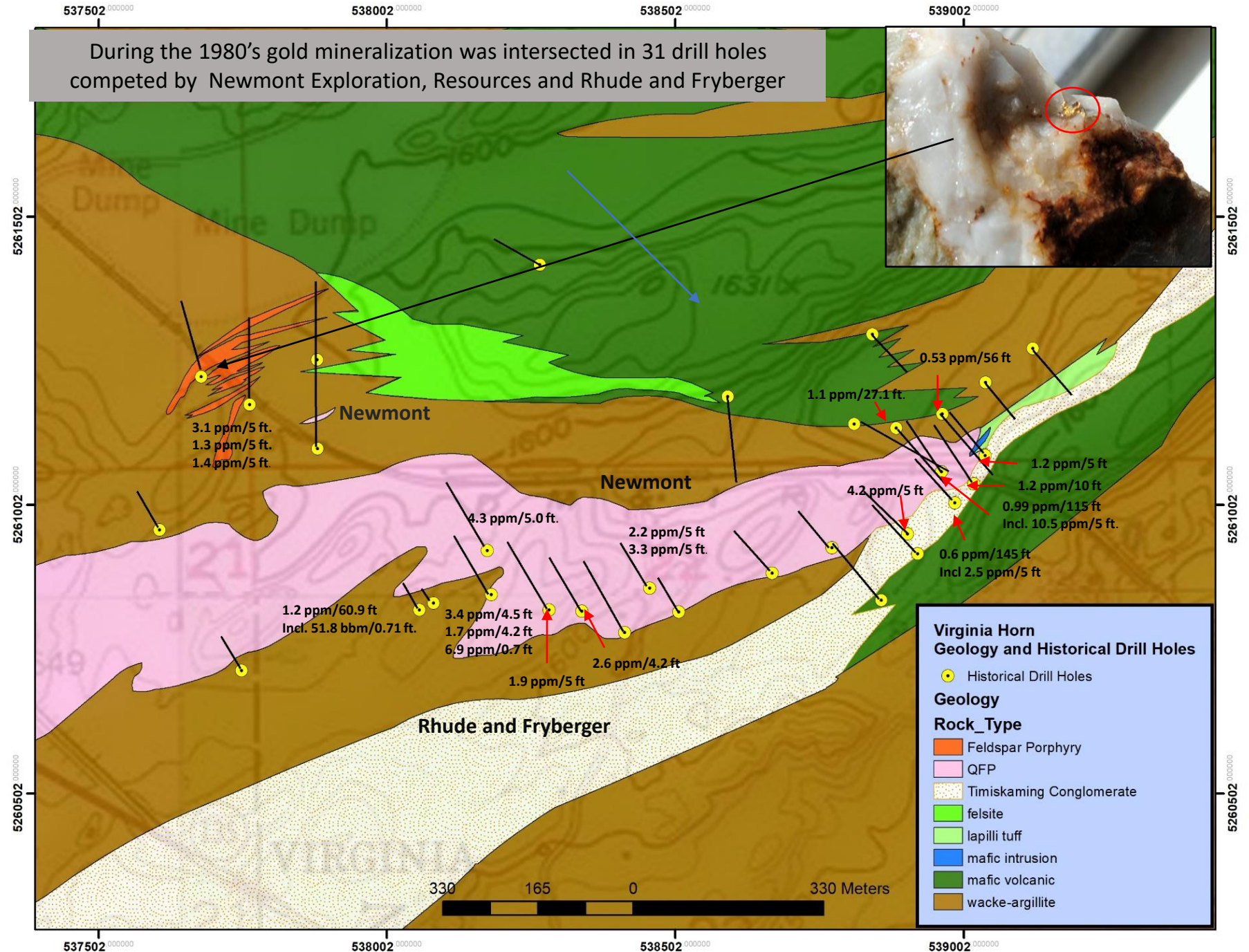




# Virginia Horn Project

## Historical Exploration

- Explored by Newmont Mining, Resources Exploration and Rhude and Fryberger in the 1980s and early 1990s.
- 31 drill holes primarily focused on gold mineralization in the Viking quartz-feldspar porphyry.
- Gold intersected in most drill holes with highest values from eastern end of the porphyry.



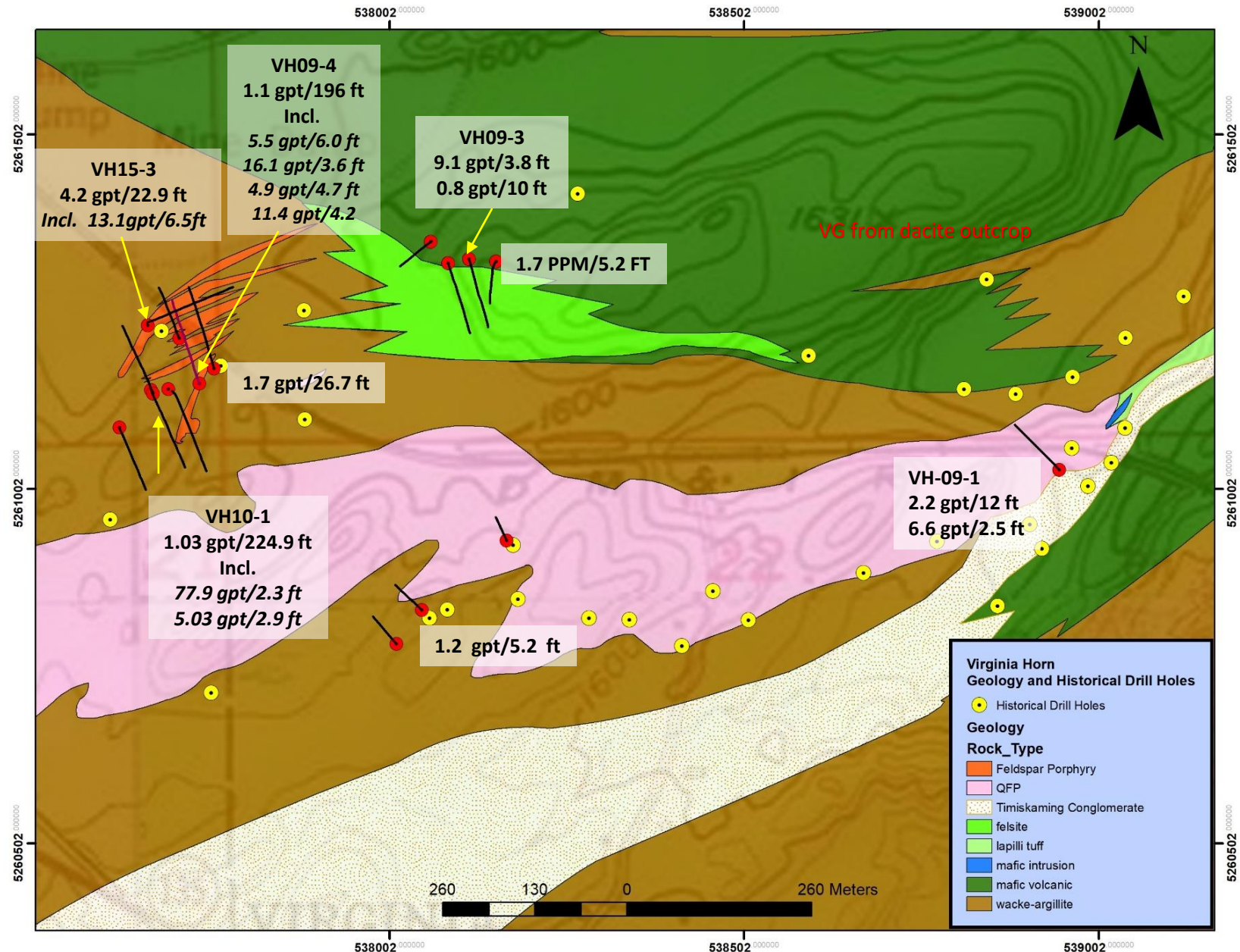




# Virginia Horn Project

## Vermillion Drill Holes 2009, 2010, 2015

- Vermillion drilling programs focused on gold mineralization in dacite with known gold mineralization in outcrop.
- Gold intersections of 1.1 gpt/196 ft. and 1.03 gpt/224.9 ft.
- Intersections include:
  - 16.1 gpt/3.6 ft
  - 13.1 gpt/6.5 ft.
  - 11.4 gpt/4.2 ft.



Vermillion Gold evaluated Virginia Horn gold mineralization with 15 drill holes



# Vermillion Gold

## Virginia Horn drill core with gold mineralization



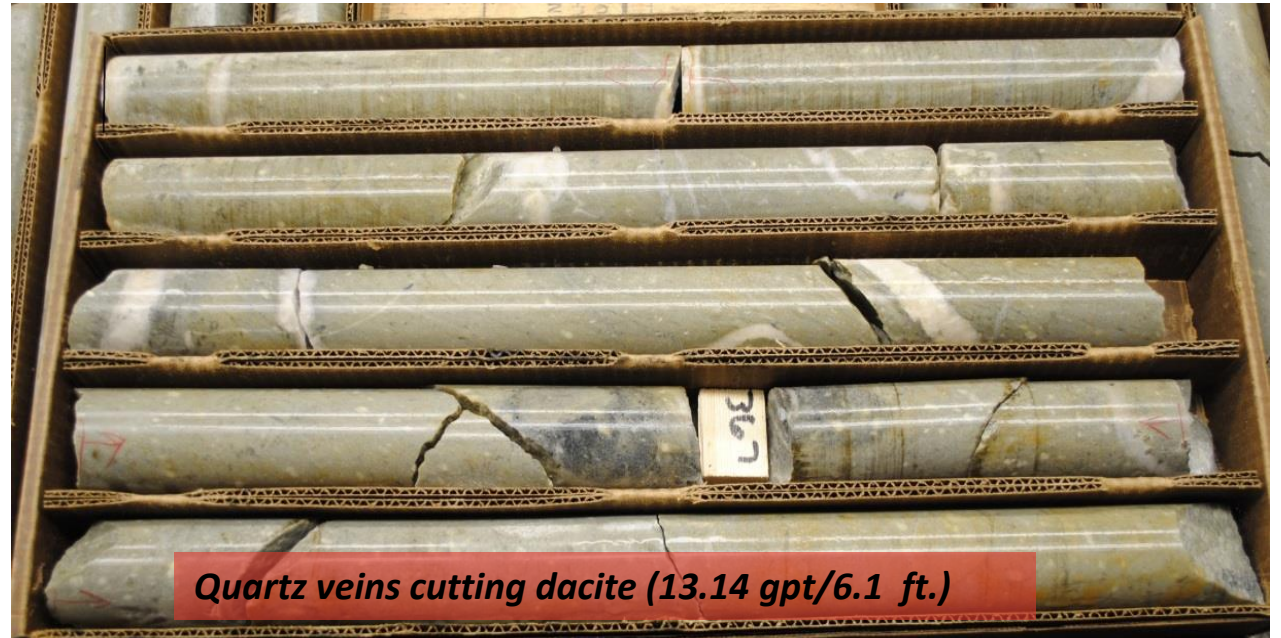
**VH90-4 - Quartz veins cutting dacite (11.4 gpt Au/4.2 ft)**



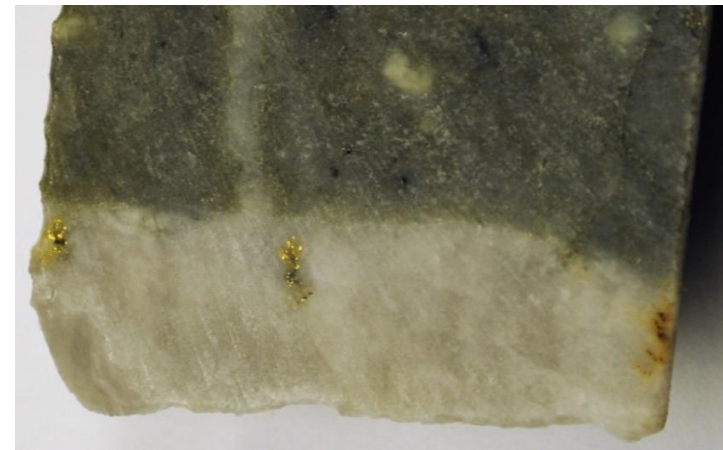
**VH-90-3 Sheared and brecciated metasediments (919 ppb Au/5 ft)**



**Quartz Veins Cutting Quartz-Feldspar Porphyry (5.48 gpt Au/1.4 ft)**



**Quartz veins cutting dacite (13.14 gpt/6.1 ft.)**



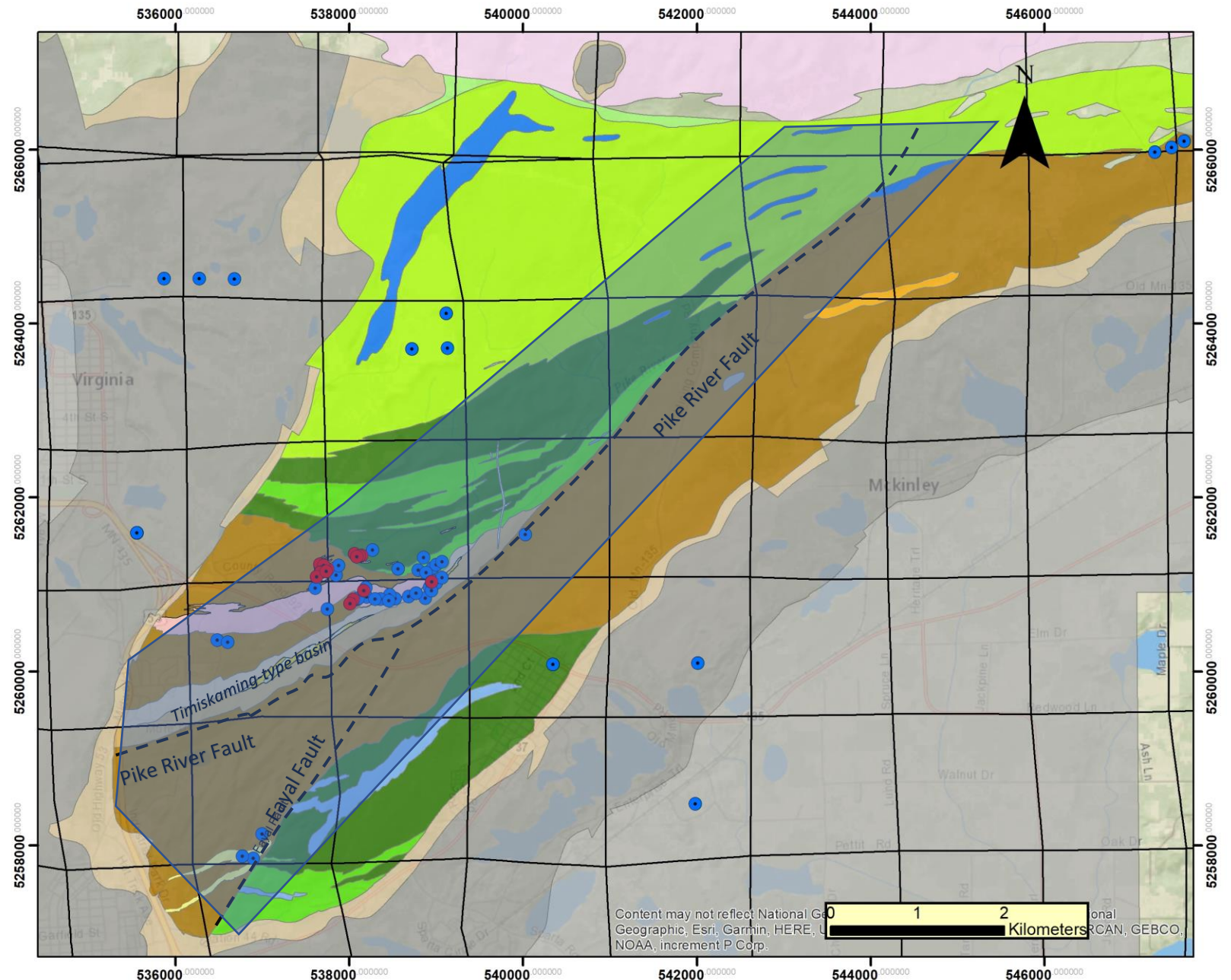




# Virginia Horn Project

## 2021 Exploration Program

- Historical exploration has been almost exclusively focused on the Viking quartz-feldspar porphyry.
- A study of the Virginia Horn area by the Minnesota DNR (Jirsa and Morey, 2003) discovered that the development of the Pike River-Fayal fault system led to the development of a Timiskaming-type extensional basin.
- In other greenstone belts there is an important spatial/genetic relationship between the Timiskaming geology and gold deposits.
- Most of the project area with potential for a significant gold deposit remains unexplored.



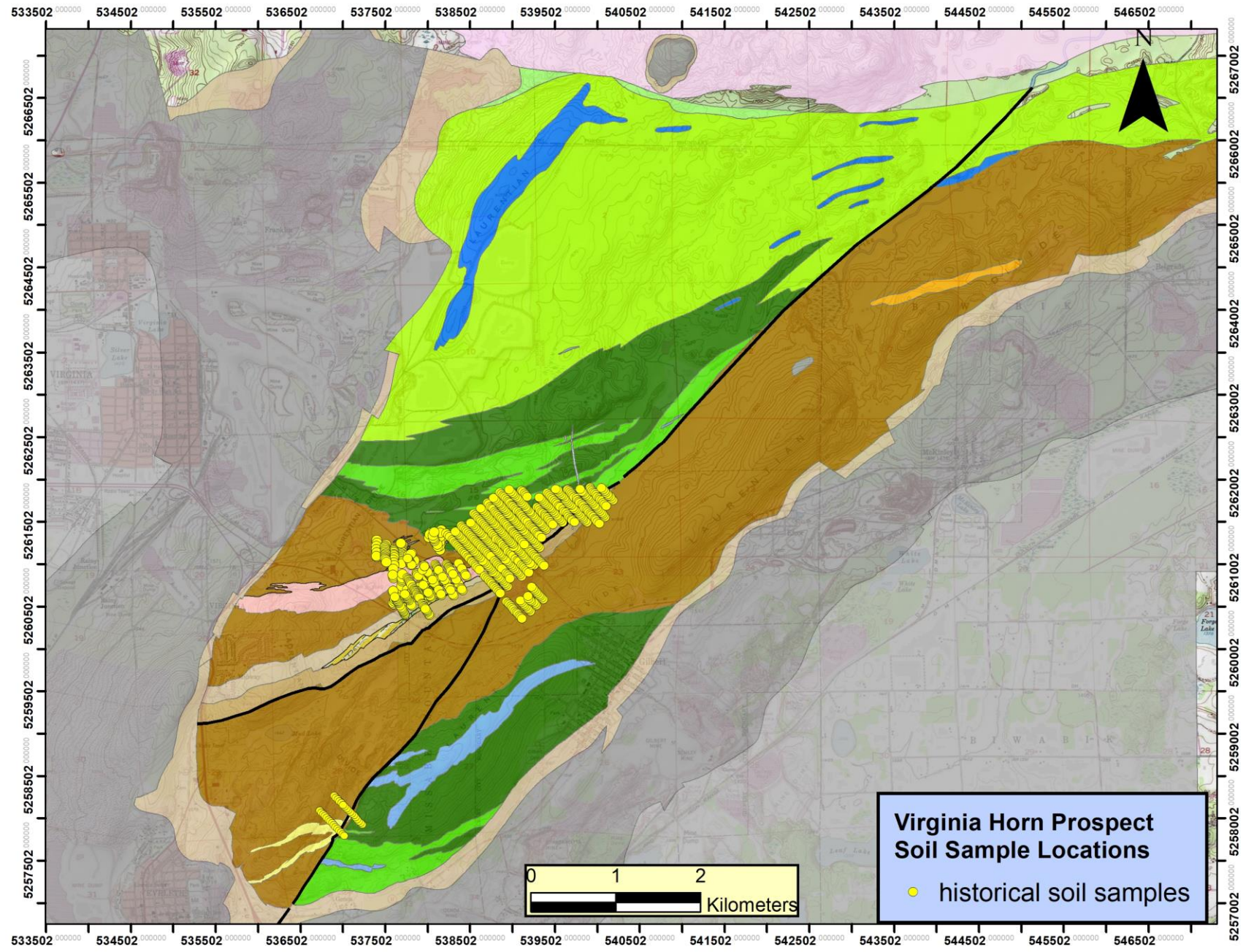




# Virginia Horn Project

## Soil Geochemistry Sampling

Historical soil survey focused on the vicinity of the Viking porphyry and the Mud Lake area.



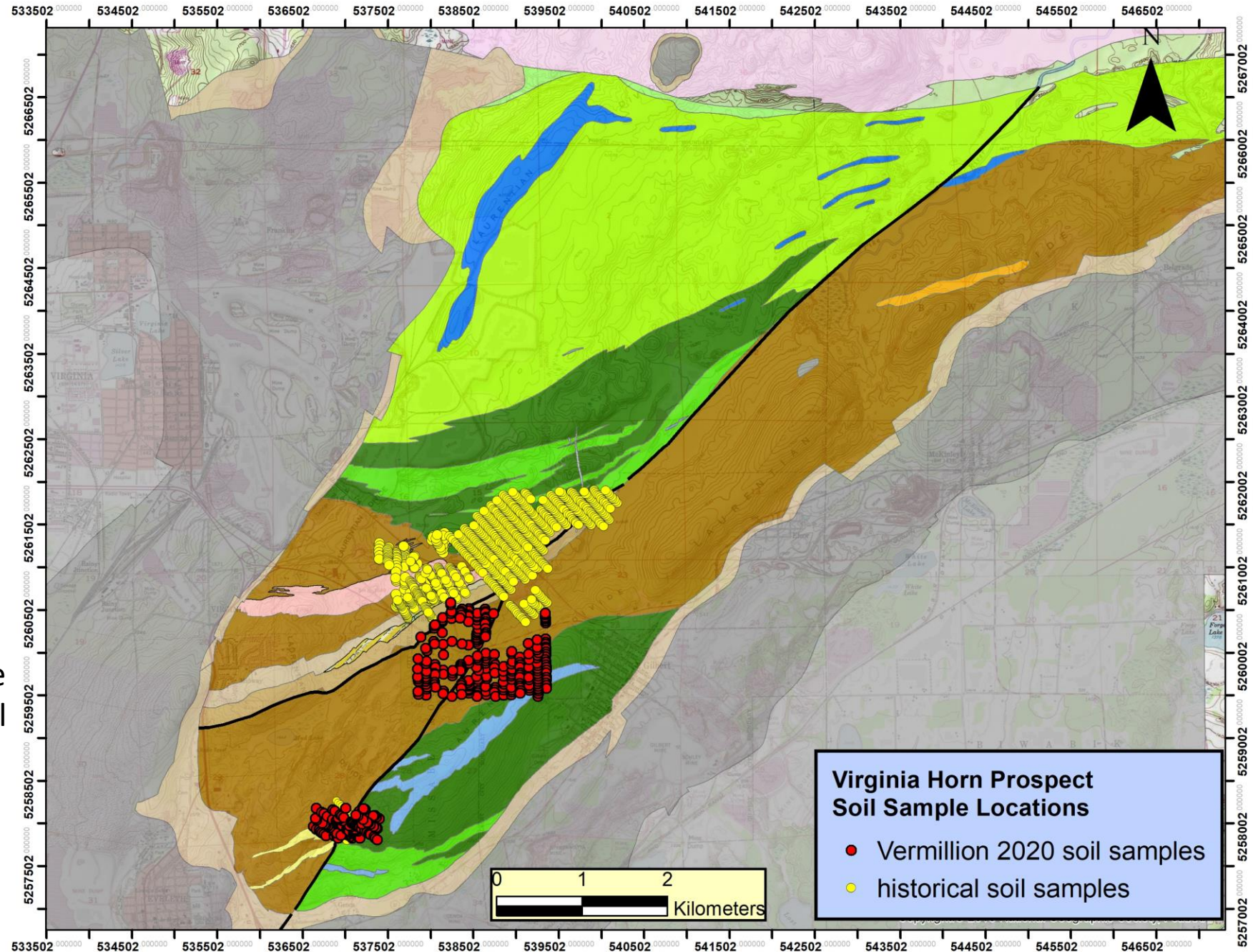




# Virginia Horn Project

## Vermillion 2020 B-horizon soil samples

- During October-November 2020 Vermillion conducted a mapping and rock and soil sampling program.
- A total of 325 B-horizon soil samples and 88 rock samples were collected and sent for geochemical analyses.
- Summer 2021 additional soil sampling, rock sampling and geology mapping.

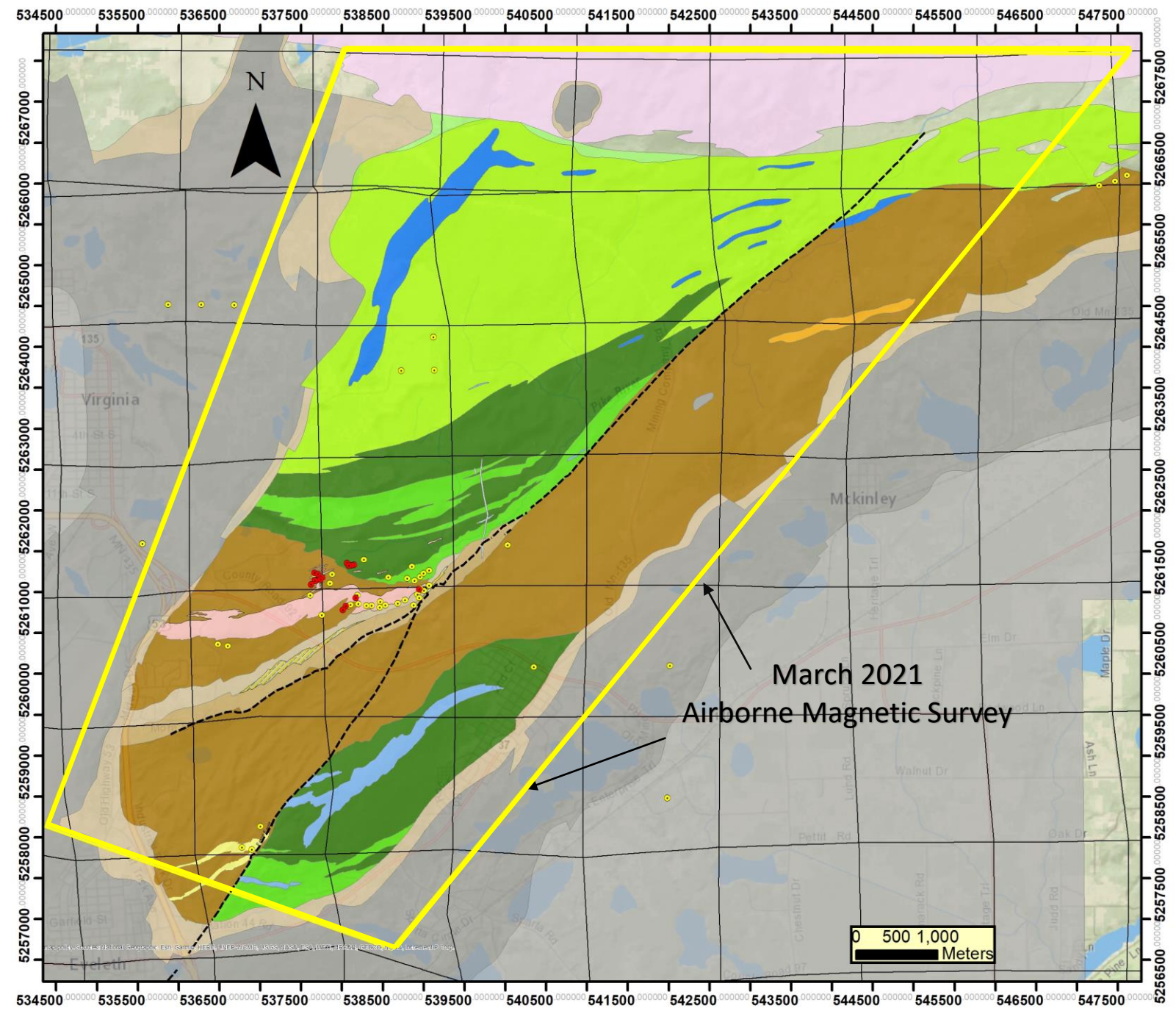






## Virginia Horn Project 2021 Airborne Magnetic Survey

- Historical geophysical surveys were done on the ground and covered only a small part of the Virginia Horn area.
- In early March 2021 Vermillion covered the entire Virginia Horn with an airborne survey done on lines spaced 100 m apart.



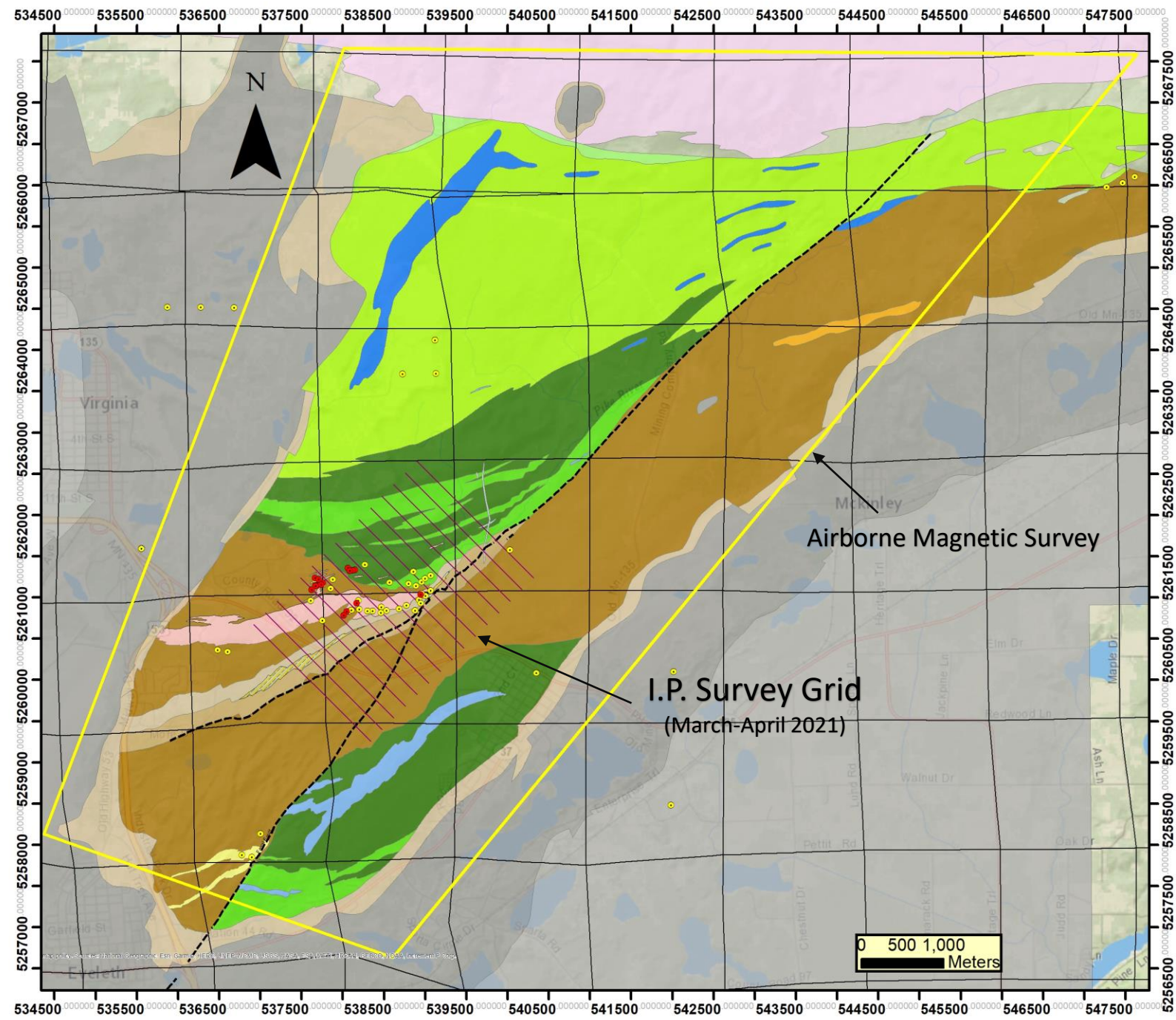




# Virginia Horn Project

## 2021 Induced Polarization Survey

- 30-line km I.P. survey was conducted on lines spaced 200 m apart covering the Pike River and Fayal fault system.



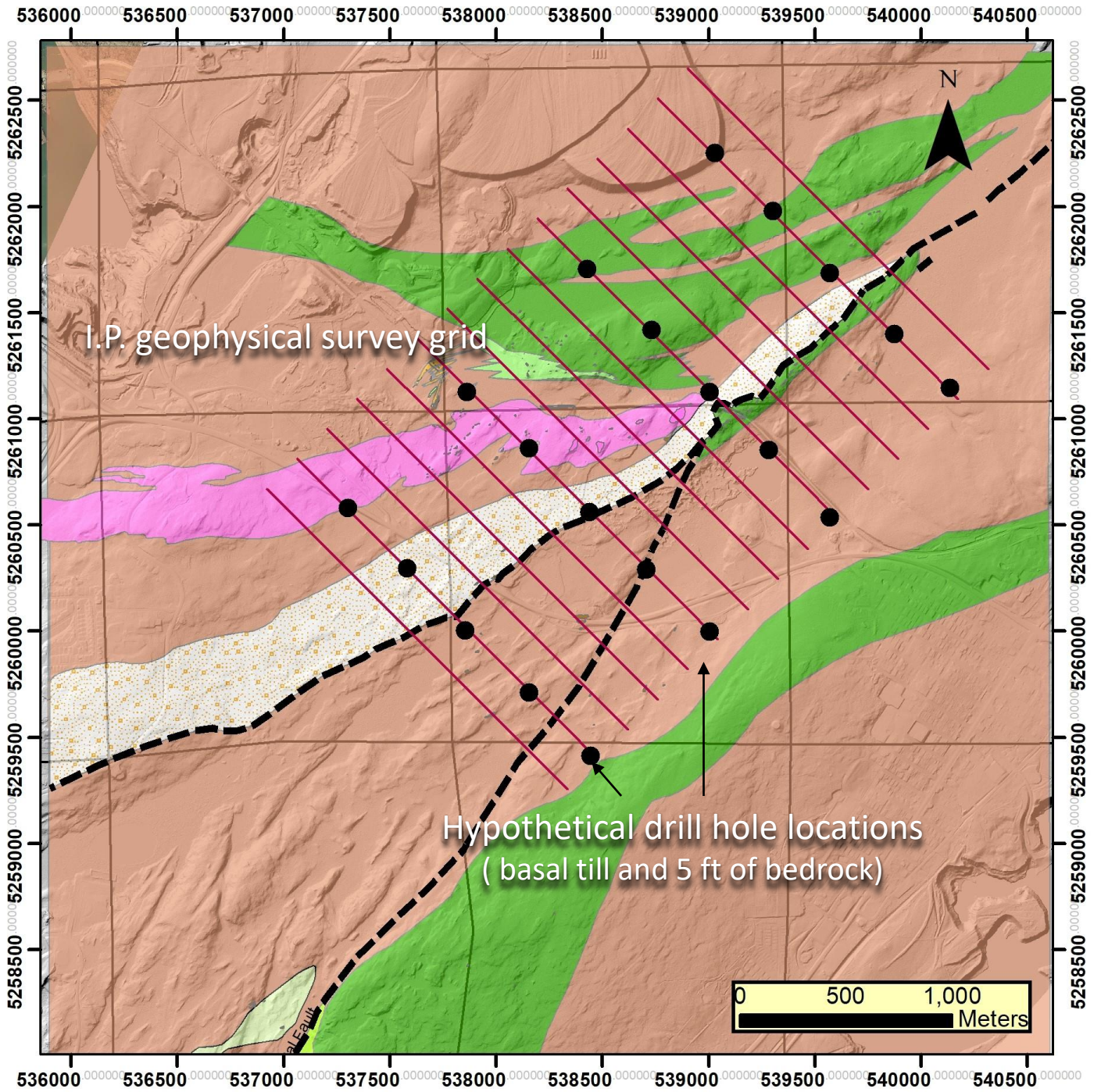




## Virginia Horn Project

### Additional Exploration Plans 2021

- Geologic mapping and rock and soil sampling proximal to the Pike River-Fayal fault system.
- Short drill holes spaced 400 to 800 m apart to sample the basal till gold content and top 5 ft of bedrock.
- Follow-up with tightly spaced short drill holes to further define targets in areas with anomalous till or rock values.
- Finally, diamond drill holes to test specific targets defined by the soil and till sampling programs and geophysical surveys.







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