Eucalyptus camaldulensis (river red gum) Biogeochemistry: An Innovative Tool for Mineral Exploration in the Curnamona Province and Adjacent Regions

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April 2008

E. camaldulensis (leaves) Biogeochemistry
Pine Creek Broken Hill W/NSW - (Pb)

Pb ppm

214 total cases of which 88 are missing

Summary Statistics

Count	126
Max	411
Min	1
Mean	32.3095
Median	7
StdDev	69.1478
Range	410
Det Limit	1

● 25.01 - 411.00

▲ 18.01 - 25.00

✳ 8.01 - 18.00

╪ 1.00 - 8.00

Background

Pb_ppm

Pb (ppm)

Cum. Freq.

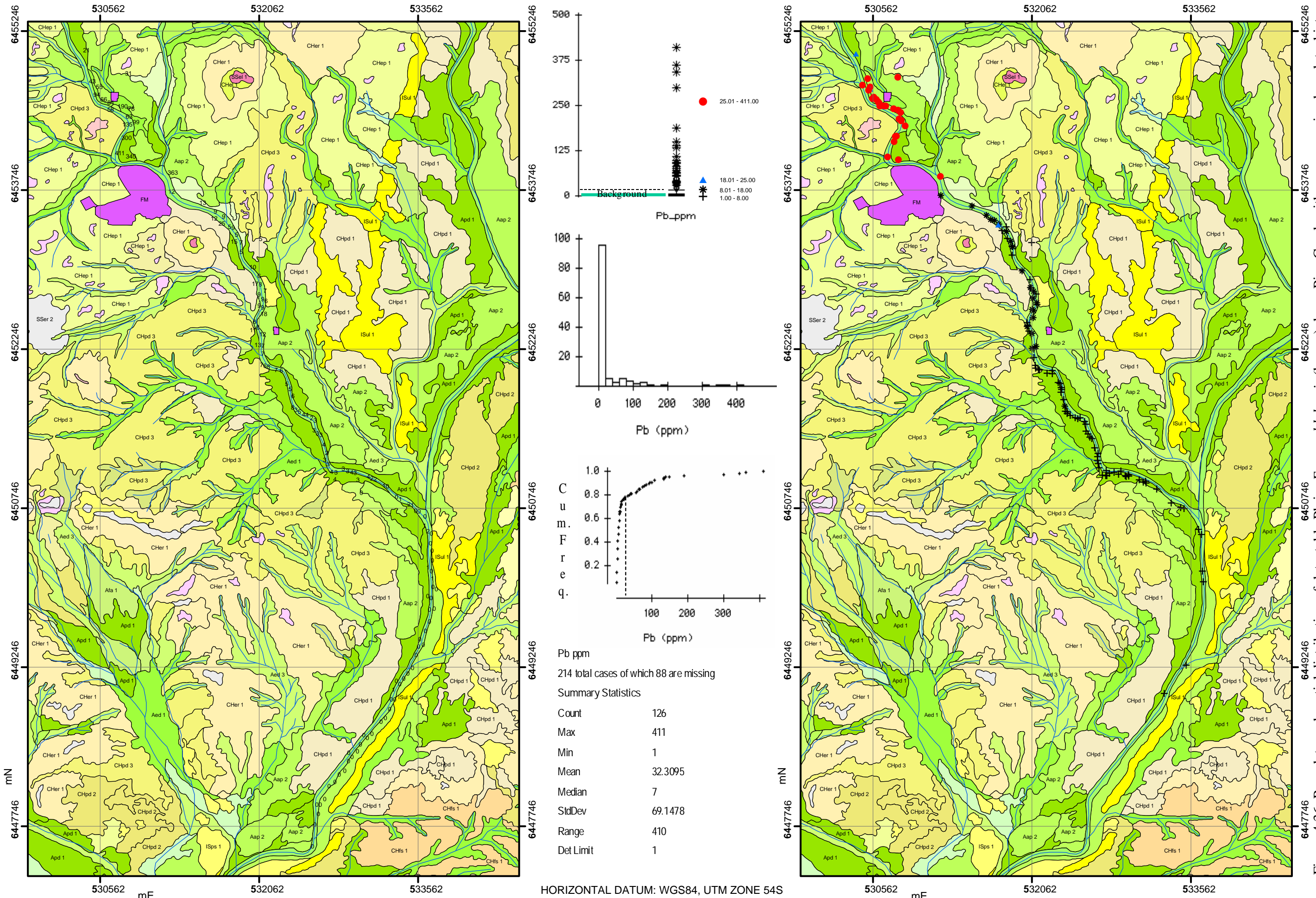Pb (ppm)

HORIZONTAL DATUM: WGS84, UTM ZONE 54S

Figure 4.36: Raw data and spatial distribution of detectable Pb in *E. camaldulensis* (leaves) down Pine Creek with accompanying boxplots, histogram, cumulative frequency plot and summary statistics.
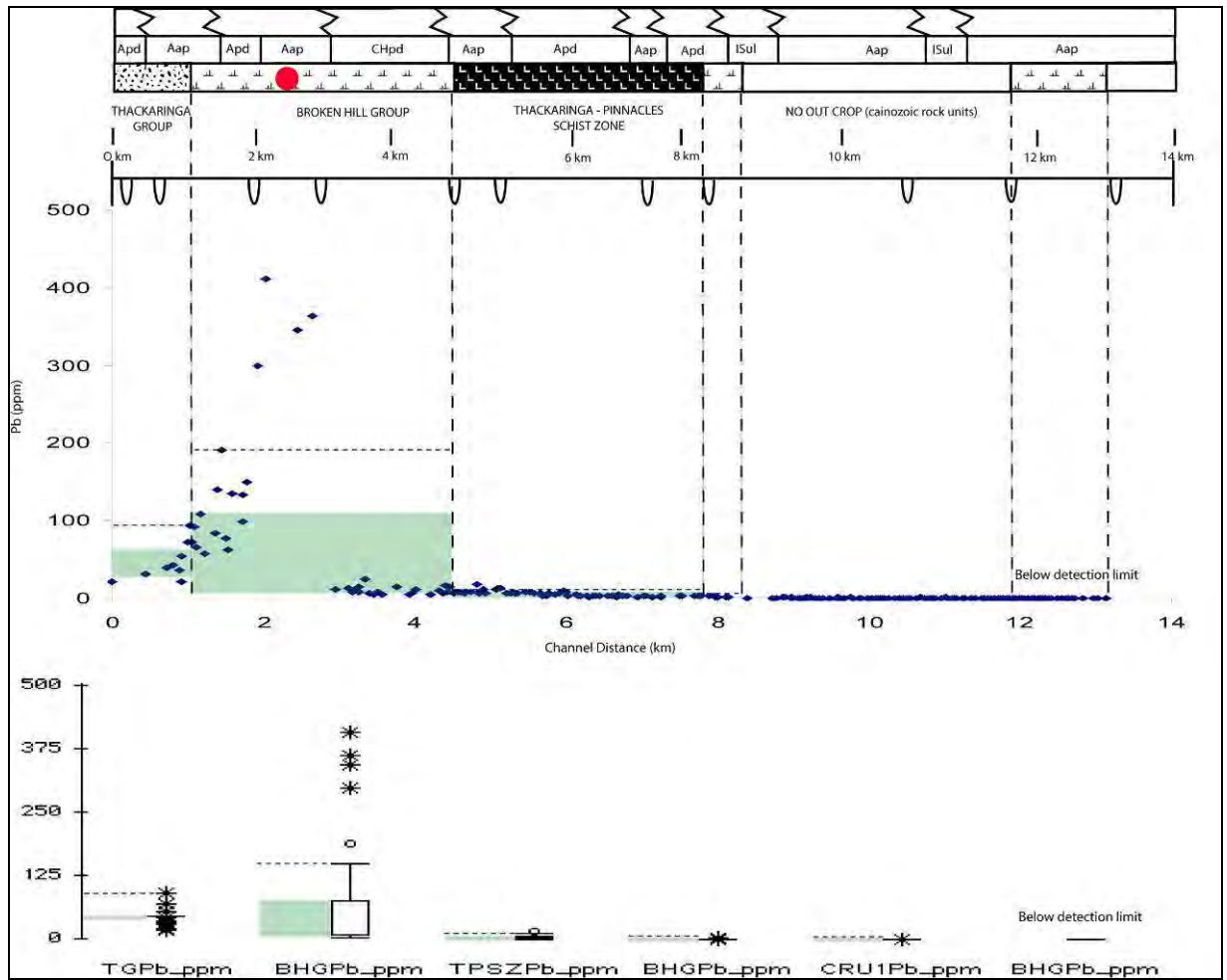
Figure 4.37: Pb concentrations within *E. camaldulensis*, flanking different land-form settings along Pine Creek. Thackaringa Group (TG), Broken Hill Group North (BHGN), Thackaringa-Pinnacles Schist Zone (TP/SZ), Broken Hill Group Central (BHGC), Cainozoic rock units (CRU) and Broken Hill Group South (BHGS). Green region denotes 'values below the mean, red dot the approximate location of the Barrier Pinnacles Mine and the dashed line indicates the 90th percentile.

Element (ppm) [detection limit] Analytical Method	Parameters	Total data set (C) n=214	Setting					
			Thackaringa Group TG (Apd, Aap) n=9	Broken Hill Group BHG(N) (Aap, Apd & CHpd) n=42	Thackaringa-Pinnacles Schist Zone TP/SZ (Aap, Apd) n=60	Broken Hill Group BHG (C) (Apd & ISul) n=7	No outcrop (CRU) (ISul, Aap) n=61	Broken Hill Group BHG(S) (Aap) n=35
Pb [1] XRF	Concentration range (Mean)	1.00-411 (32)	21-94 (46)	5-411 (78)	2-18 (6)	*-4 (2)	*-2 (1)	BDL
	25th - 75th percentile	8-18	29-60	9-109	3-8	1.3-2.8	1-2	
	95% confidence level	7	18	32	0.84 (6)	1.1	0.4	
	>90th percentile (outliers), # of samples	18-411 (30)	74-91 (2)	190-411 (5)	18 (1)	No outliers'		
	E. camaldulensis position with the greatest concentration.	north part of the Pine Creek catchment, adjacent to the Barrier Pinnacle Mine and depositional regolith-landform units Aap₂.	southern margin at the interface between TG and BHG (N). Down stream of an NW intersecting Aed unit. Flanked by regolith-landform units Aap₂ and CHpd₃.	upstream and adjacent to the Barrier Pinnacles Mine. Flanked by regolith-landform units Apd₁, and CHpd₃.	northern margin at the interface between BHG (N) and TP/SZ. Flanked by regolith-landform unit Aap₂.	northern margin at the interface between TP/SZ and BHG (CL). Flanked by regolith-landform unit Apd₁.		

Table 4.38: Variations of Pb concentrations within *E. camaldulensis* (river red gums), flanking different land-form settings along Pine Creek. Initial values concentration range (mean), 25th - 75th percentile concentration range, 95 % confidence; level, >90th percentile (outliers), C= composite sample, * signifies values below detection limit.

E. camaldulensis (leaves) Biogeochemistry
Pine Creek Broken Hill W/NSW - (Sb)

Sb (ppm)

Background

● 0.81 - 1.50
✳ 0.41 - 0.80
+ 0.21 - 0.40
✕ 0.10 - 0.20

Sb (ppm)

Cum. Freq.

Sb (ppm)

Sb ppm

214 total cases of which 187 are missing

Summary Statistics

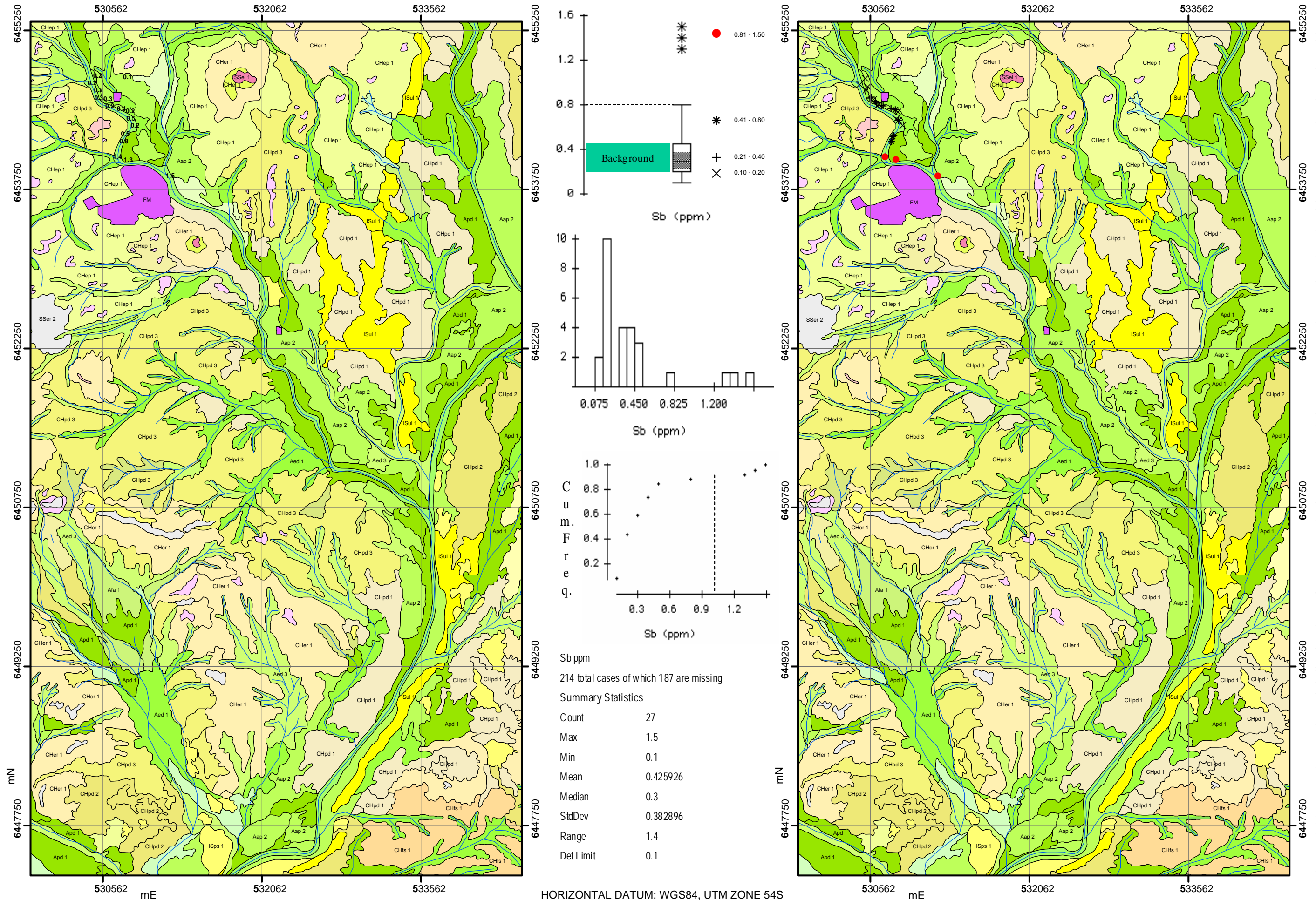|	
Count	27
Max	1.5
Min	0.1
Mean	0.425926
Median	0.3
StdDev	0.382896
Range	1.4
Det Limit	0.1

HORIZONTAL DATUM: WGS84, UTM ZONE 54S

Figure 4.38: Raw data and spatial distribution of detectable Sb in *E. camaldulensis* (leaves) down Pine Creek with accompanying boxplots, histogram, cumulative frequency plot and summary statistics.
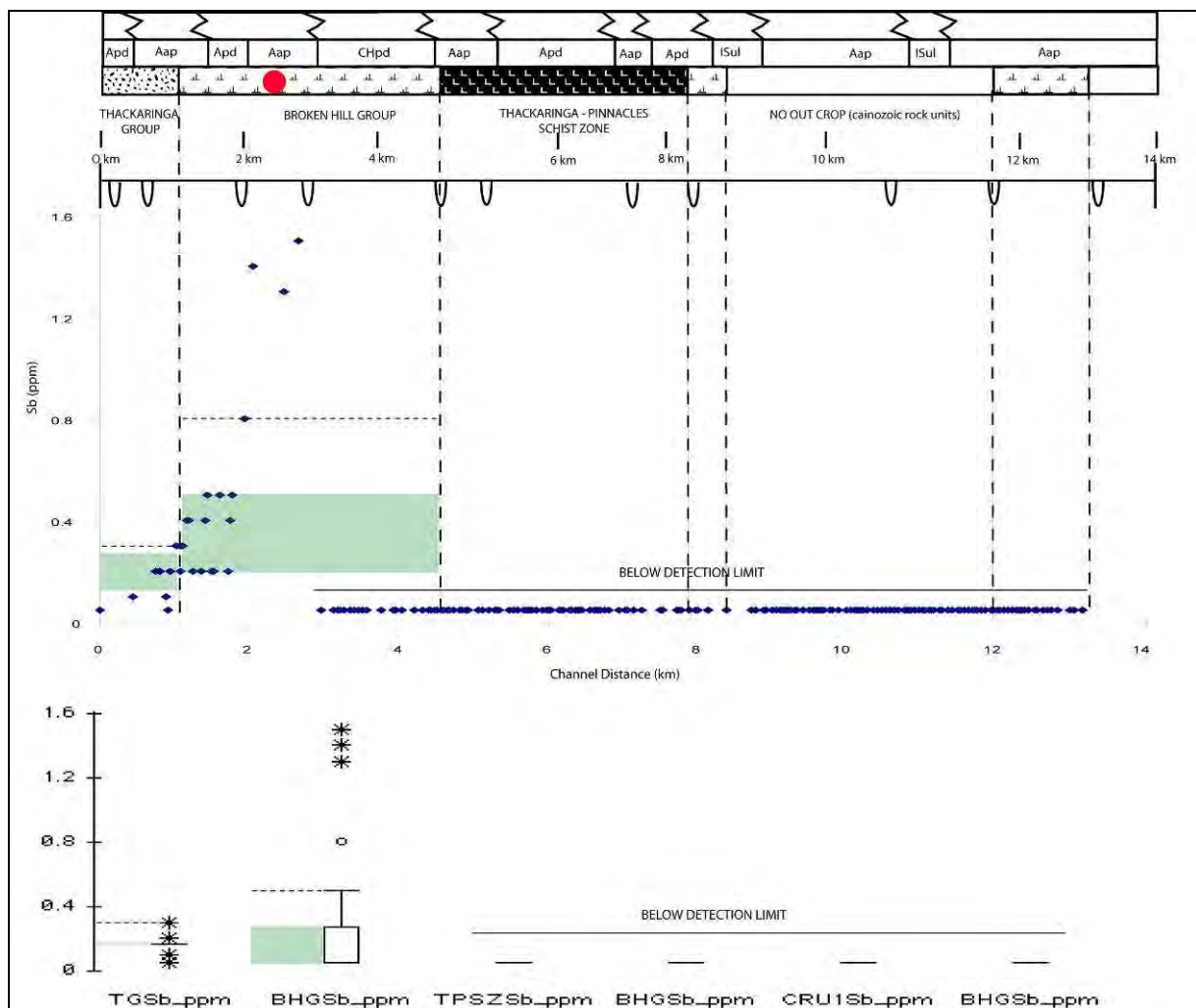
Figure 4.39: Sb concentrations within *E. camaldulensis*, flanking different land-form settings along Pine Creek. Thackaringa Group (TG), Broken Hill Group North (BHGN), Thackaringa-Pinnacles Schist Zone (TP/SZ), Broken Hill Group Central (BHGC), Cainozoic rock units (CRU) and Broken Hill Group South (BHGS). Green region denotes 'values below the mean, red dot the approximate location of the Barrier Pinnacles Mine and the dashed line indicates the 90th percentile.

Element (ppm) [detection limit] Analytical Method	Parameters	Total data set (C) n=214	Setting					
			Thackaringa Group TG (Apd, Aap) n=9	Broken Hill Group BHG(N) (Aap, Apd & CHpd) n=42	Thackaringa-Pinnacles Schist Zone TP/SZ (Aap, Apd) n=60	Broken Hill Group BHG (C) (Apd & ISul) n=7	No outcrop (CRU) (ISul, Aap) n=61	Broken Hill Group BHG(S) (Aap) n=35
Sb [0.1] ICP-MS	Concentration range (Mean)	0.10-1.50 (0.43)	*-0.3 (0.2)	*-1.5 (0.51)				
	25th - 75th percentile	0.21-0.40	0.15-0.25	0.2-0.5				
	95% confidence level	0.02	0.08	0.19				
	>90th percentile (outliers), # of samples	0.81-1.5 (3)	No outliers'	0.81-1.50 (4)	BDL	BDL	BDL	BDL
	E. camaldulensis position with the greatest concentration.	north region of Pine Creek, and adjacent to the Barrier Pinnacles Mine and depositional regolith-landform units Aap₂.	southern margin at the interface between TG and BHG(N). Down stream of an NW intersecting Aed unit.	adjacent to the Barrier Pinnacles Mine. Flanked by regolith-landform units Aap₁, and CHpd₃.				

Table 4.39: Variations of Sb concentrations within *E. camaldulensis* (river red gums), flanking different land-form settings along Pine Creek. Initial values concentration range (mean), 25th - 75th percentile concentration range, 95 % confidence; level, >90th percentile (outliers), C= composite sample, * signifies values below detection limit.