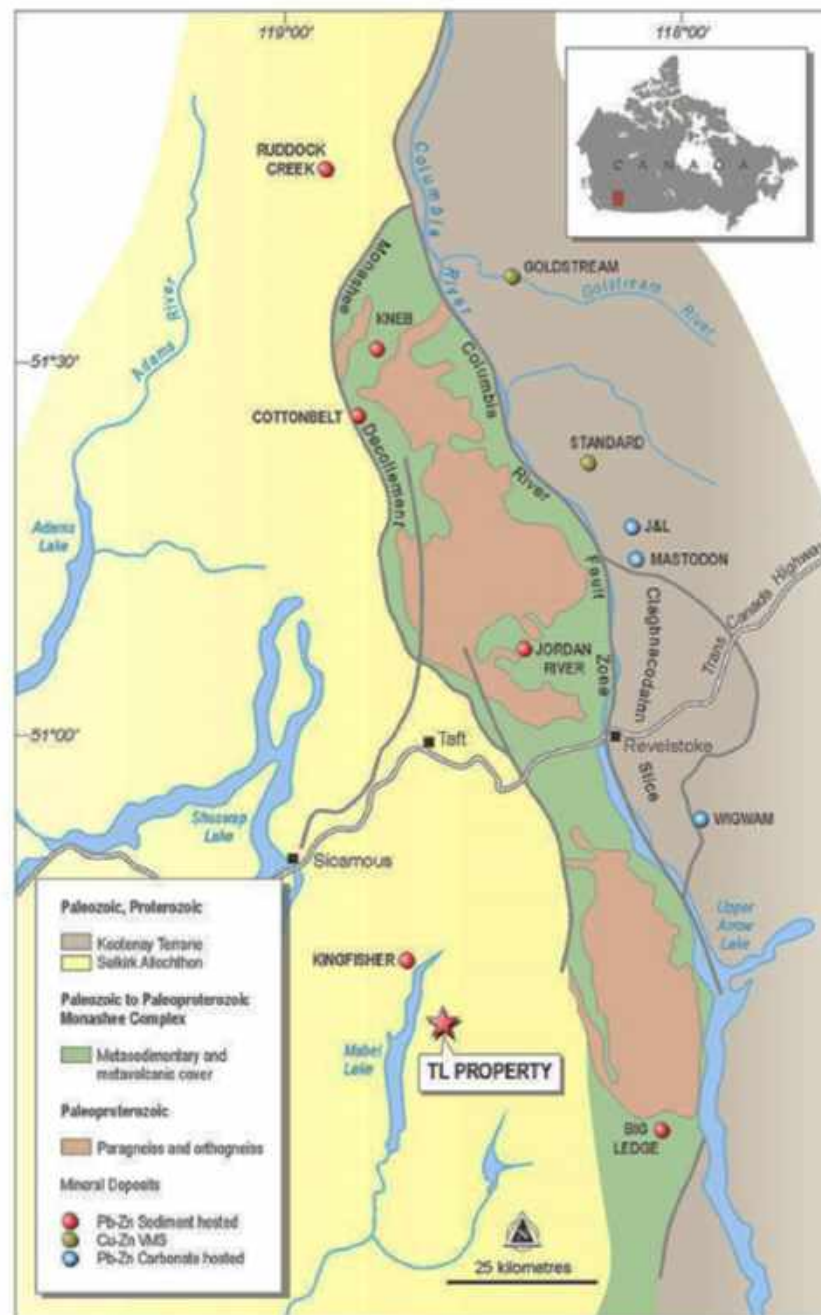


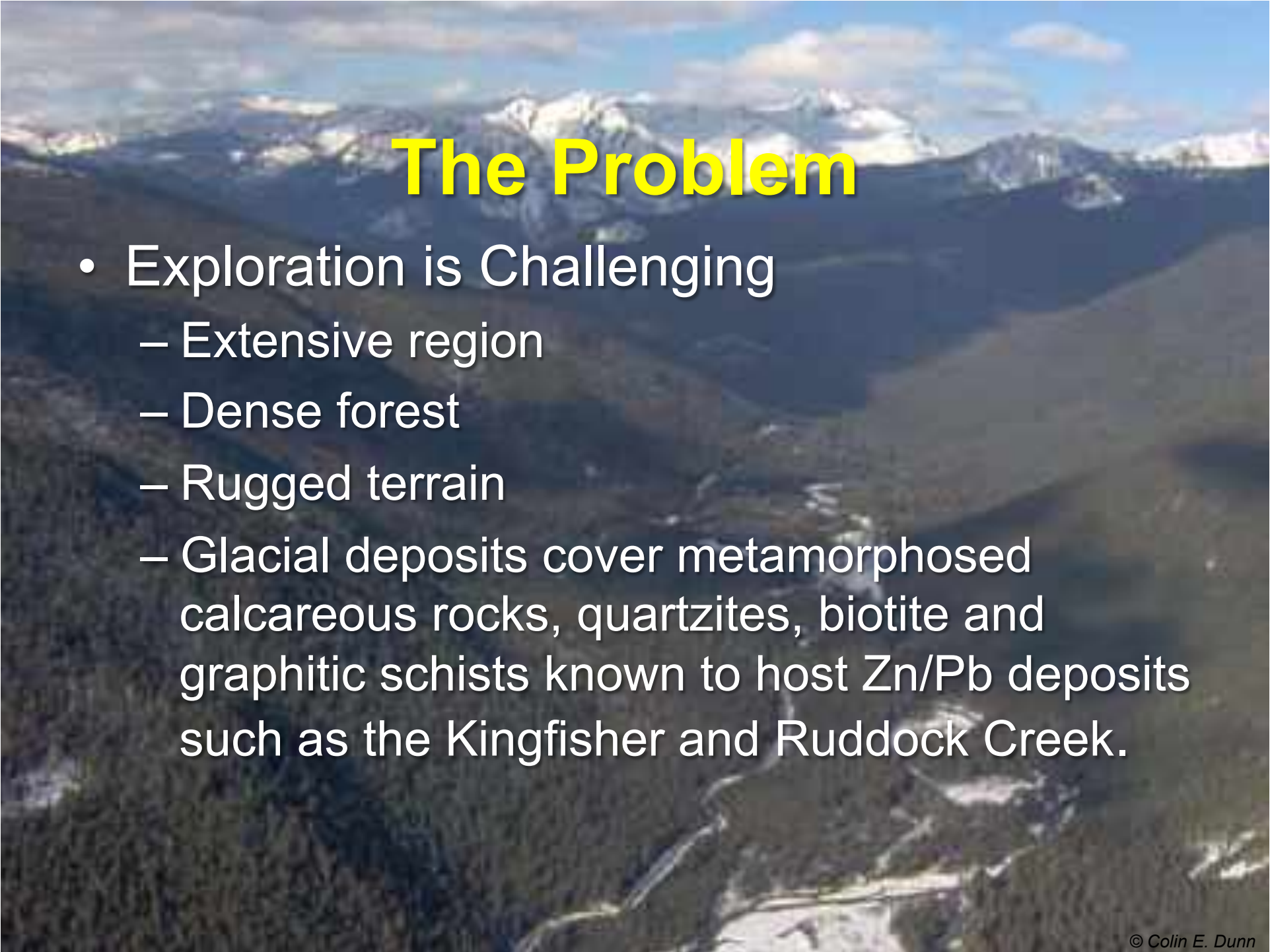
The Canadian-Australian Connection: a significant grass roots Zn discovery

**Colin Dunn,
Renée Hetherington,
Robert I. Thompson
(*TL Property Partnership*)**

From Tree-tops to Massive Sulphides: New 'Greenfields' Zn discovery in the Monashee Mountains of Southern BC

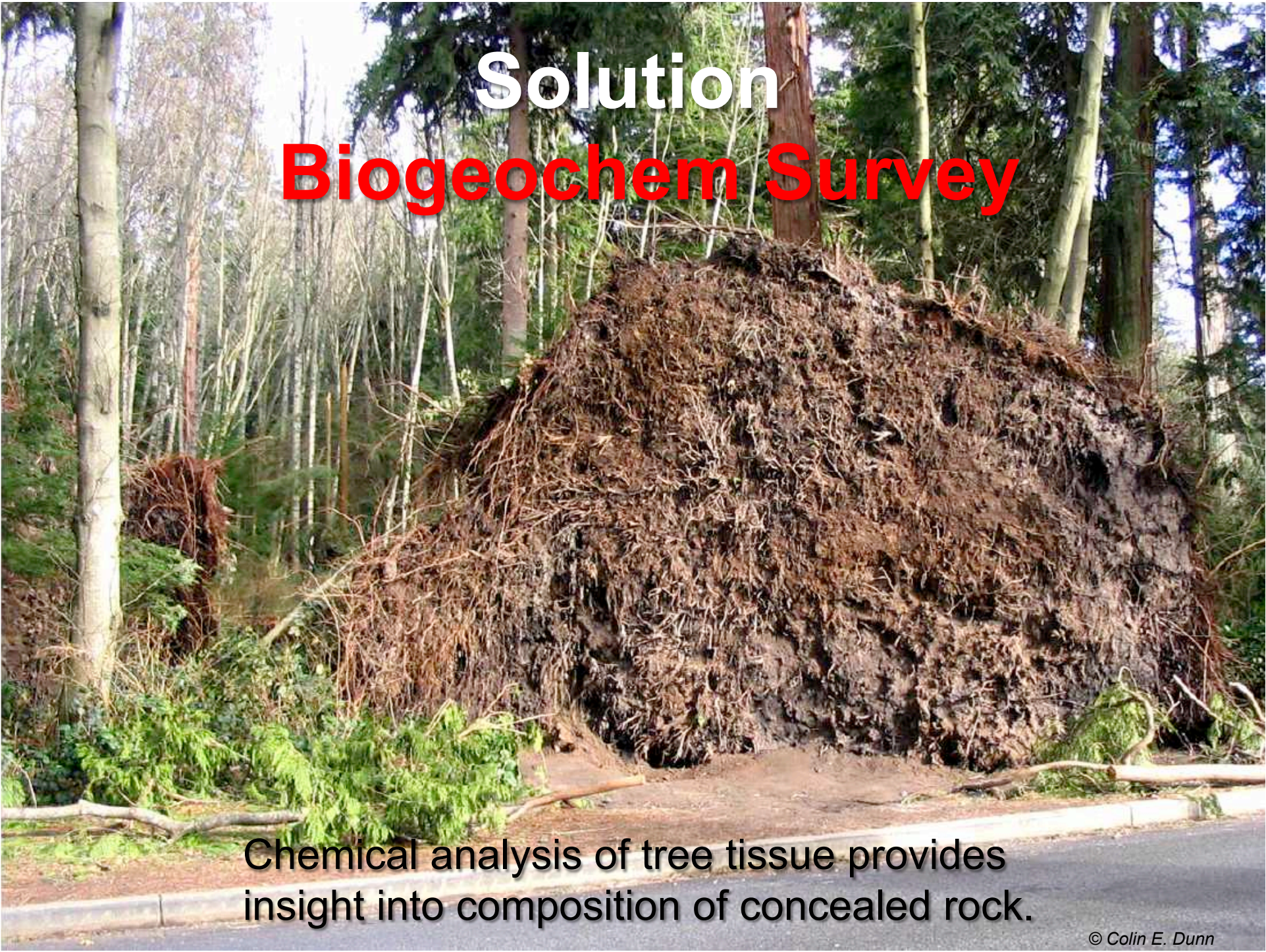






The Problem

- Exploration is Challenging
 - Extensive region
 - Dense forest
 - Rugged terrain
 - Glacial deposits cover metamorphosed calcareous rocks, quartzites, biotite and graphitic schists known to host Zn/Pb deposits such as the Kingfisher and Ruddock Creek.

A photograph of a forest floor where a large, exposed mass of tree roots and branches has been revealed, likely due to erosion or a landslide. The roots are dark brown and tangled, contrasting with the green foliage and bare trees in the background. The scene is set in a wooded area with a mix of evergreen and deciduous trees.

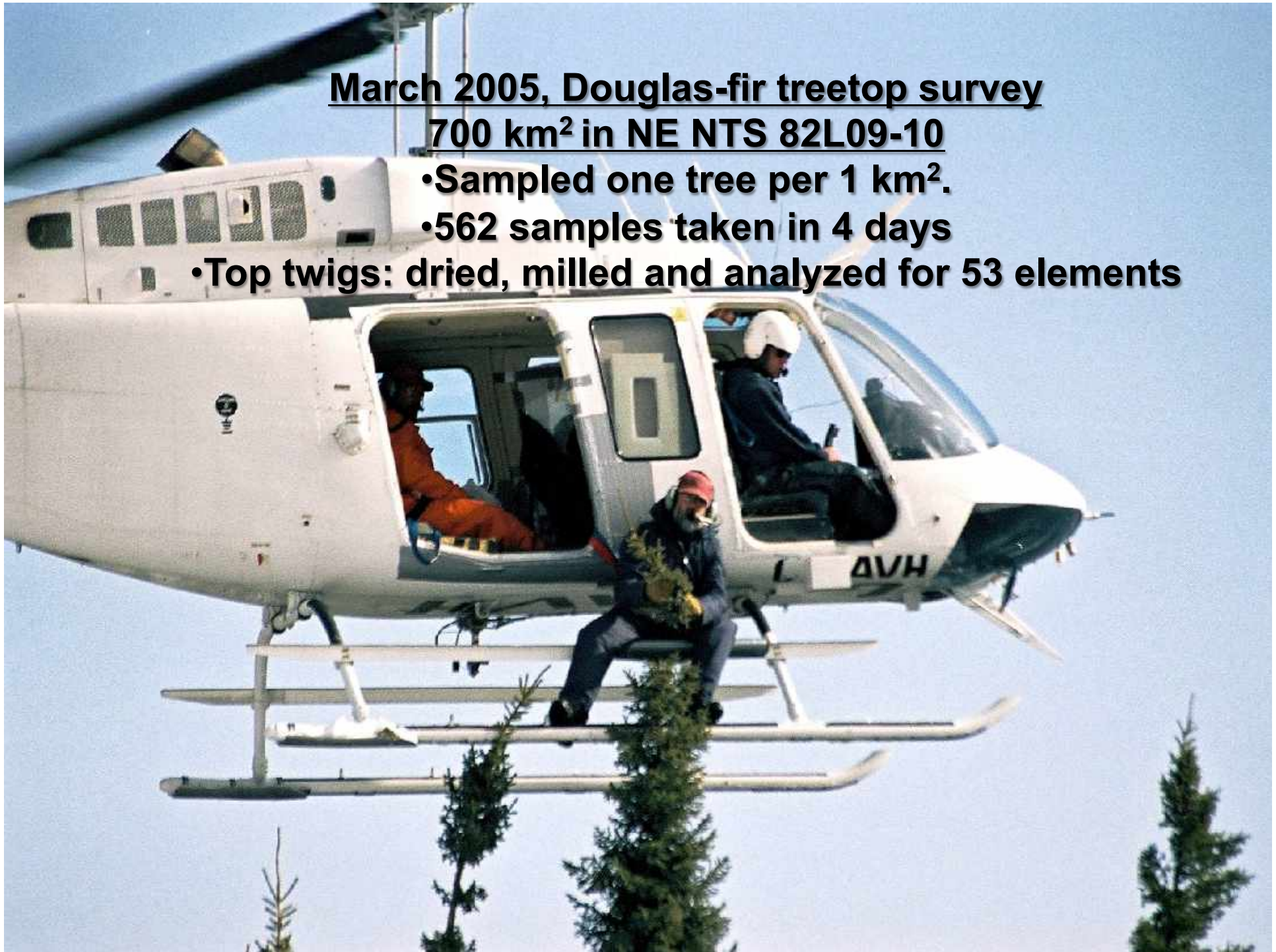
Solution Biogeochem Survey

Chemical analysis of tree tissue provides
insight into composition of concealed rock.

March 2005, Douglas-fir treetop survey

700 km² in NE NTS 82L09-10

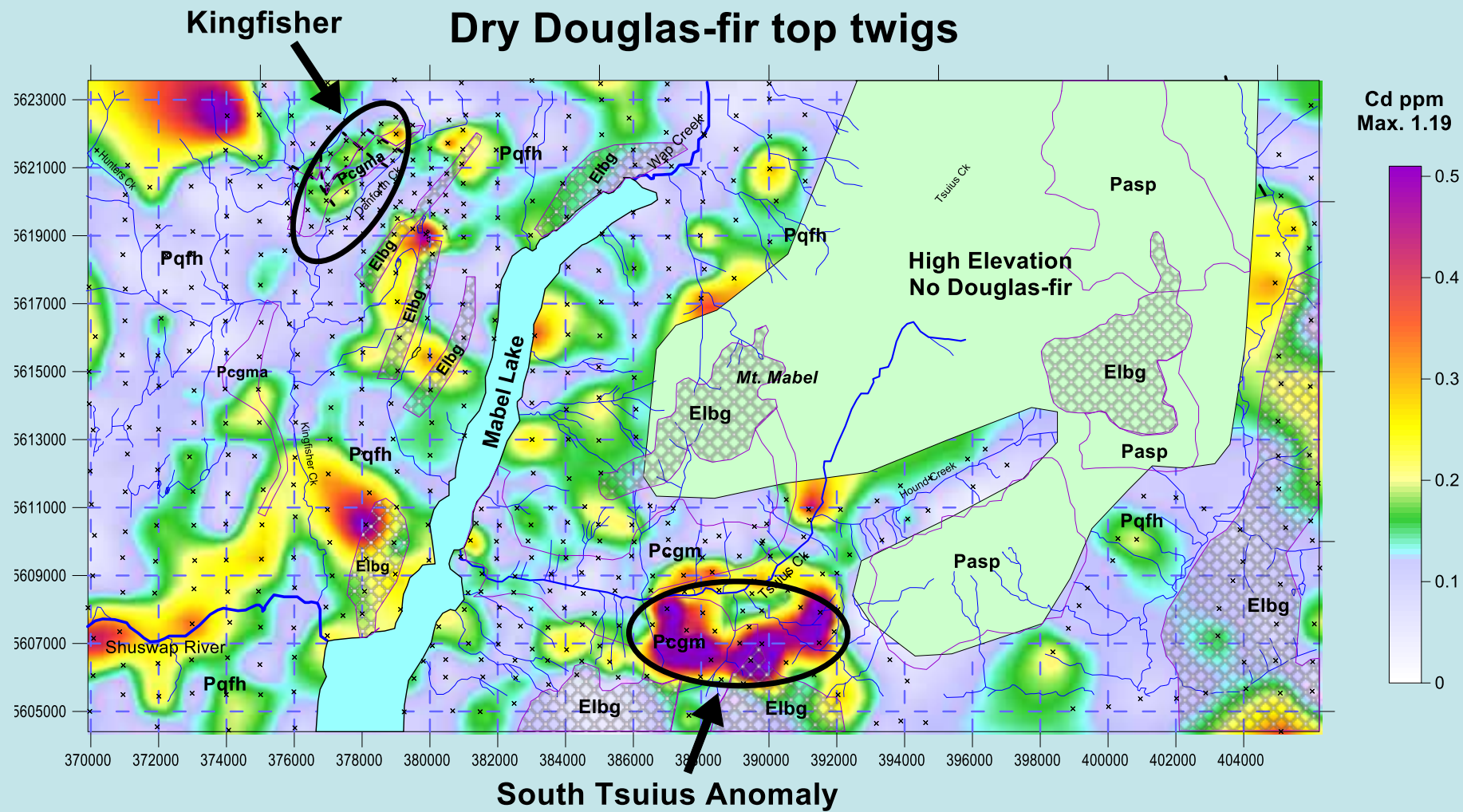
- **Sampled one tree per 1 km².**
- **562 samples taken in 4 days**
- **Top twigs: dried, milled and analyzed for 53 elements**



Objectives

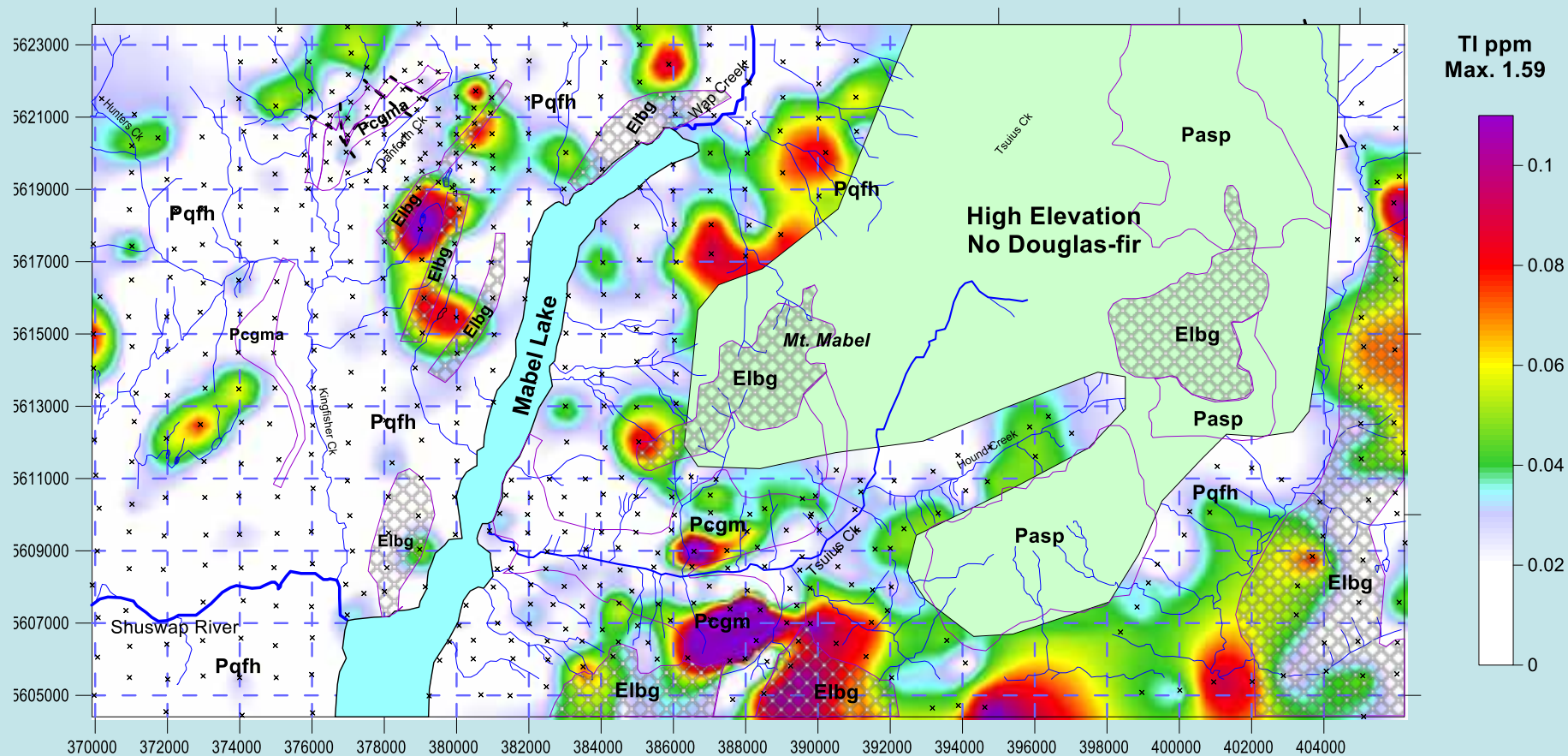
- To find 'pathfinder' elements characteristic of Sedex Zn/Pb mineralization that could provide focus for more detailed exploration efforts.
- Find potential VMS deposits (Irish-type; Broken Hill).

CADMIUM Dry Douglas-fir top twigs



THALLIUM

Dry Douglas-fir top twigs





GEOLOGICAL SURVEY OF CANADA

Open File 5538

**Biogeochemical Exploration using Douglas-fir
Tree Tops in the Mabel Lake Area, Southern
British Columbia (NTS 82L09 and 10)**



*Tsutuz River Looking east from near
Mabel Lake*

C.E. Dunn and R.I. Thompson
2007



Natural Resources
Canada

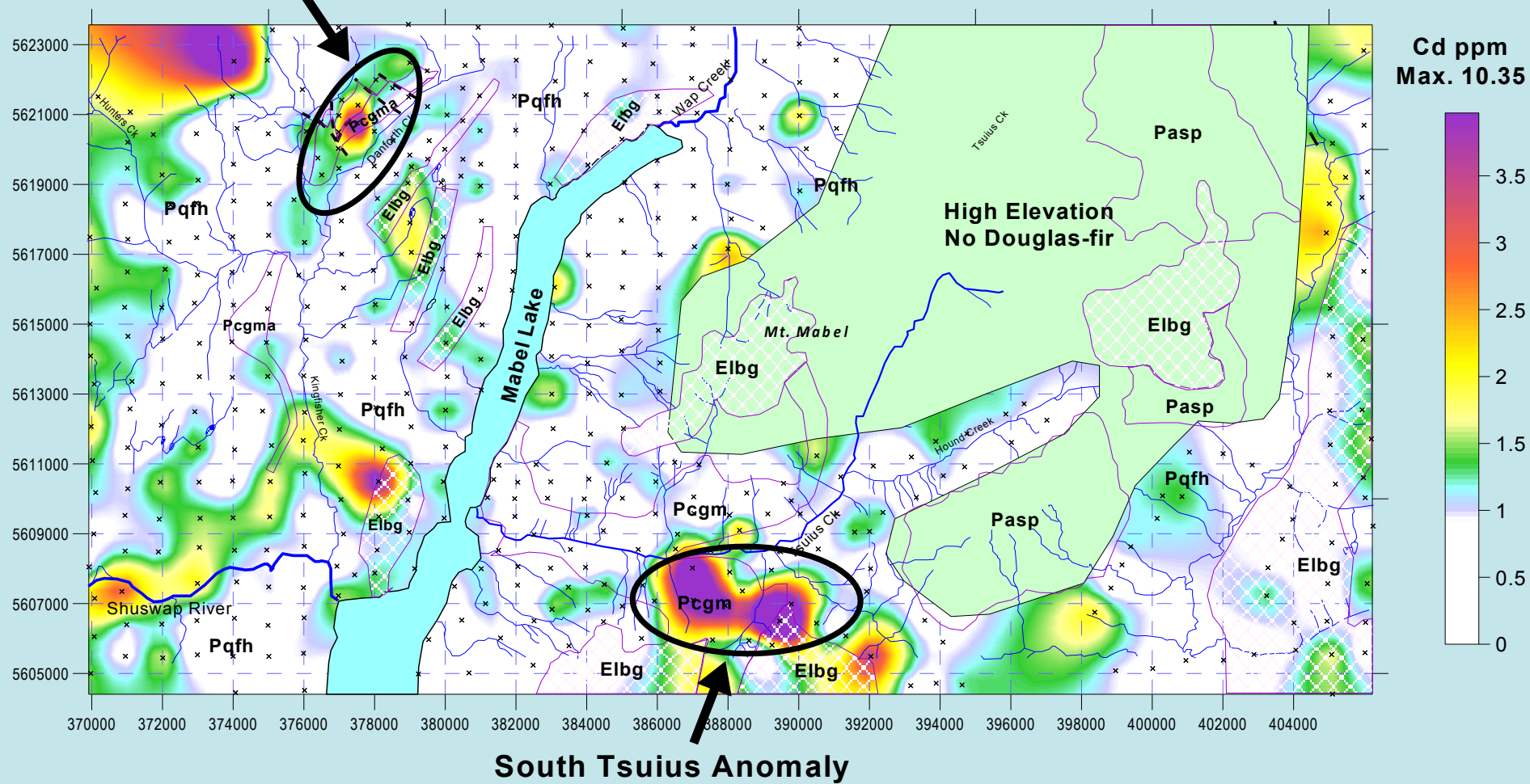
Ressources naturelles
Canada

Canada

CADMIUM

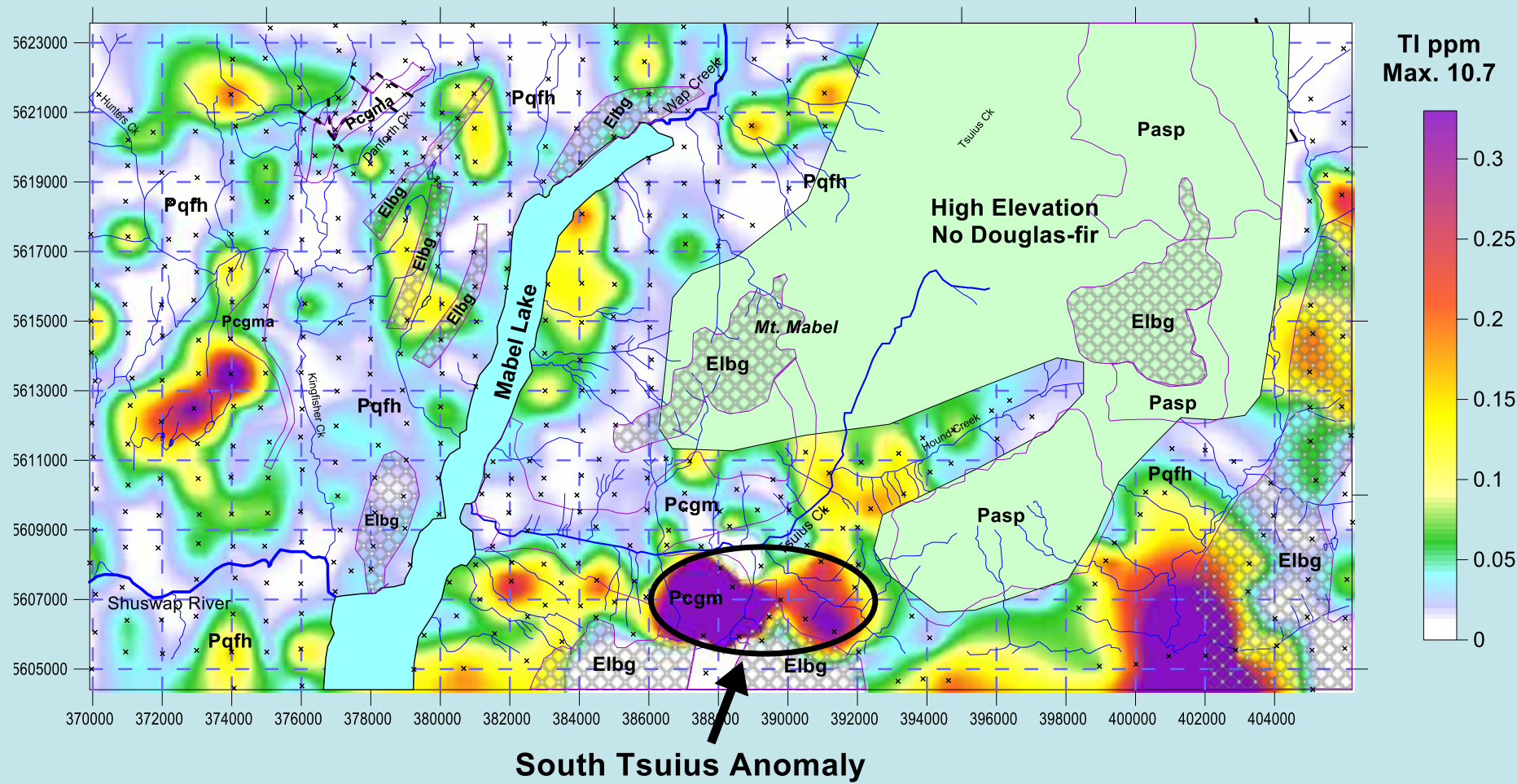
Douglas-fir top needles (ash)

Kingfisher



THALLIUM

Douglas-fir top needles (ash)



Colin E. Dunn



MABEL LAKE Tsuius Creek

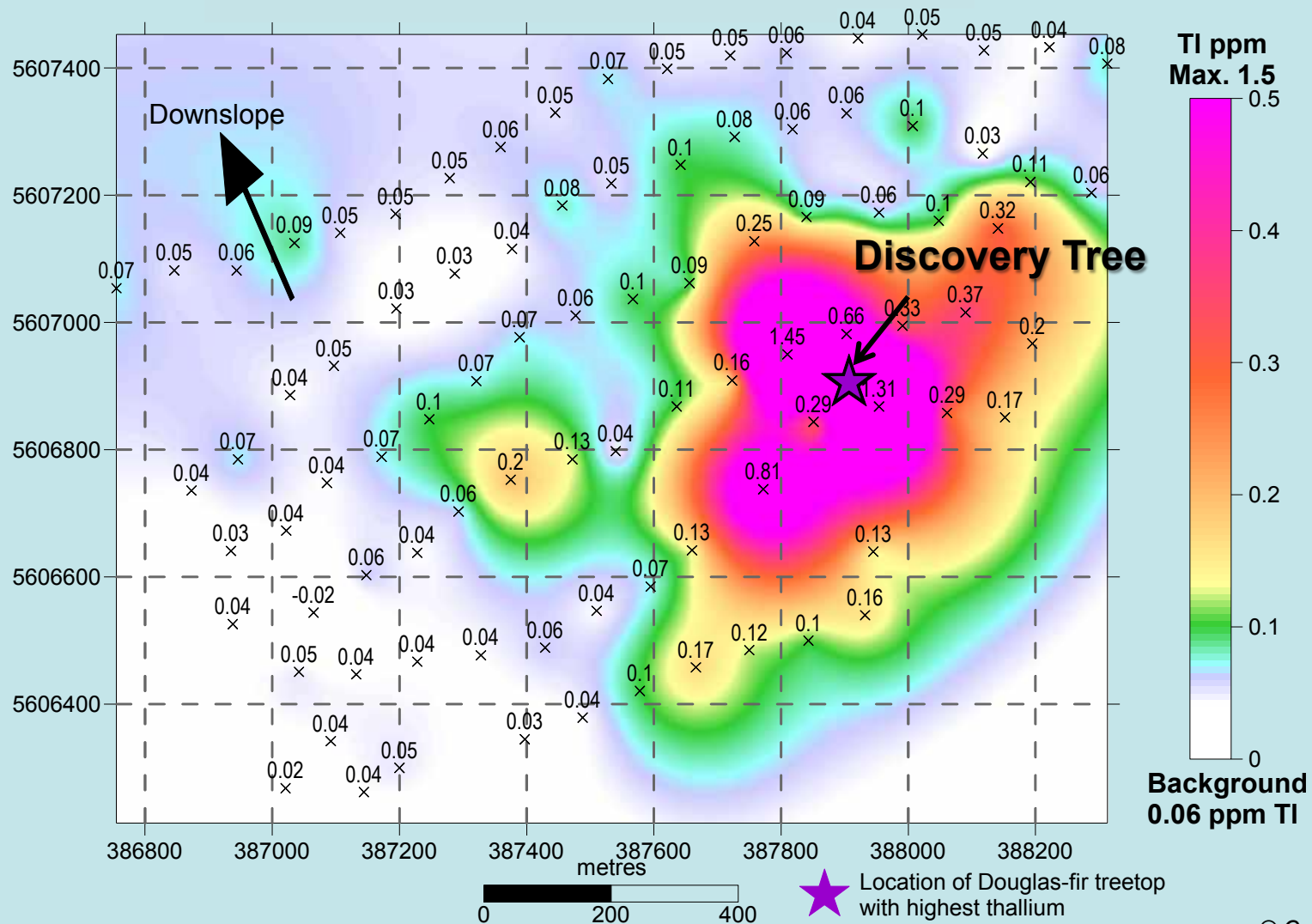
**Detailed follow-up
sampling
*Western Hemlock
Bark***



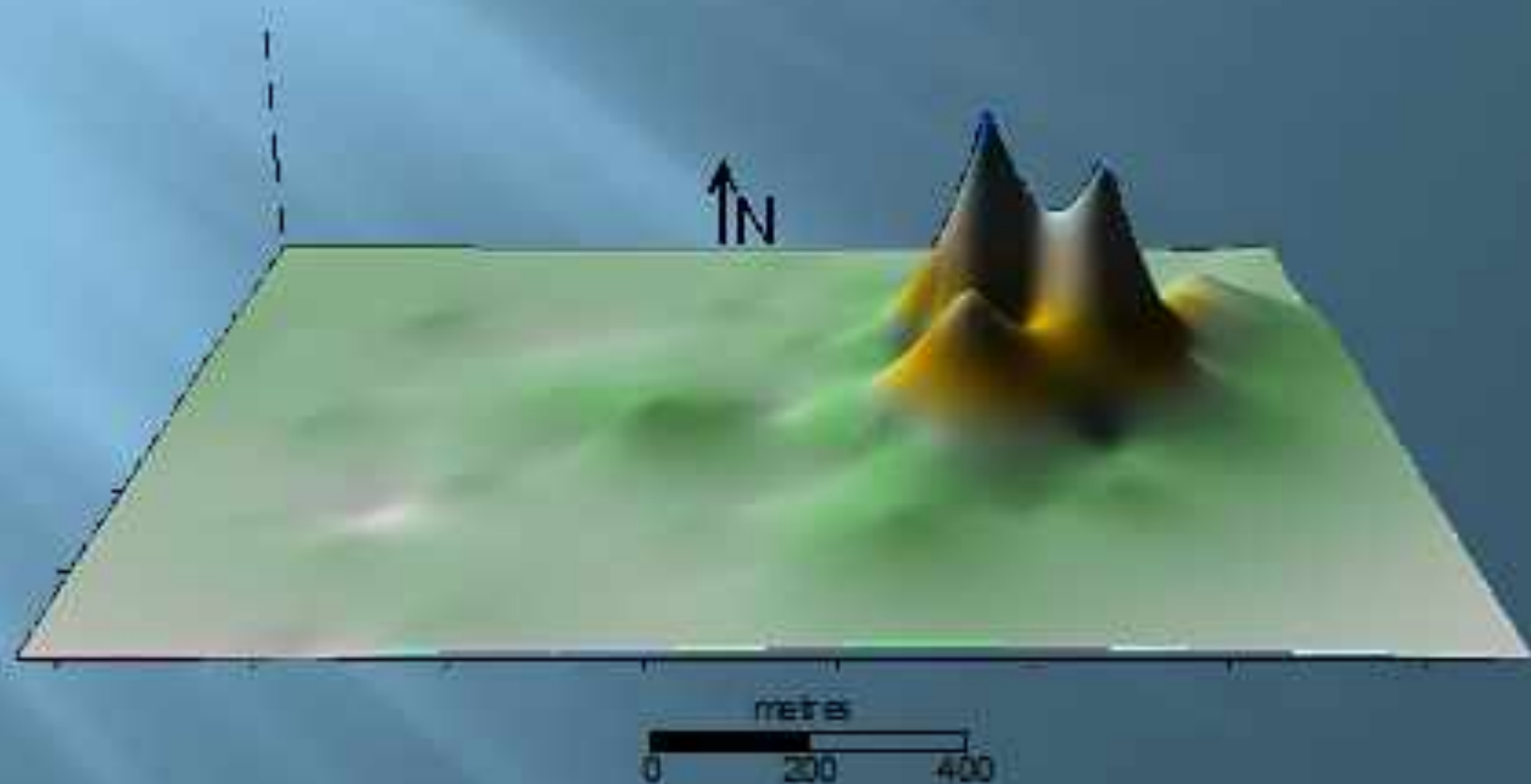
THALLIUM

Dry Western Hemlock Bark

Maximum 95th Percentile



THALLIUM - Surface Relief Dry W. Hemlock Bark



GEOLOGICAL SURVEY OF CANADA

Open File 6147

Investigations of Base Metals and Gold Biogeochemical Anomalies in the Mabel Lake Area, southern British Columbia

Colin Dunn and R. I. Thompson

TL Property Partnership begins work in 2010







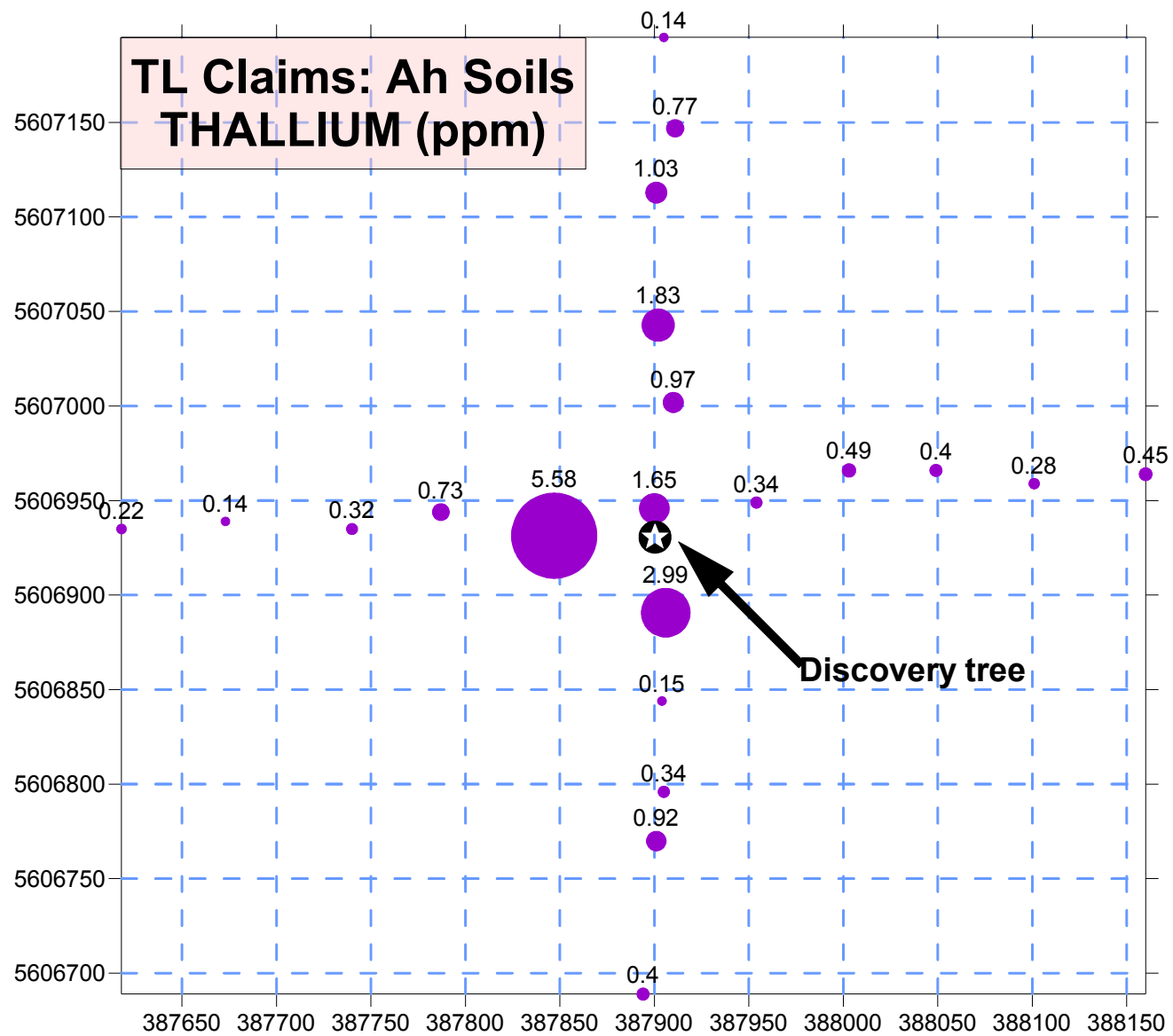
Heavy Minerals

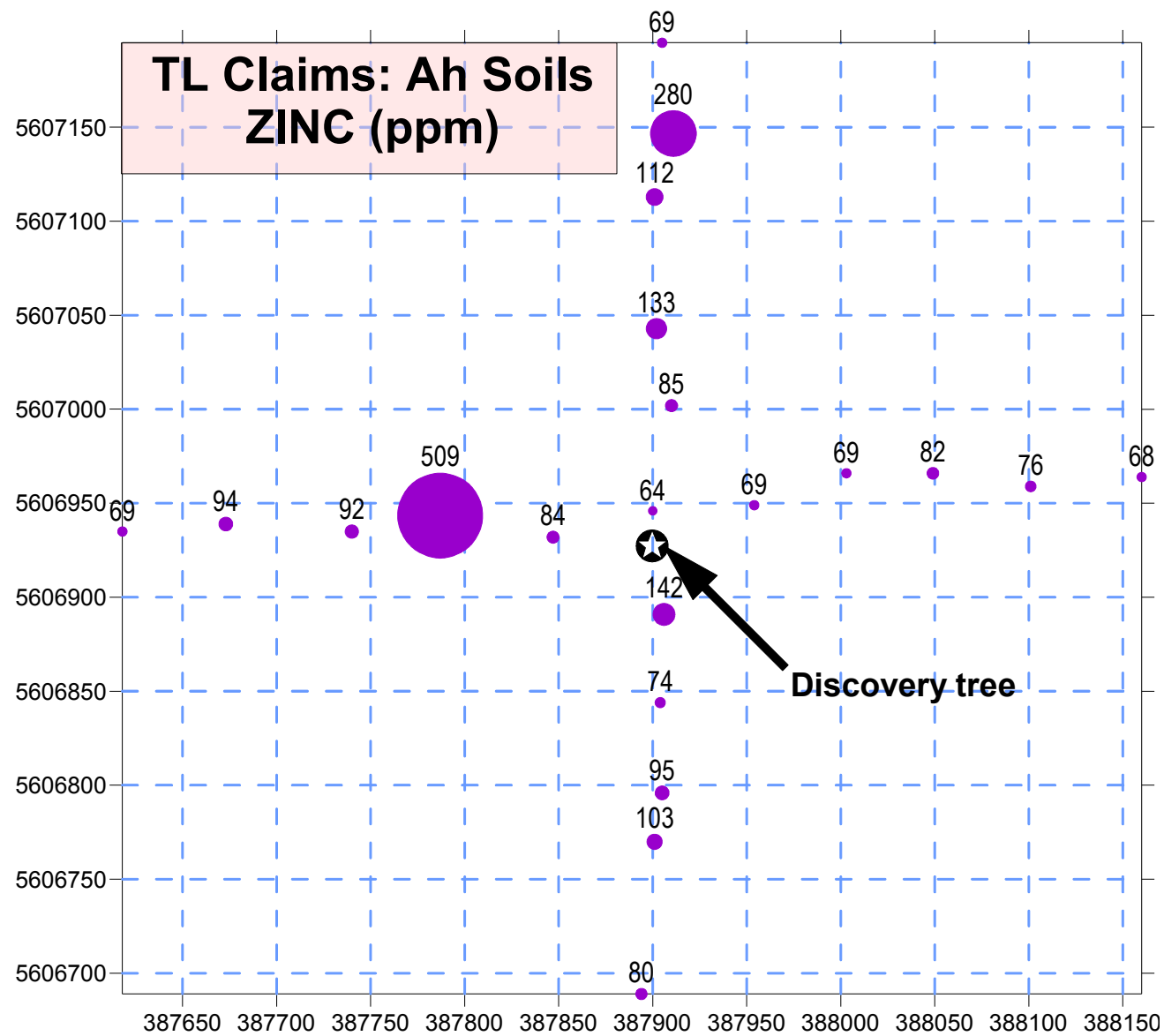
- Sediments from 5 streams
- Gold (1 grain)
- Gahnite (Zn spinel)
- Hercynite (Fe spinel [can have 10% Zn])
- Goldmanite - $\text{Ca}_3(\text{V,Cr,Al})_2(\text{SiO}_4)_3$. Very rare garnet (Franklin – Sterling Hill)
- Diopside, apatite, pyrrhotite, pyrite, marcasite

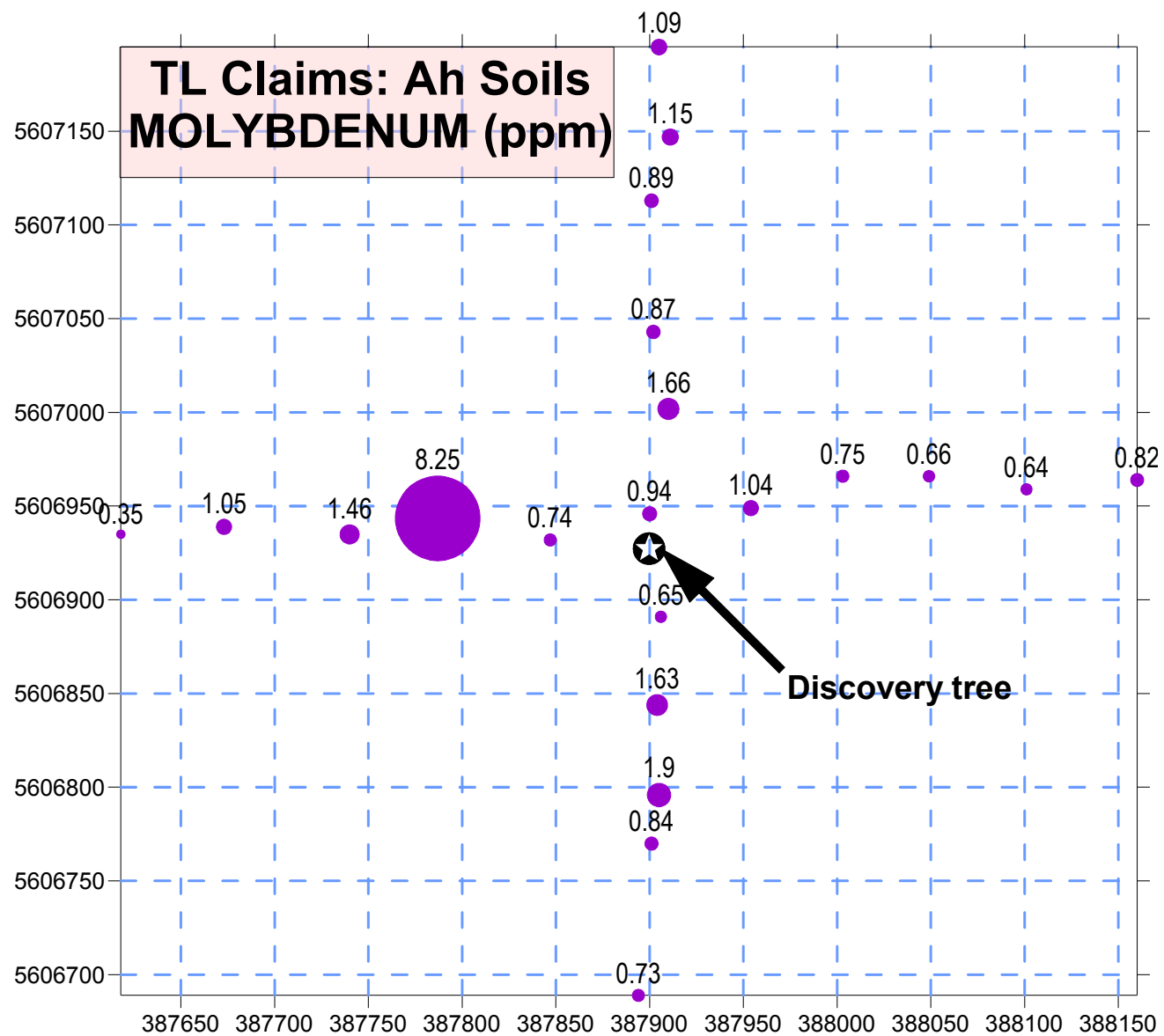
Detailed Follow-up – Ah soils











CULLEN RESOURCES LTD. PERTH

Matt Cornelius
Chris Ringrose











ABN 46 006 045 790

8th March 2011

ASX ANNOUNCEMENT

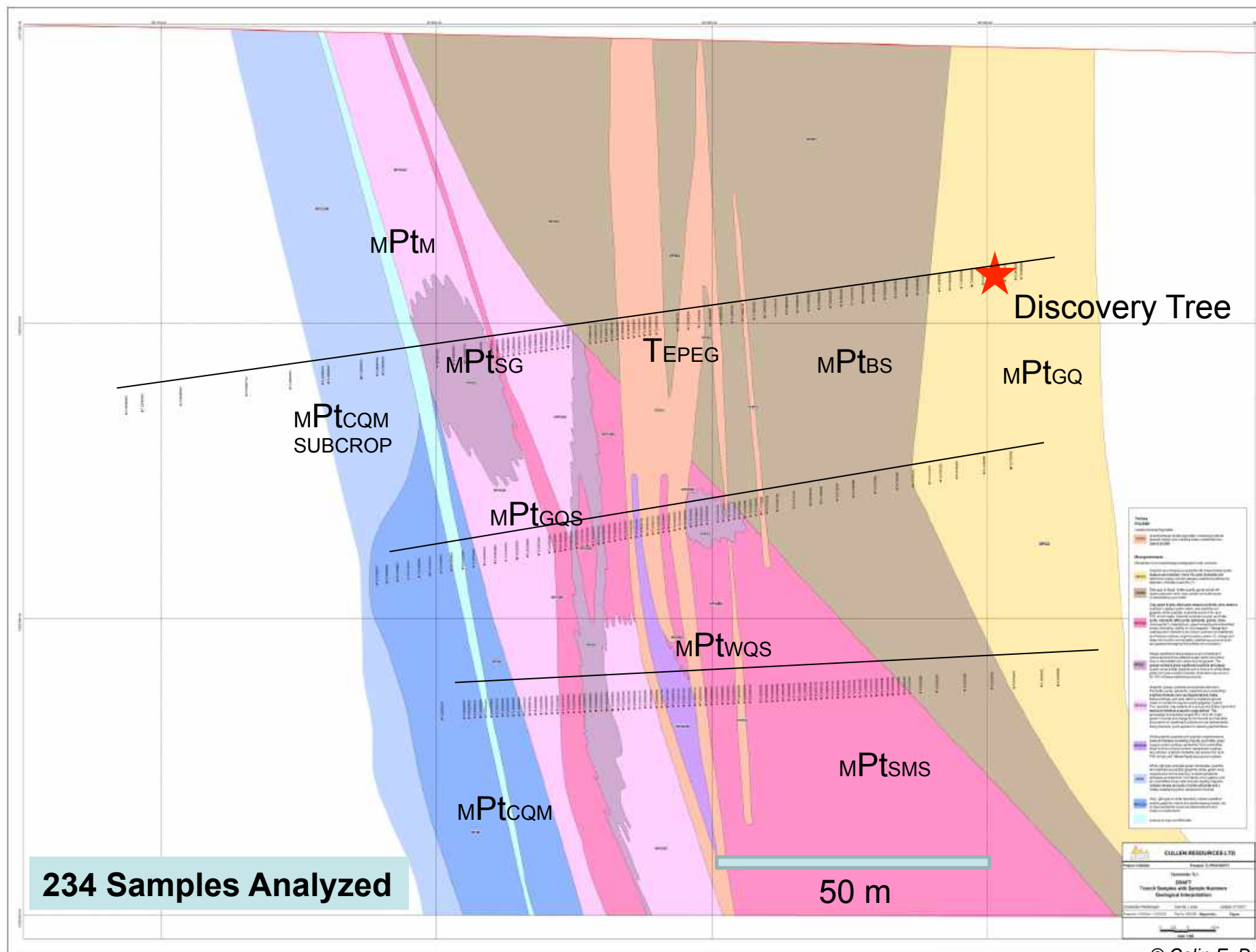
Farm-in to Base Metal property in British Columbia, Canada



© Colin E. Dunn







Mt_{GO} - Graphitic and micaceous quartzite

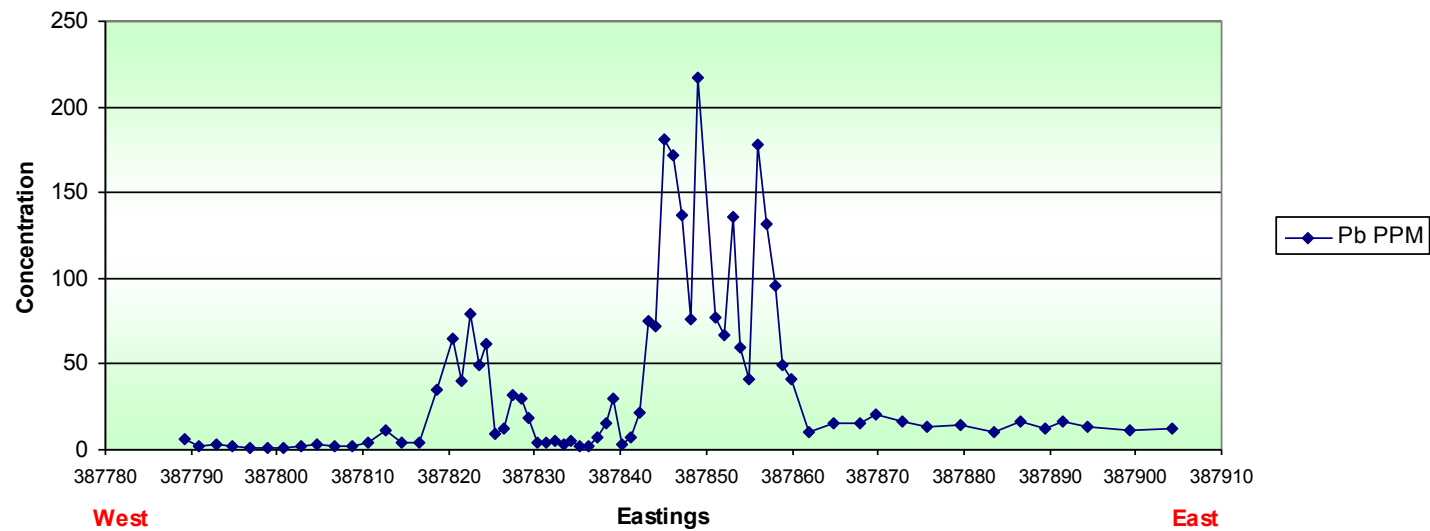




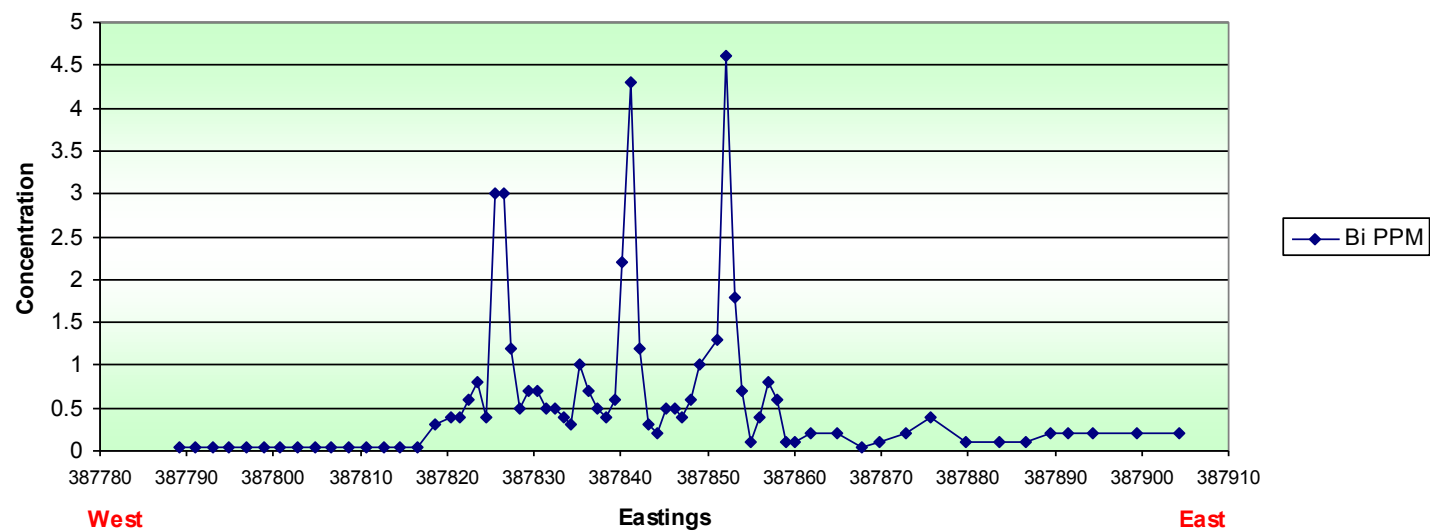
Pt_{CQM} - Calcsilicate quartzite marble
with sphalerite



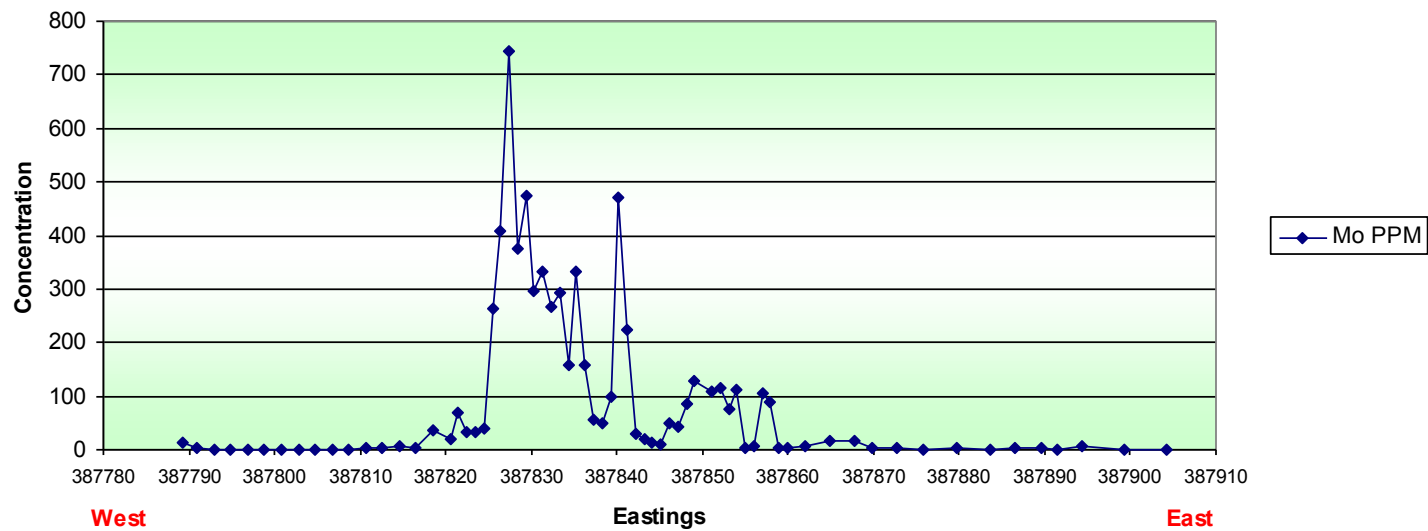
Trench 01S



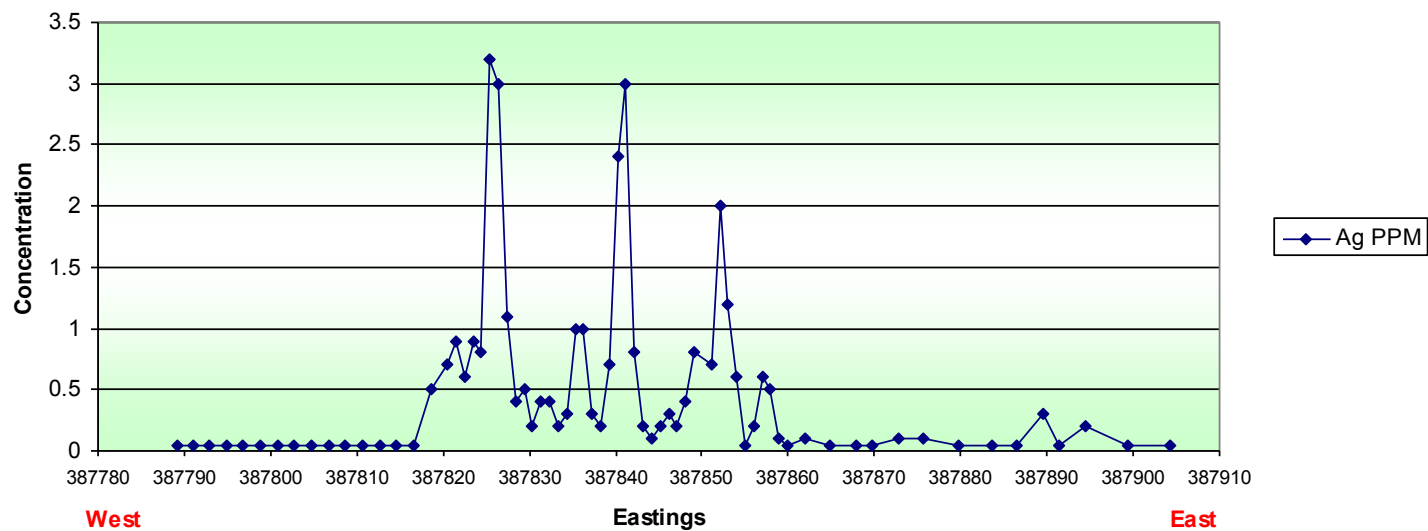
Trench 01S



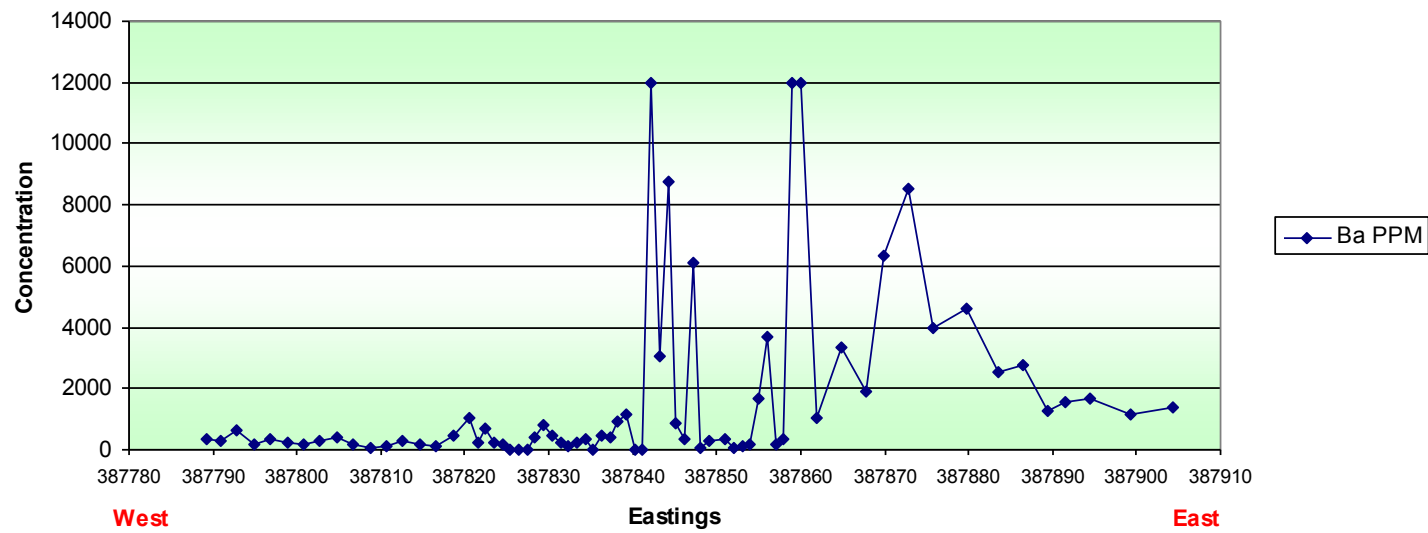
Trench 01S



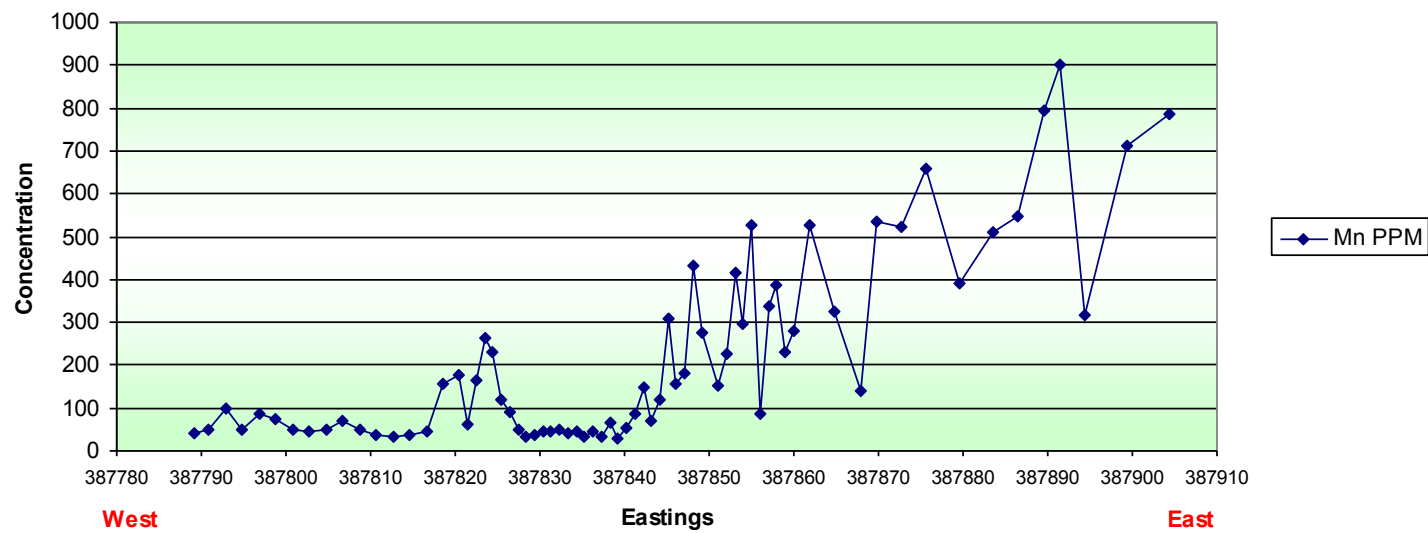
Trench 01S



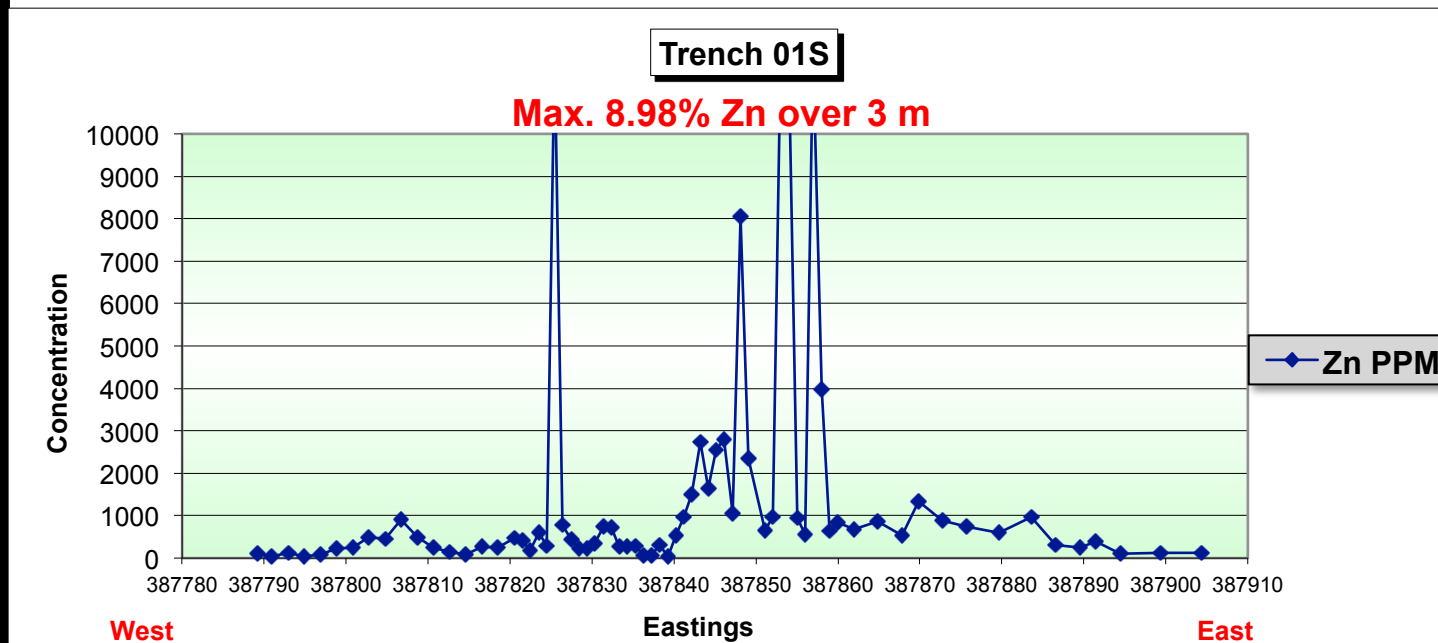
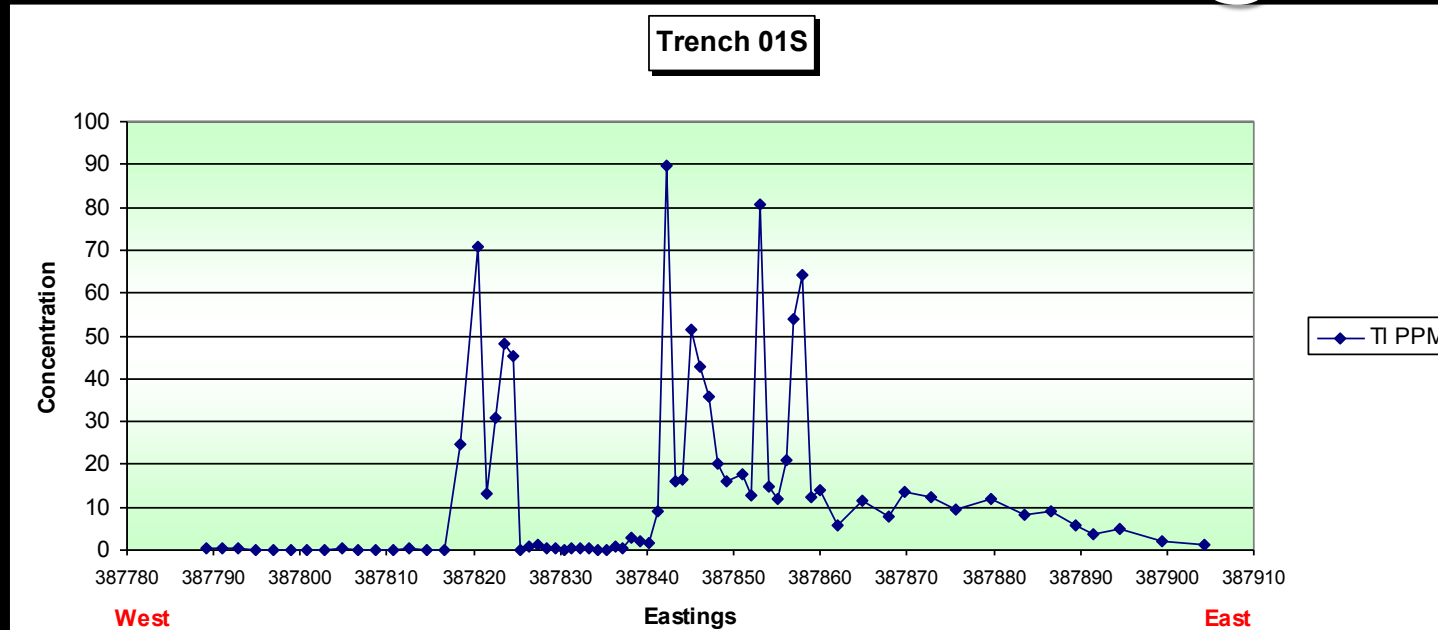
Trench 01S



Trench 01S



Zn - best continuous section = 3m @ 8.98%





Summary

- Sulphide-rich zone
10-35 m wide x >50 m
long
- Open to the southeast
and northwest

Summary cont'd

- **Zinc** - best continuous section = 3m @ 8.98%
- **Rhenium** (580ppb)
- **Molybdenum** (max 1339 ppm)
- Anomalous Cu, Pb, Ag, Bi, Ni, Sn and W

Helitem® Survey (Fugro)



SOUTHERN GEOSCIENCE REPORT

CULLEN RESOURCES LIMITED

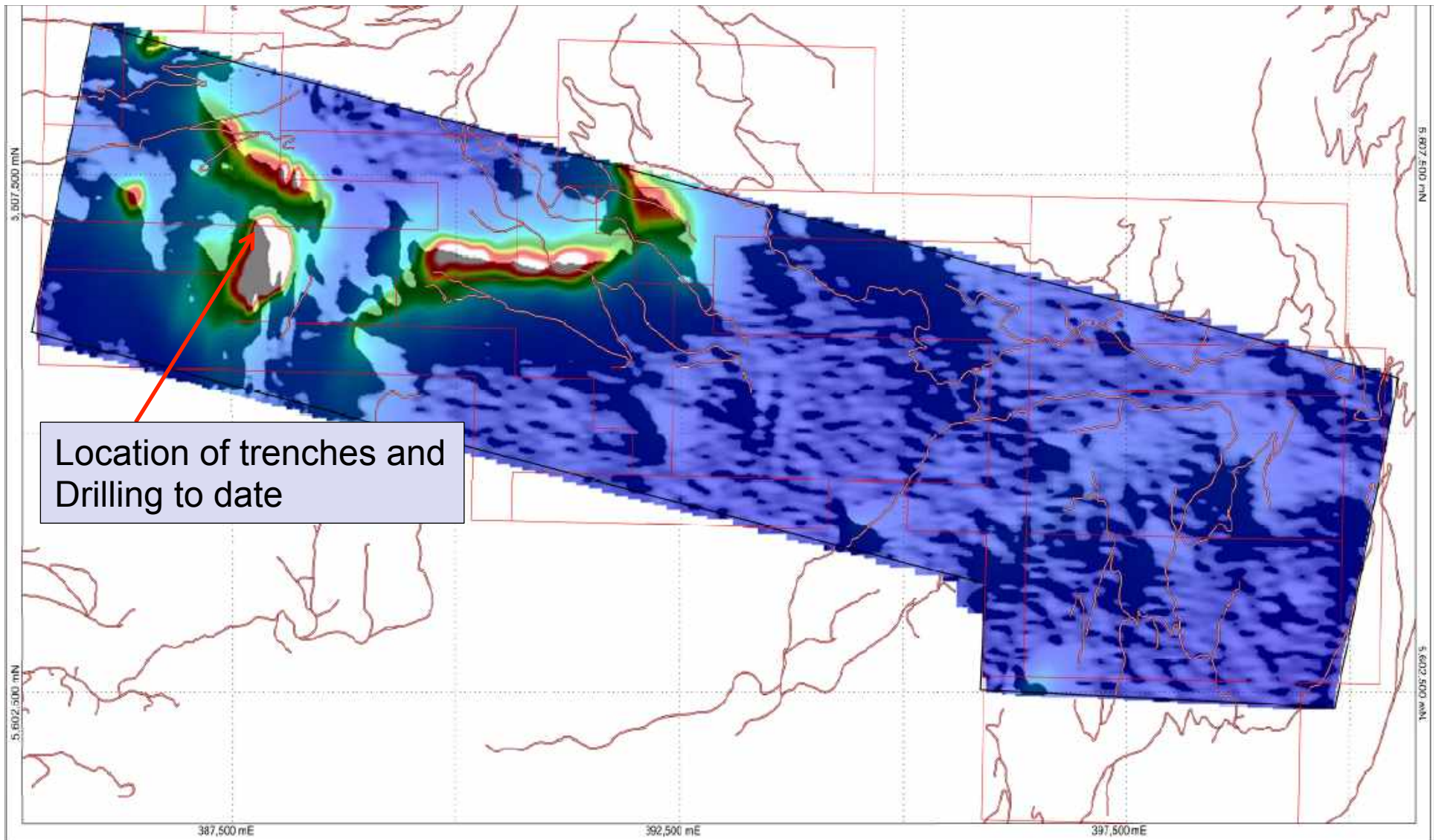
TL-MABEL LAKE PROJECT, BC, CANADA.

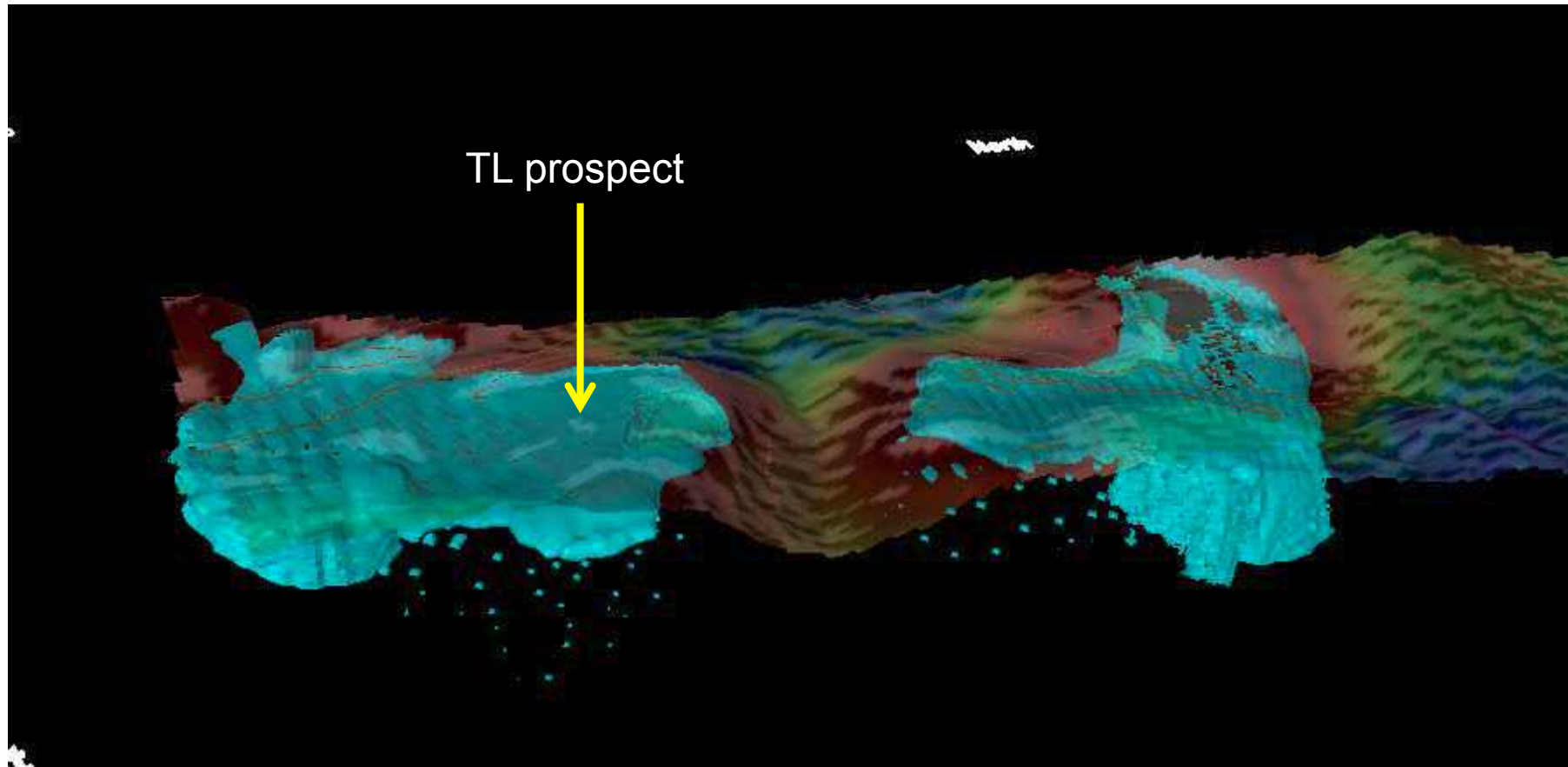
**HELITEM HELICOPTER
ELECTROMAGNETIC SURVEY.
SURVEY & INTERPRETATION**

W.S.PETERS

Southern Geoscience, Perth

AUGUST 2012



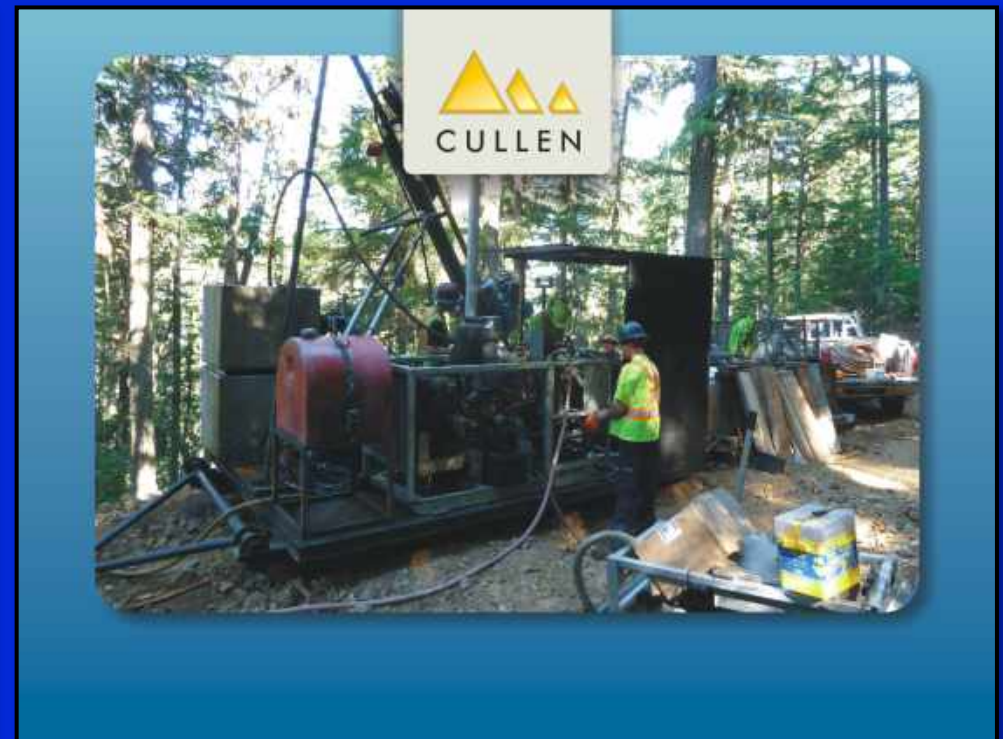
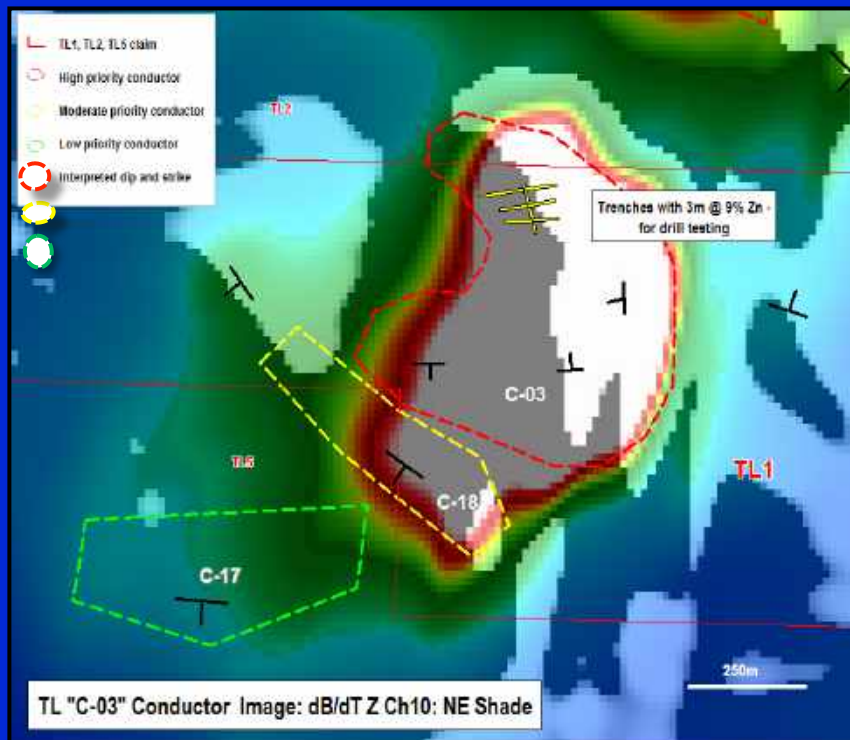


Conductivity depth 3D model showing the distribution and geometry of the larger sub-horizontal conductors (Background: TMI).

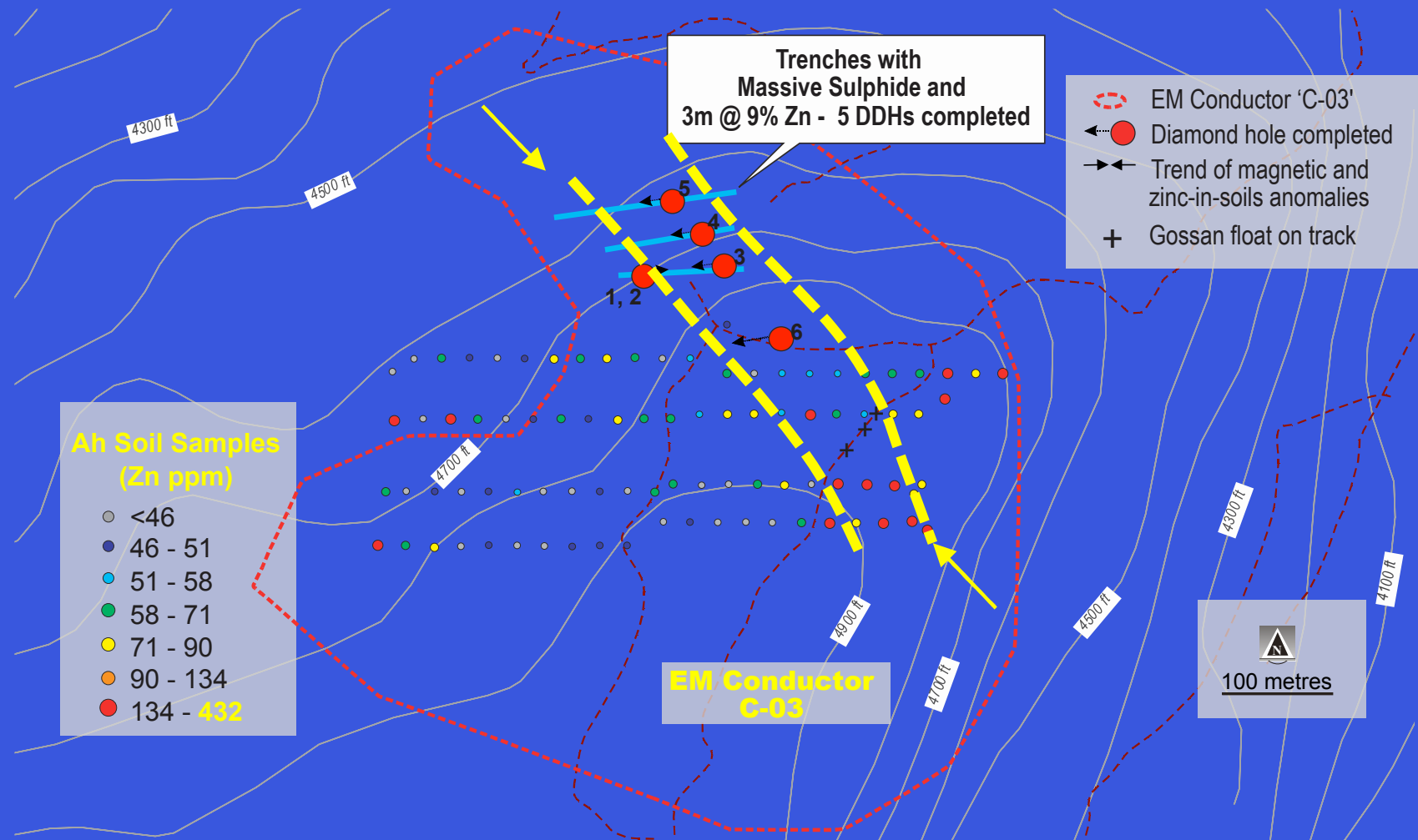
Both conductors appear to be part of the same stratigraphic horizon (that is incised and cut out by a prominent, deep, north trending valley).

2012

- Geophysics interpretation
- Drill



Drill Sites and Trenches





6 ddh (465 m total)

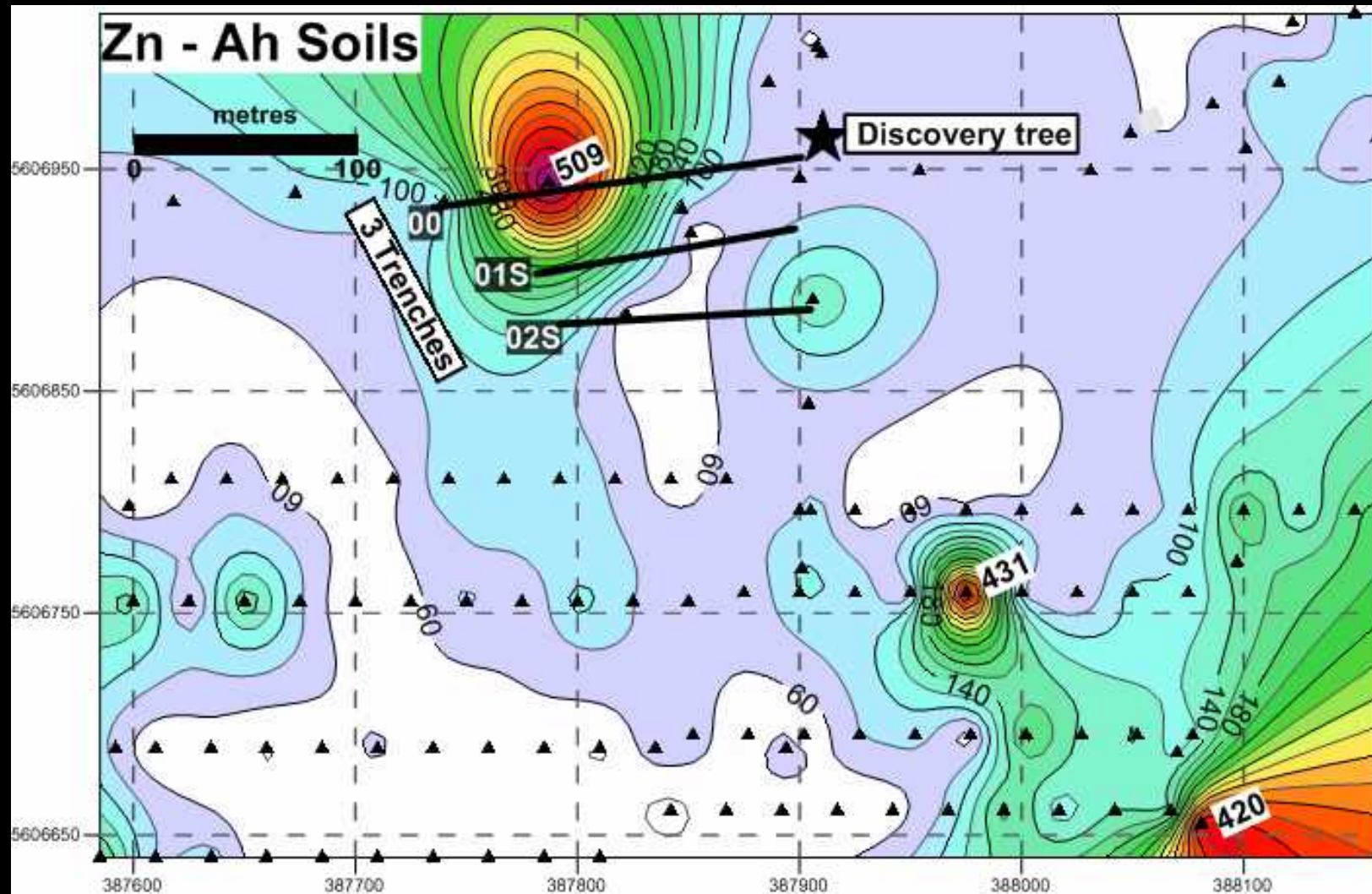
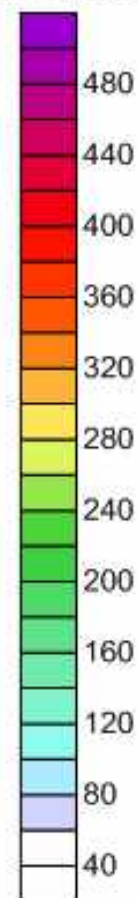
Hole ID	Dip	Depth	From	To	True width (m)	Zn (%)
DDH-01	-60	28	18	20	2	0.97
DDH-02	-45	21	12.25	15.25	3	0.12
DDH-03	-45	96	9	21	12	0.29
Including			13	14	1	1.58
DDH-04	-45	111	10	23	13	0.76
Including			13	15.16	2.16	2.66
Including			14.5	15.16	0.66	5.28
and			22	23	1	2.1
DDH-05	-45	117	12.9	15	2.1	2.14
and			20	26	6	0.76
Including			20	22	2	1.63

Where from here?

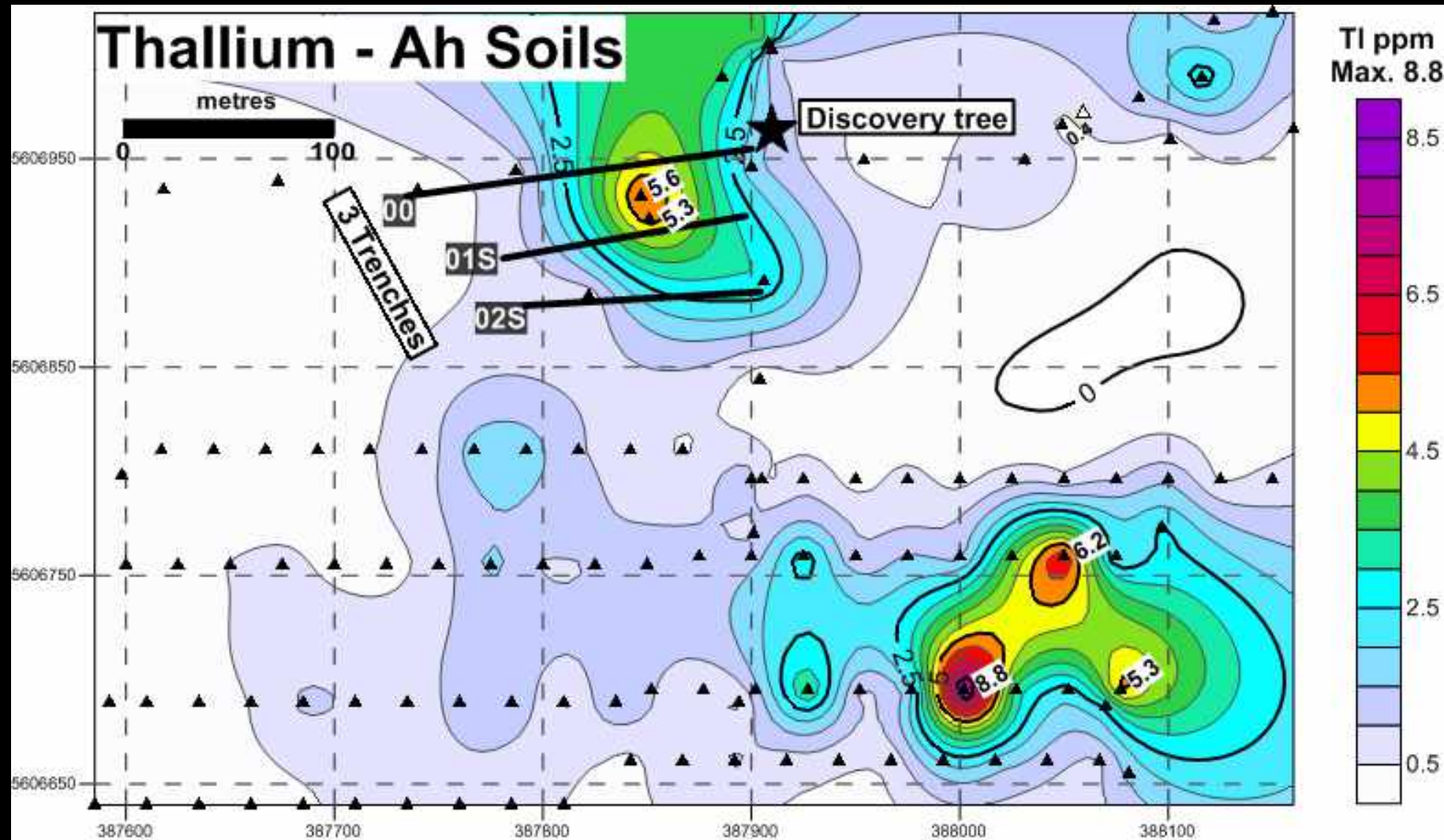
- Ah
- Prospecting

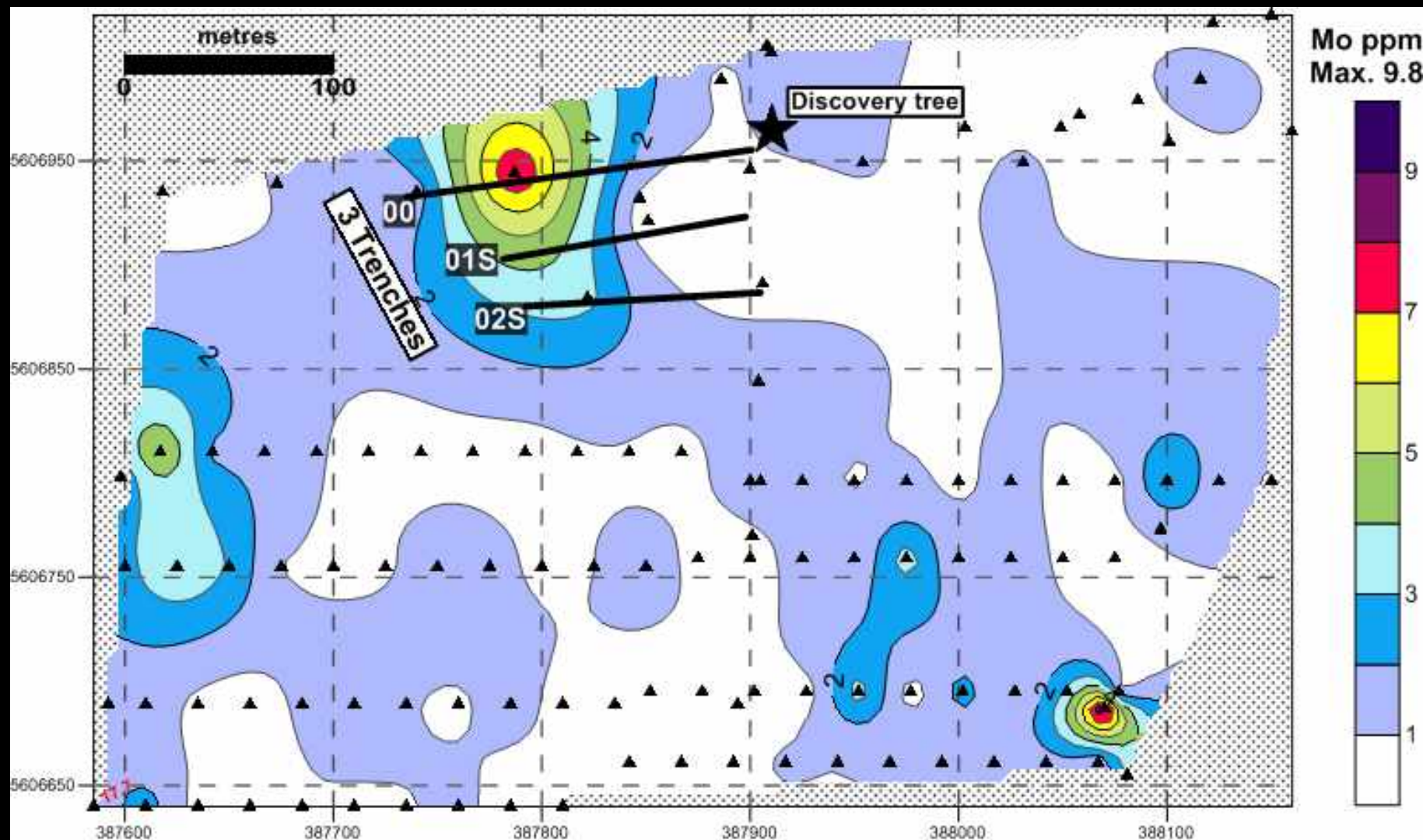
Zn - Ah Soils

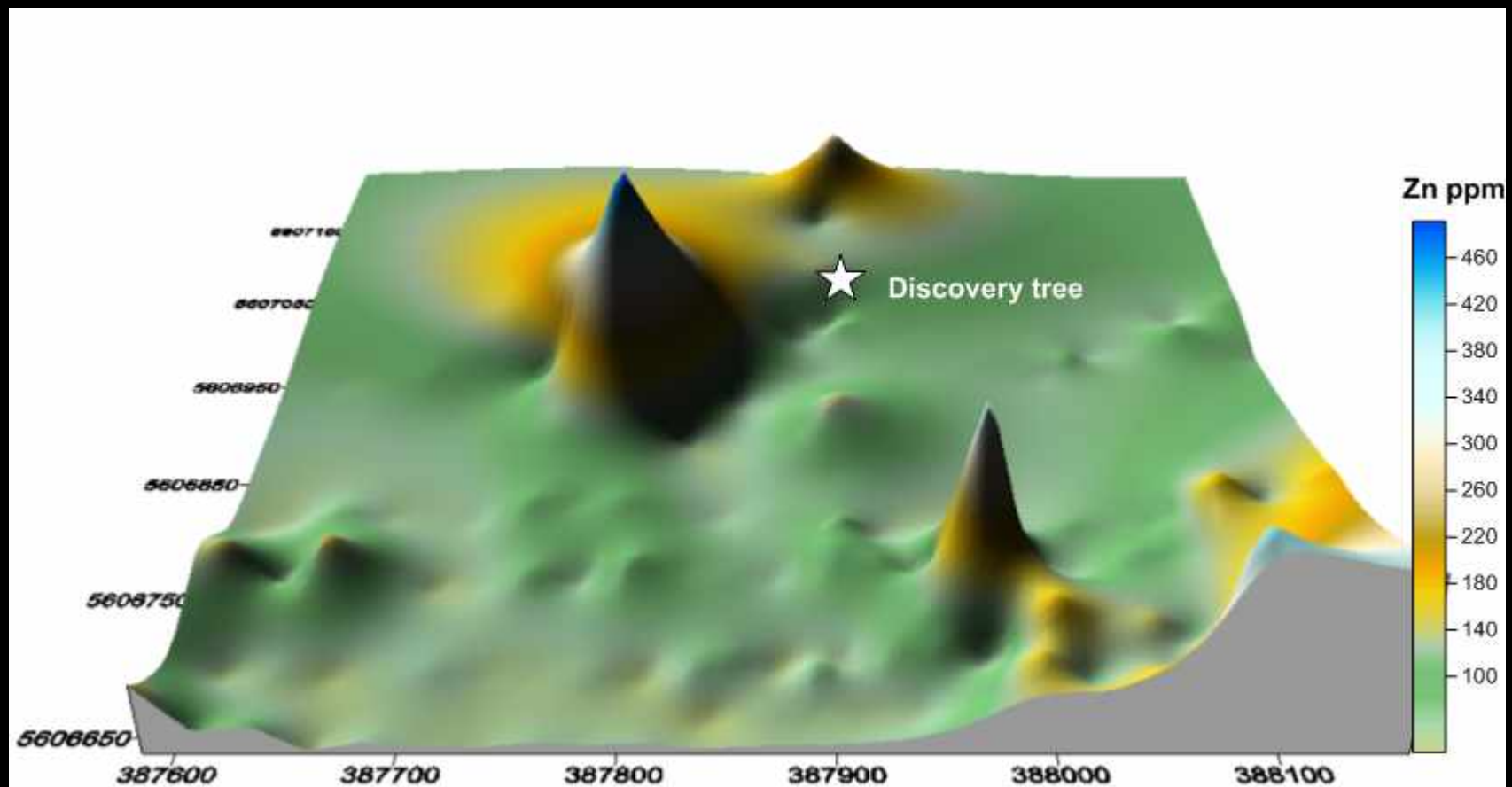
Zn ppm
Max. 509



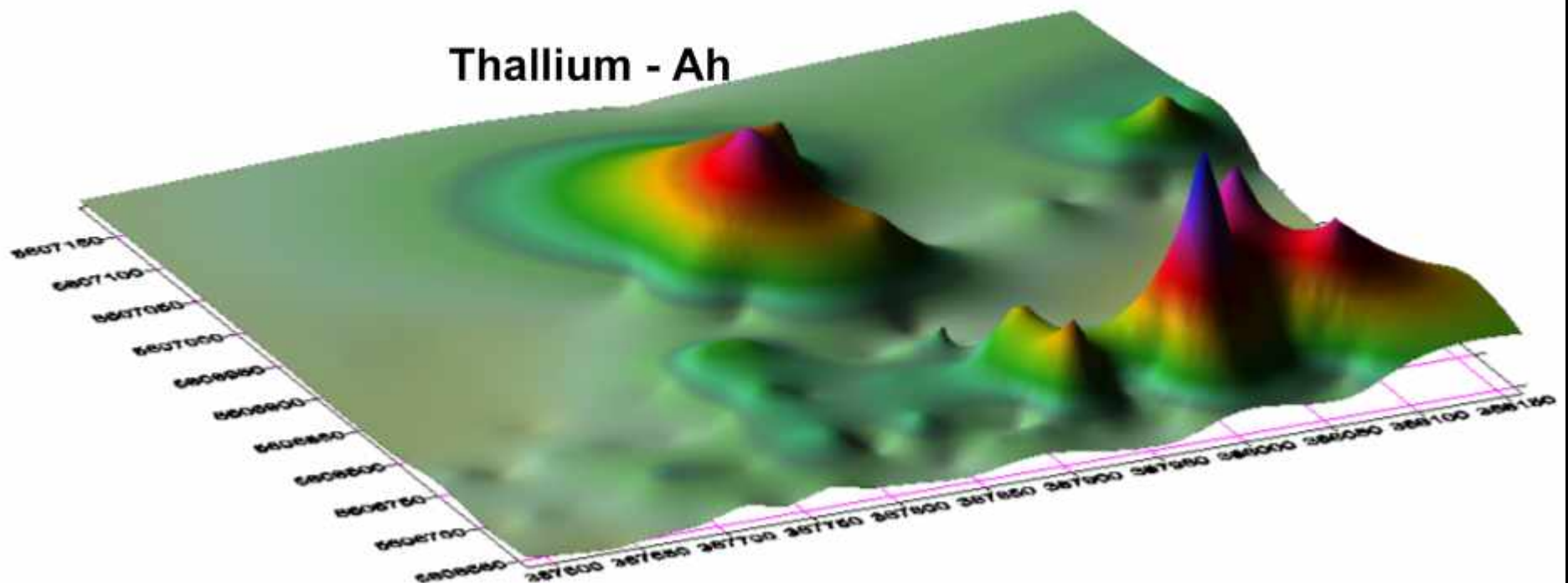
Thallium - Ah Soils





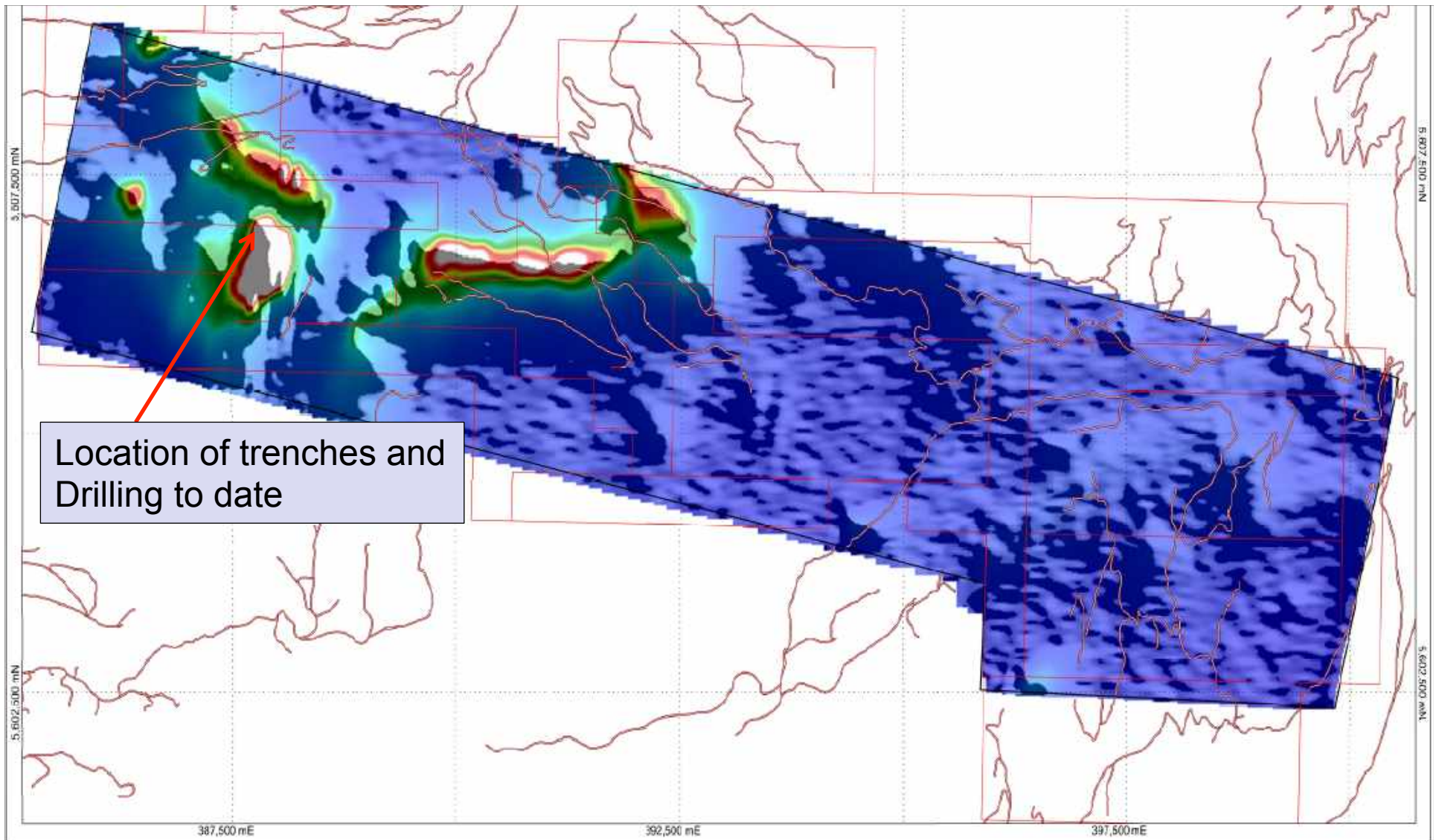


Thallium - Ah



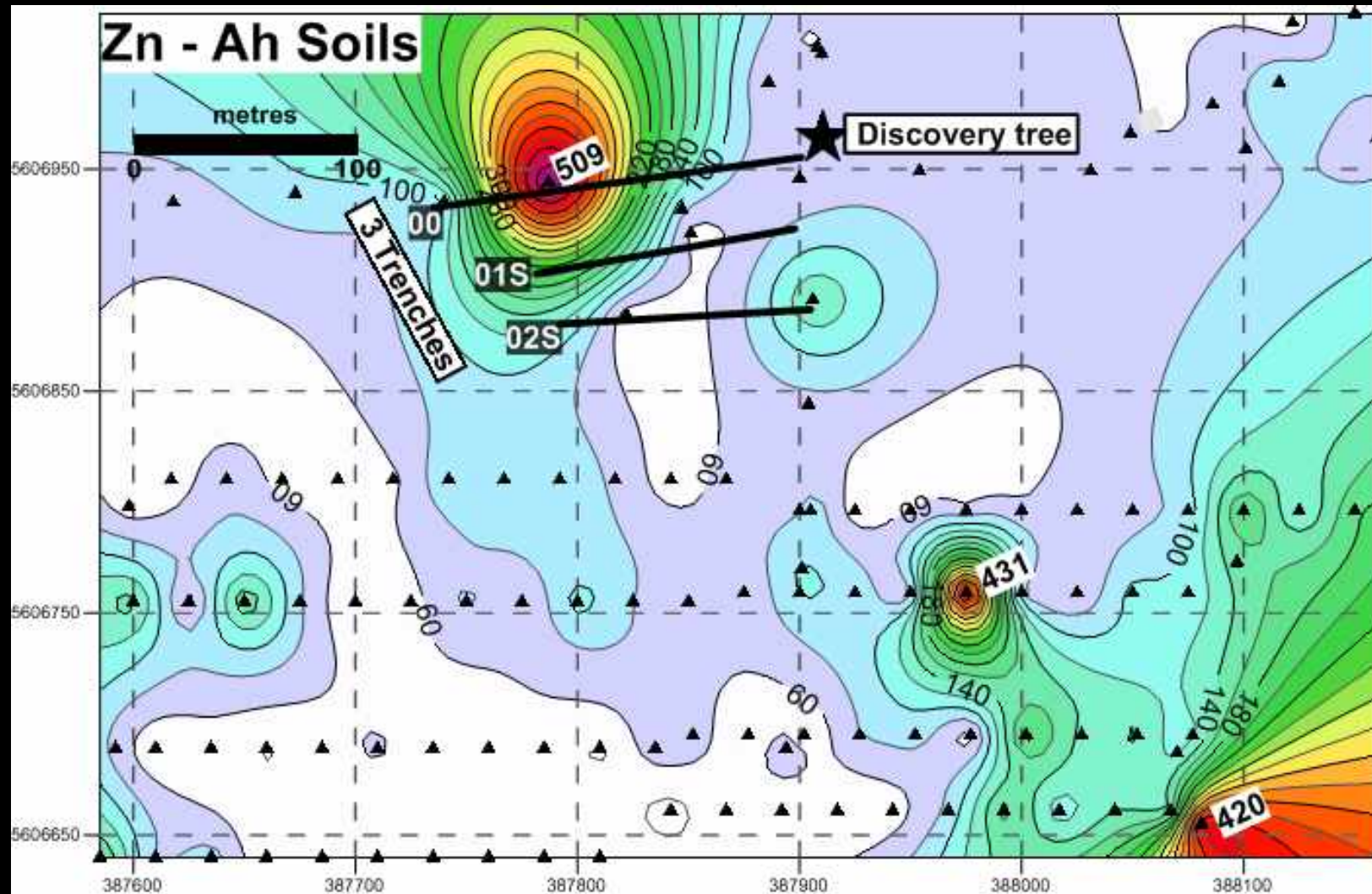
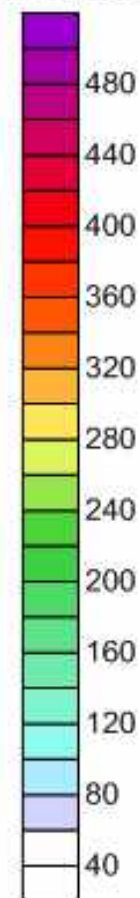
FEBRUARY, 2014

Cullen Exits



Zn - Ah Soils

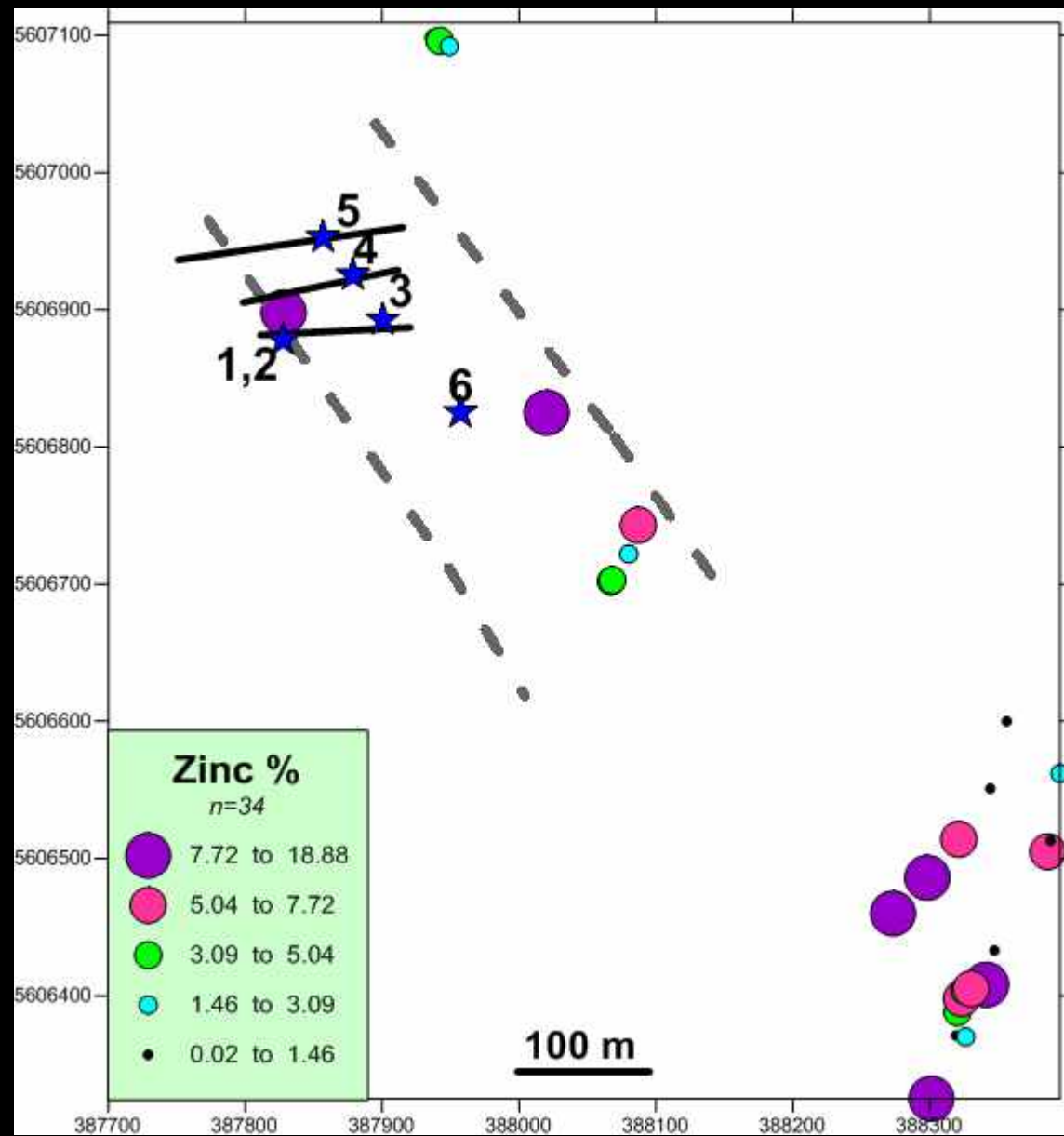
Zn ppm
Max. 509











36 grab samples (>1 kg)

Maximum		
Ag	ppm	6
Bi	ppm	21
Cu	ppm	417
Mo	ppm	1388
Ni	ppm	700
Pb	ppm	708
Re	ppb	628
V	ppm	979
W	ppm	17
Zn	%	19

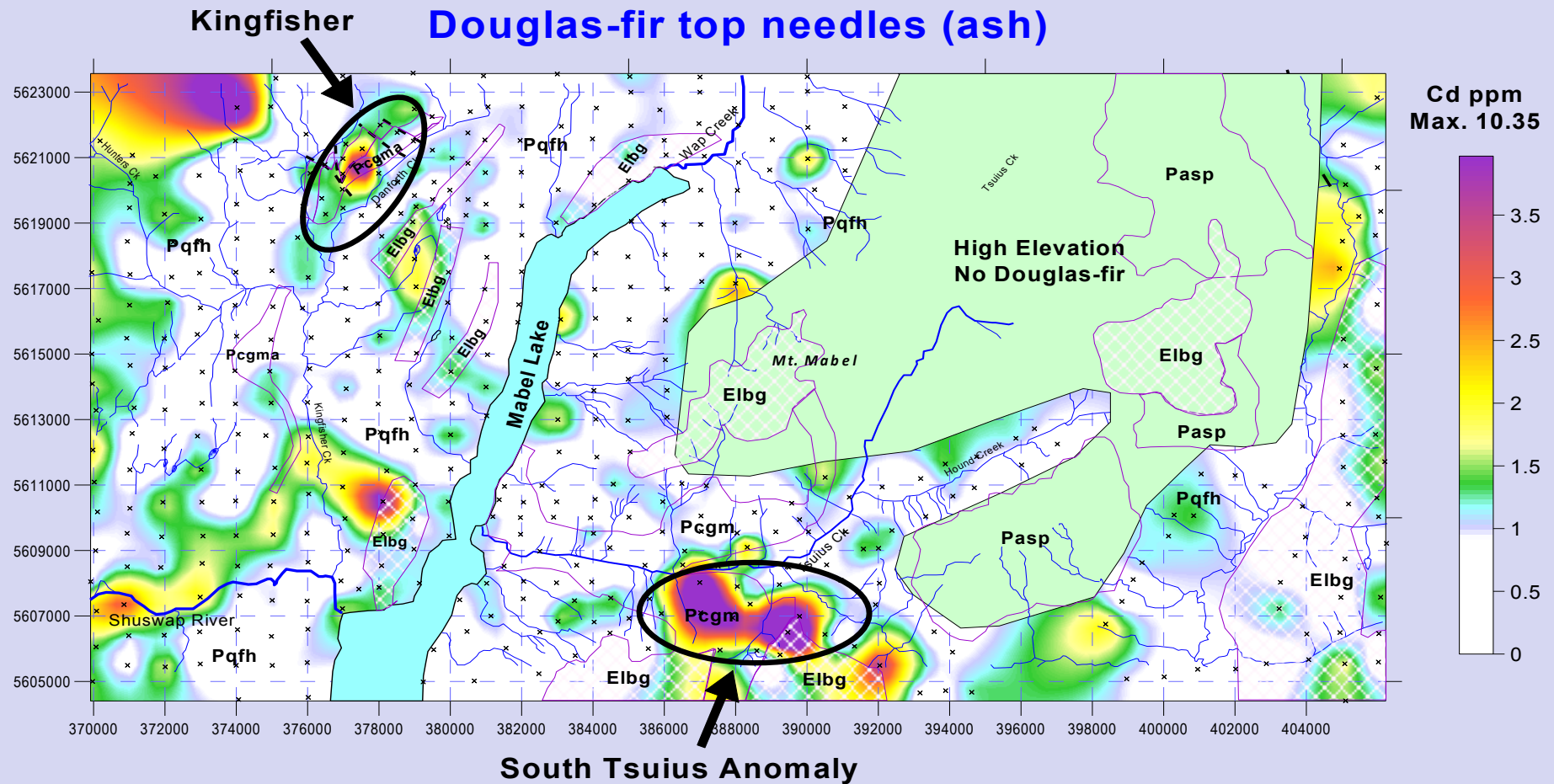
The story so far....

- Mineralization proven over 700 m:
(max 19% Zn)
- ~4 km of Strike Potential (geophysics):
Spatial linkage between sulphide
occurrence and geophysical
anomalies
- Thickness: 10's of m
- Monashee Cover Assemblage:
an important metallotect
- Biogeochem works



...and....

CADMIUM Douglas-fir top needles (ash)



CD Claims – NTS 82L

**West of Kingfisher,
Southern BC**

Metal-rich mushrooms

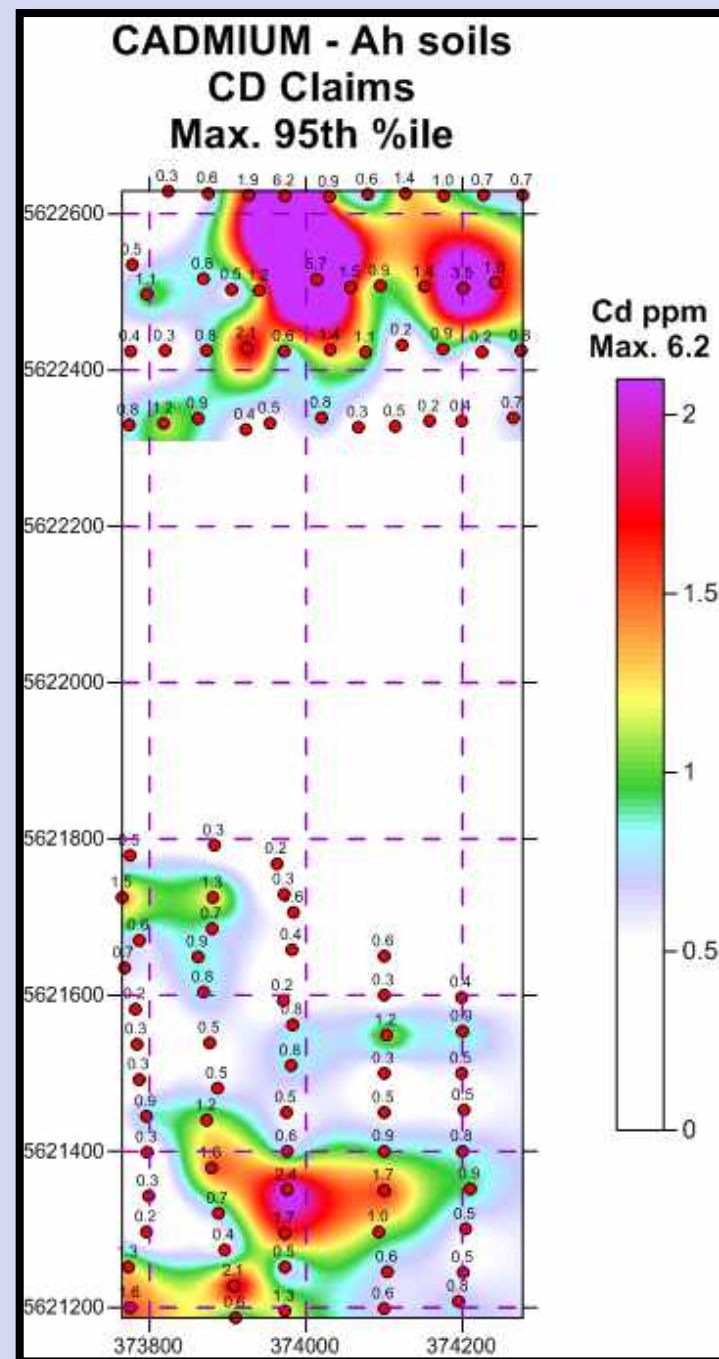
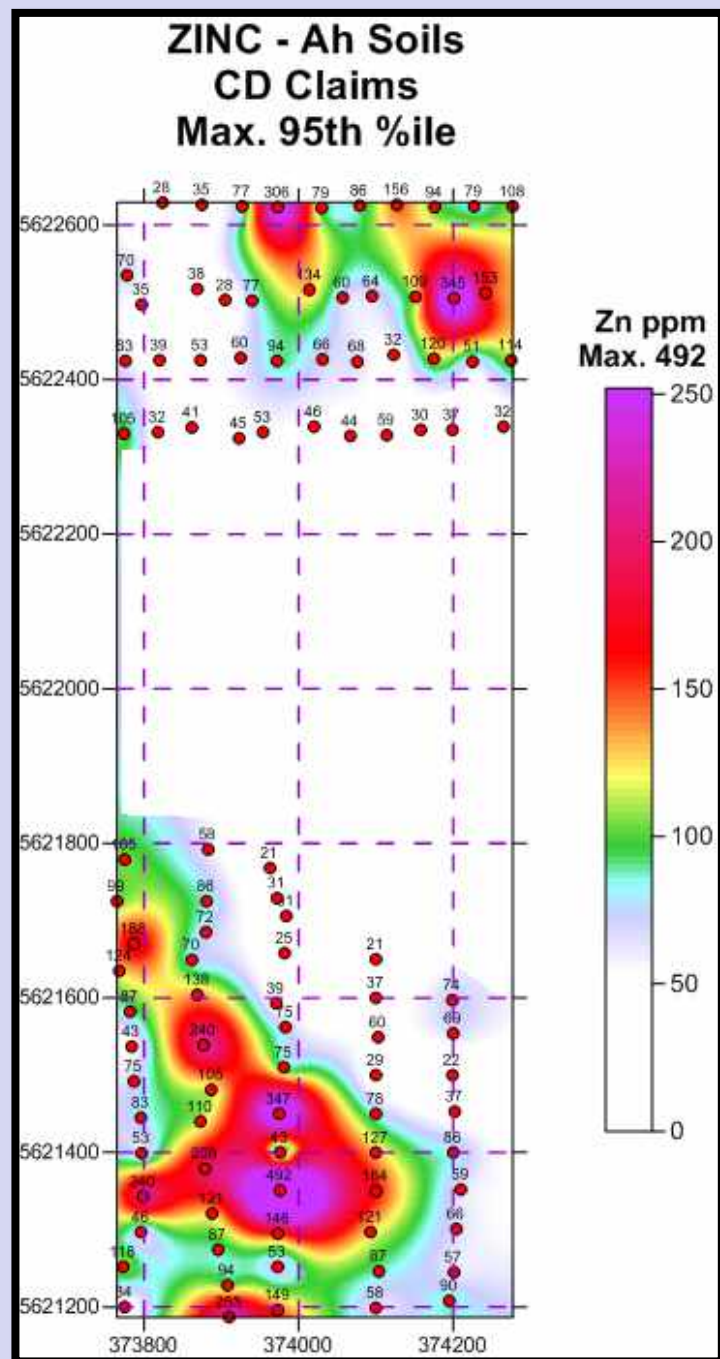
TL: Ag 6030 ppb; TI 6950 ppb

CD: 30,790 ppb Ag; TI 1500 ppb



Ah Soils

- 2 small areas over main Cd and Tl zones (treetops)
- 101 samples







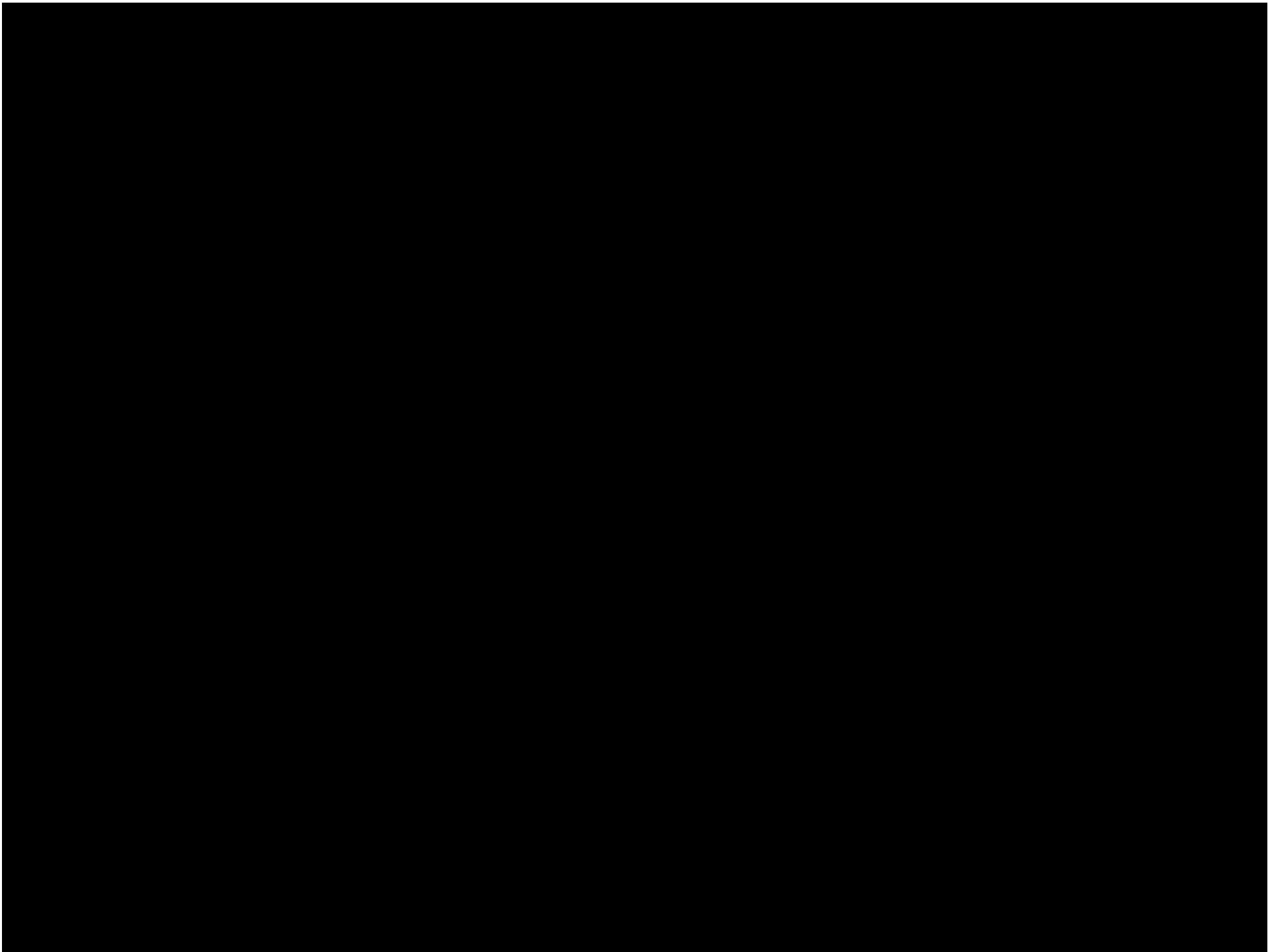
CD - 30 Rocks Analyzed

Max. 7.9% Zn (7 > 4%, and 19 > 2% Zn)

Max. 1.8% Pb (3 > 1%, and 12 > 0.1% Pb)



BGC success rate = 100%!



Regional Biogeochemical Survey of the Eucla Basin, South Australia

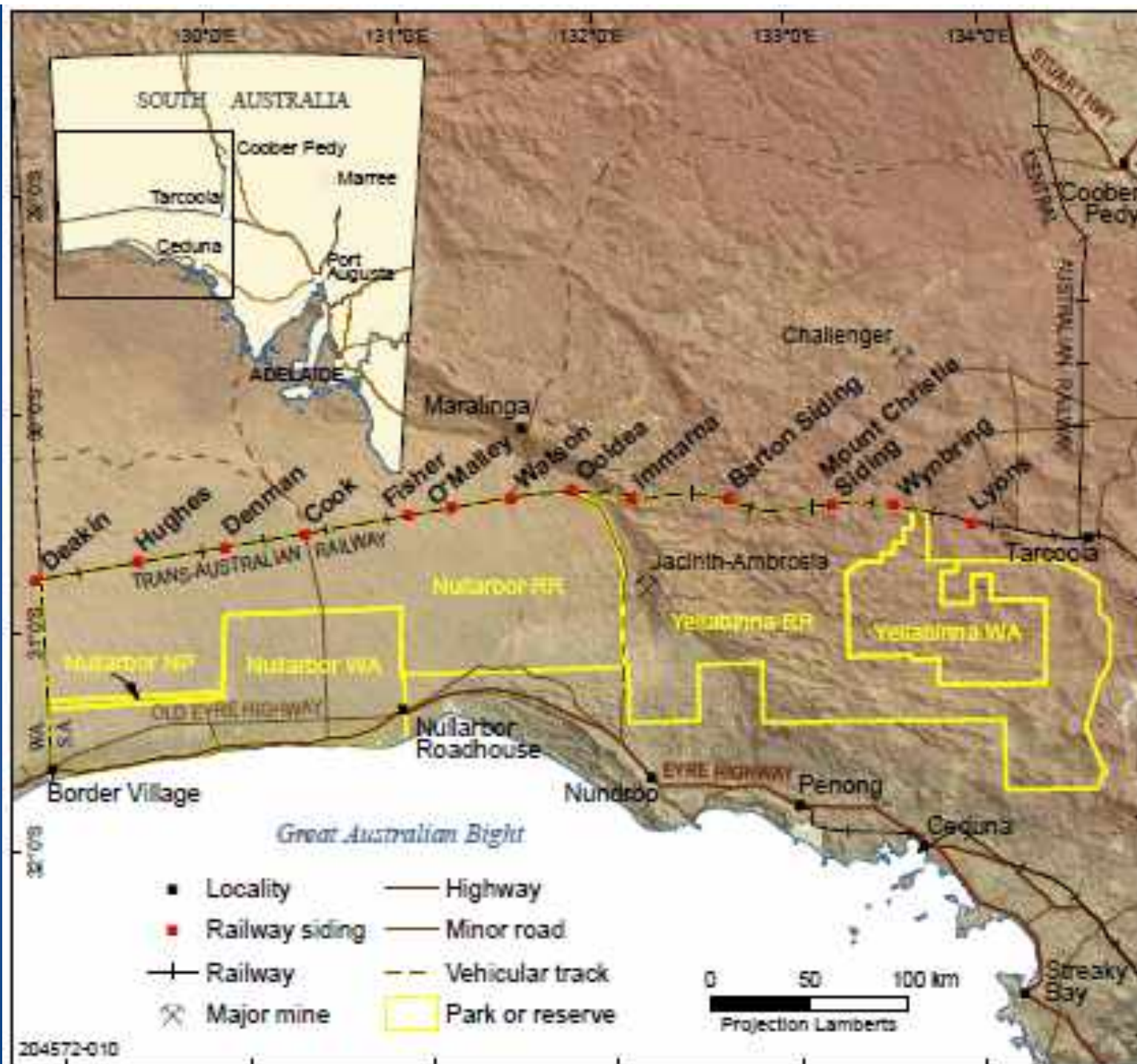
Colin Dunn, CD Consulting Inc.

Helen Waldron, Xenocryst Pty Ltd

Geological Survey of South Australia

Steve Hill (Director)

*Field: Helen Waldron, Colin Dunn;
Steve Hore and Tom Wise (GSSA)*

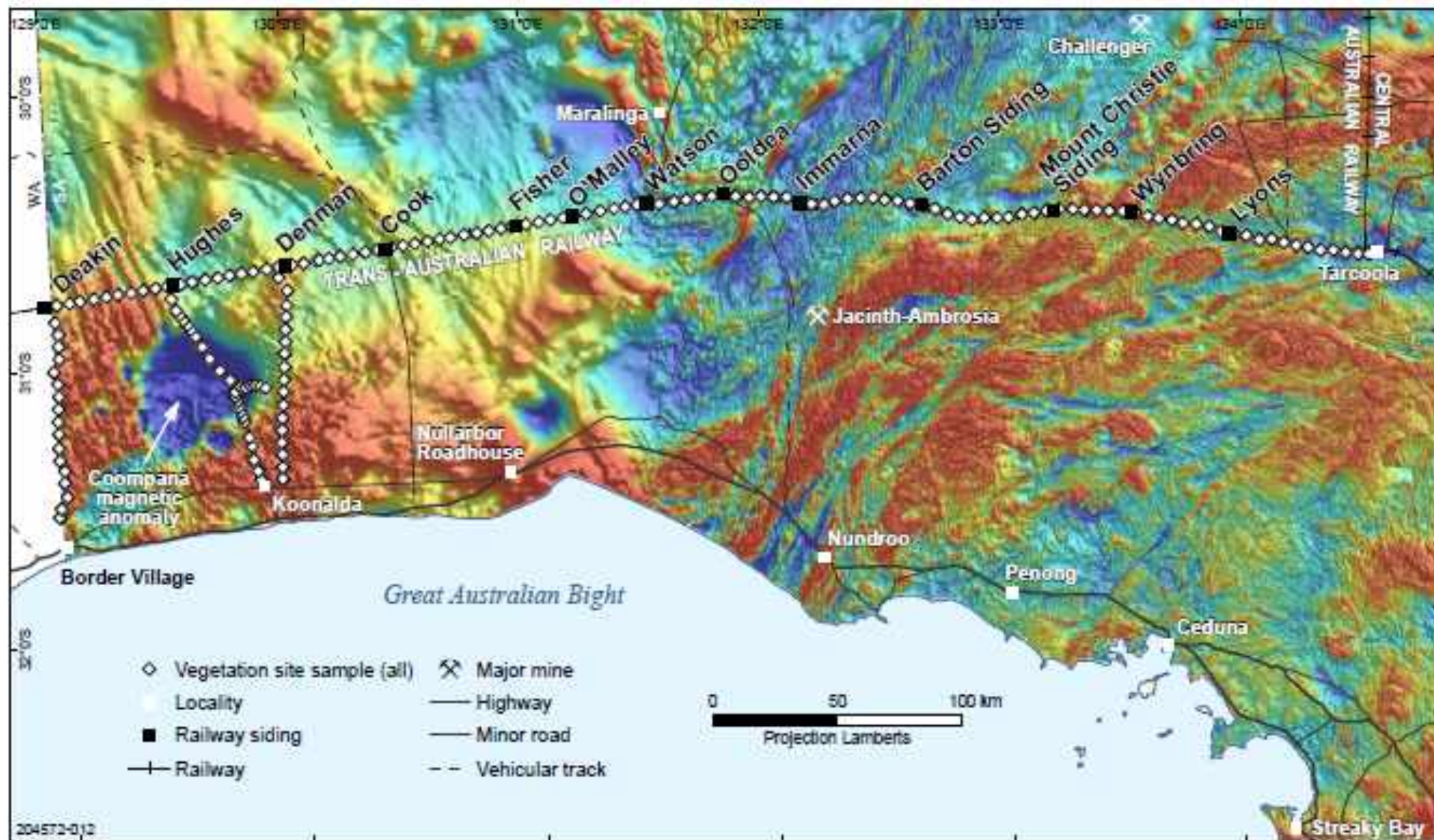


OBJECTIVES

1. Provide regional biogeochemical data for this largely unexplored region, particularly in the west, where outcrop through the Quaternary cover is rare.
2. Assess the chemical characteristics of common plant species in the area as a reference database for future biogeochemical exploration for concealed mineral deposits in this geologically little-known area of western South Australia.
3. The survey was designed to complement a recent east-west seismic transect which followed the railway corridor, commissioned by the Geological Survey of South Australia (GSSA) and Geoscience Australia (GA).
4. Investigate the biogeochemical response of the Coompana aeromagnetic anomaly (SW part of survey area)









4 (a) Nullarbor Plain with calcrete and limestone remnants and chenopod shrubs. (Photo 414239)



4 (b) Pearl bluebush (*Maireana sedifolia*). (Photo 414240)



4 (c) Bladder saltbush (*Atriplex vesicaria*). (Photo 414241)



4 (d) Samphire (*Sarcocornia* sp.). (Photo 414242)

SAMPLING PROGRAMME

1. Sample station spacing at intervals of ~ 5 km.
2. Closer spaced stations (~ 2 km) near the margins of the Coompana Magnetic Anomaly (CMA).
3. Multiple common species of vegetation sampled at most of 171 stations, with a total of 447 samples collected for analysis (65 elements by ICP-OES and ICP-MS).

ALL SAMPLES

Common Name	Scientific name	Nullarbor Plain	Yellabinna Region	Total
Bladdersaltbush	<i>Atriplex vesicaria</i>	122	27	149
Pearl bluebush	<i>Maireana sedifolia</i>	103	31	134
Black oak	<i>Casuarina pauper</i>		41	41
Samphire	<i>Sarcocornia</i> sp.	35		35
Great Victoria Desert mallee	<i>Eucalyptus concinna</i>		25	25
Western myall	<i>Acacia papyrocarpa</i>	10	12	22
Mulga	<i>Acacia aneura</i>		17	17
Umbrella bush	<i>Acacia ligulata</i>		5	5
Boxthorn	<i>Lycium australe</i>	4		4
Old man saltbush	<i>Atriplex nummularia</i> subsp. <i>spathulata</i>	3		3
Gawler Ranges cassia	<i>Senna gawlerensis</i>		3	3
Desert cassia	<i>Senna artemisioides</i> subsp. <i>filifolia</i>		2	2
Red mallee	<i>Eucalyptus oleosa</i> subsp. <i>oleosa</i>		2	2
Narrow-leaved red mallee	<i>Eucalyptus</i> sp. Great Victoria Desert		2	2
Bluebush daisy	<i>Cratystylis conocephala</i>		2	2
Spiny saltbush	<i>Rhagodia spinescens</i>	1		1
Totals		278	169	447

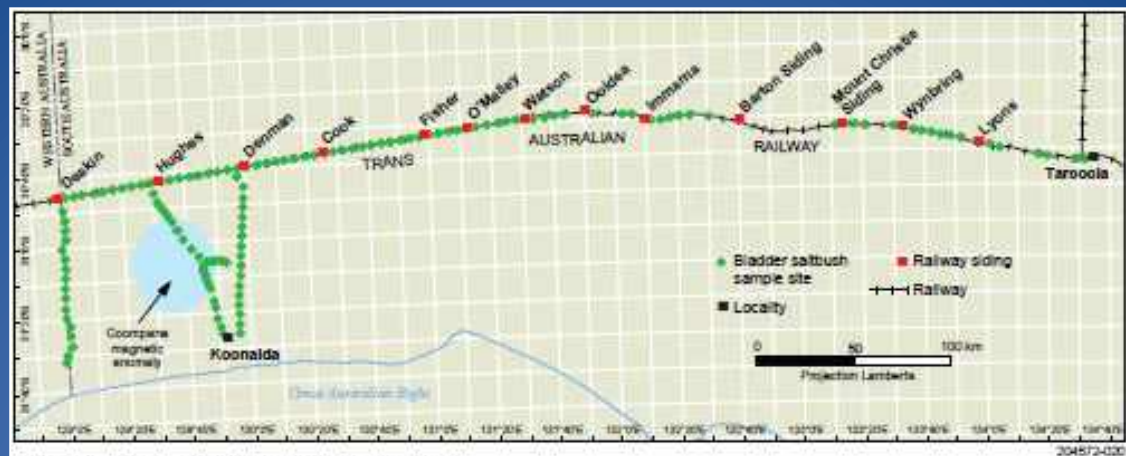
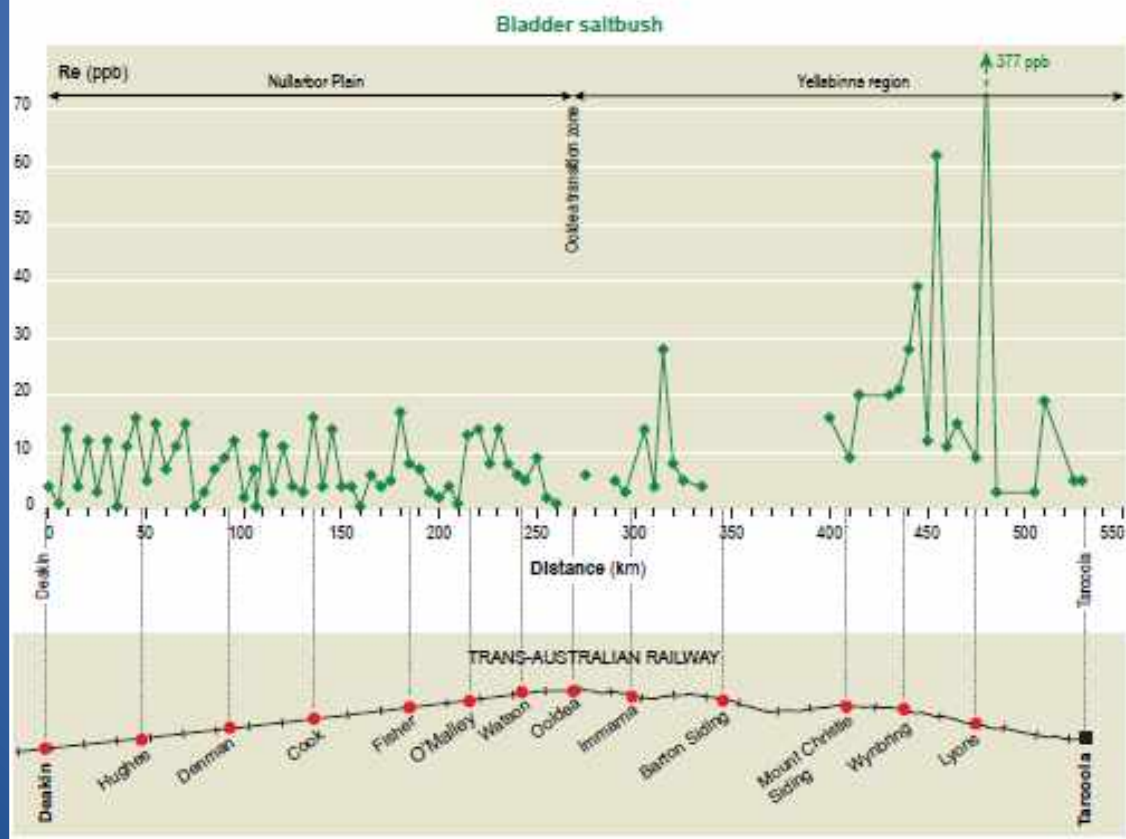
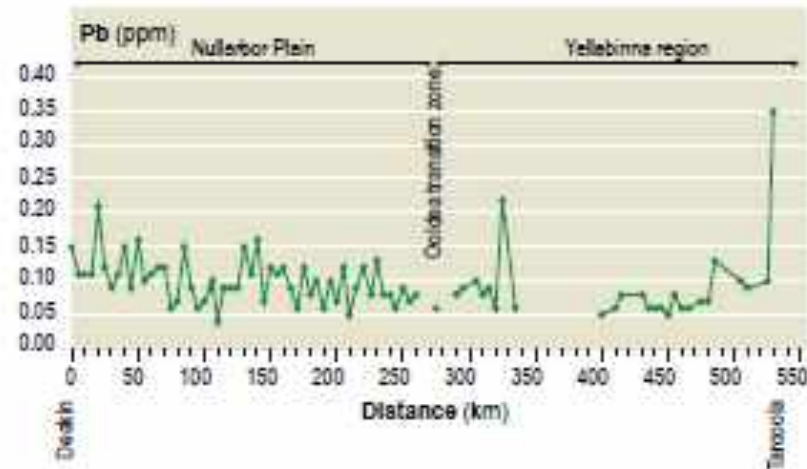


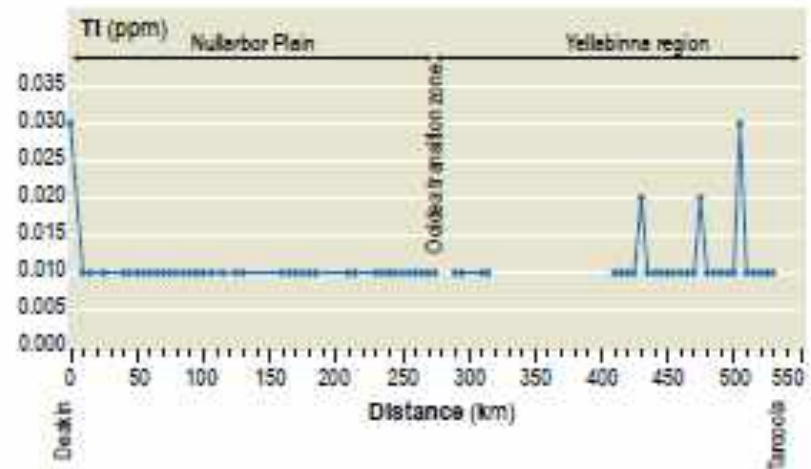
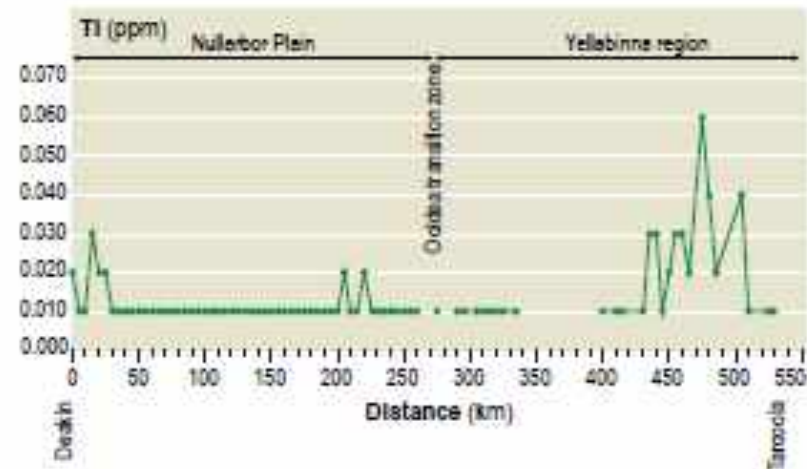
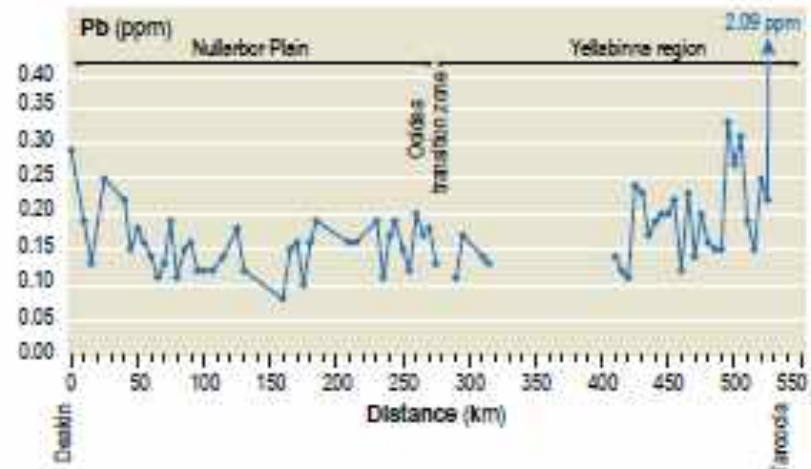
Figure 6 Location of bladder saltbush samples.



Bladder saltbush

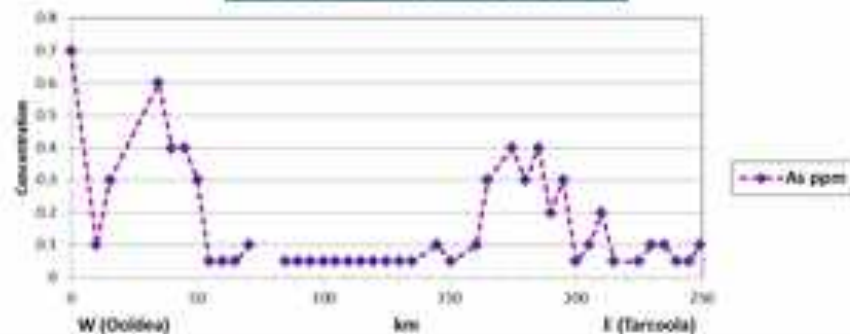


Pearl bluebush

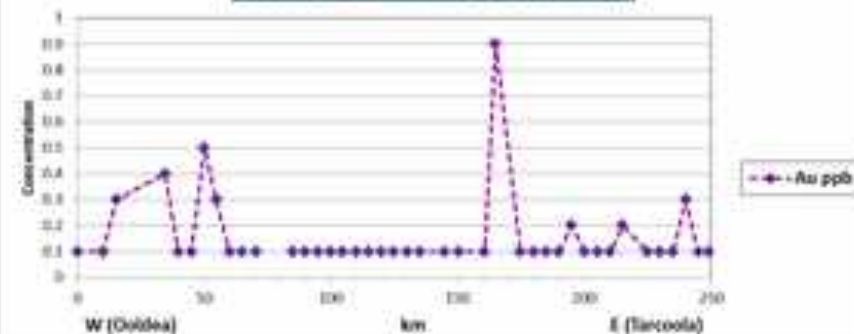


YELLABINNA – BLACK OAK (*Casuarina*)

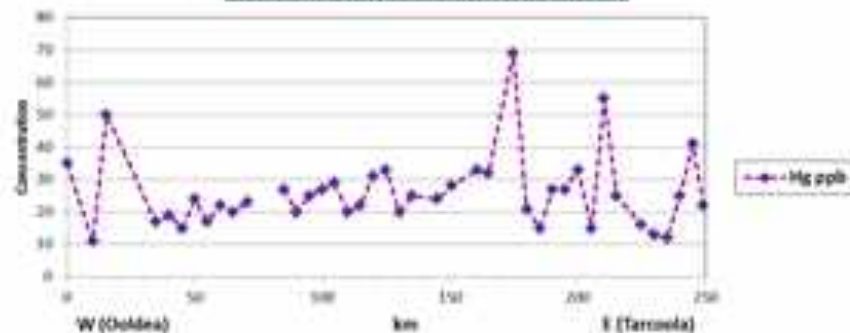
Black Oak - Rail Line (Yellabinna)



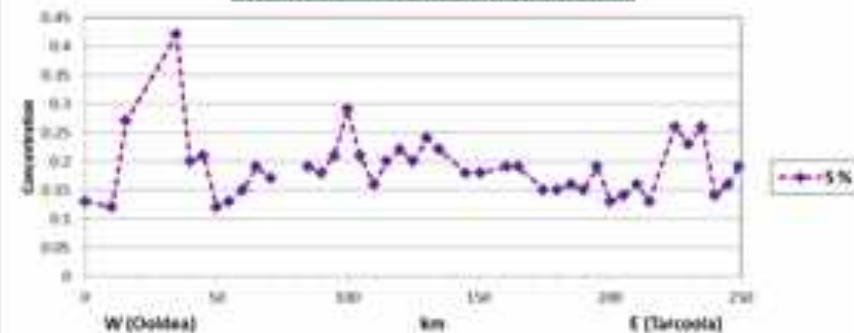
Black Oak - Rail Line (Yellabinna)

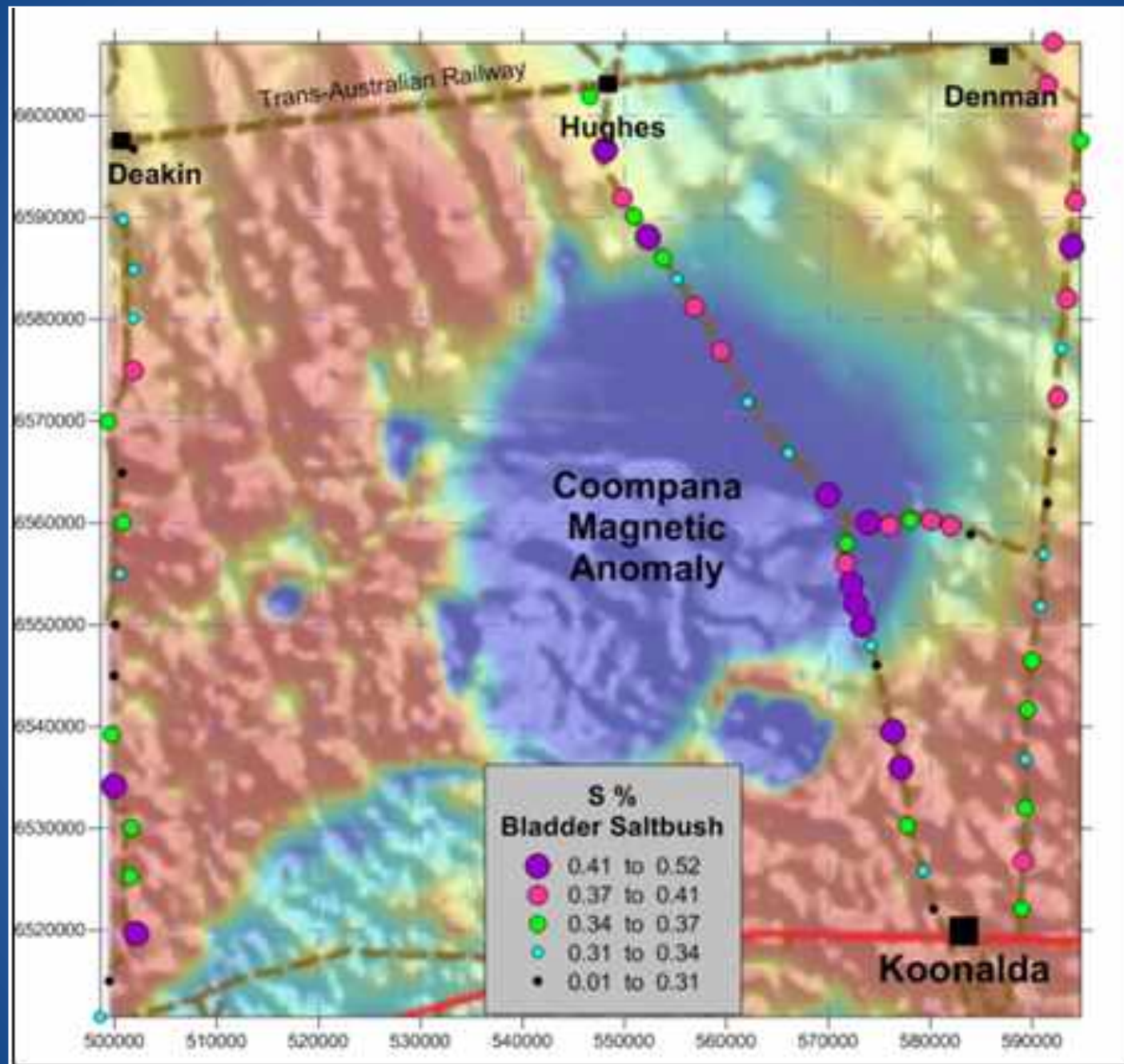


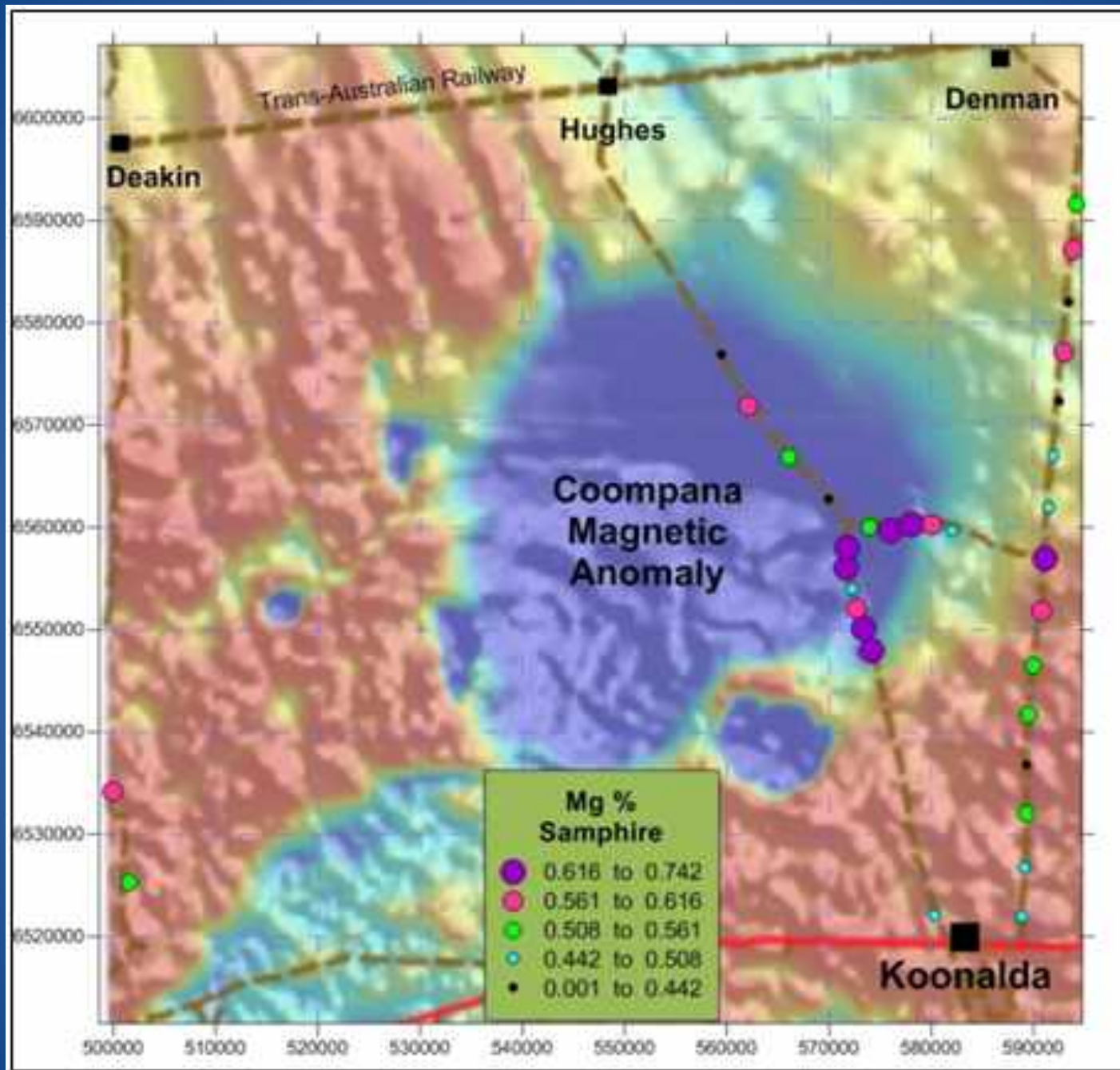
Black Oak - Rail Line (Yellabinna)



Black Oak - Rail Line (Yellabinna)







SUMMARY

- 447 samples collected
- Mostly bladder saltbush and pearl bluebush
- High Re in both species for > 50 km
- Relatively high Tl and Pb in Yellabinna
- Relatively high Au and As (+ some Hg and S) in black oak (*Casuarina pauper*) at coincident sites in Yellabinna region
- Elevated Mg and S across margins of Coompana geophysical anomaly.

RESULTS – Report Book and Mesa Journal

1. Dunn CE and Waldron HM 2014. *Regional biogeochemical survey of the Eucla Basin, South Australia*, Report Book 2014/00025. Department of State Development, South Australia, Adelaide.
2. Summary in Mesa Journal (in press)