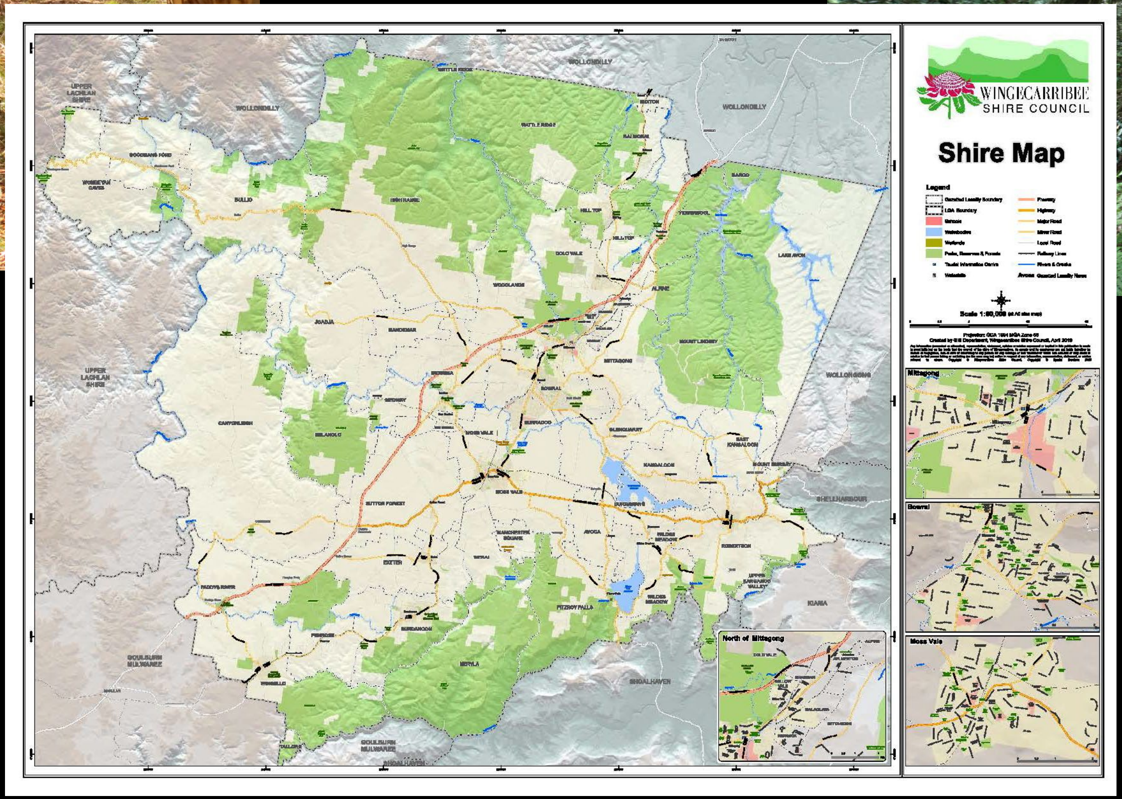


The Vegetation of the Wingecarribee Shire Local Government Area

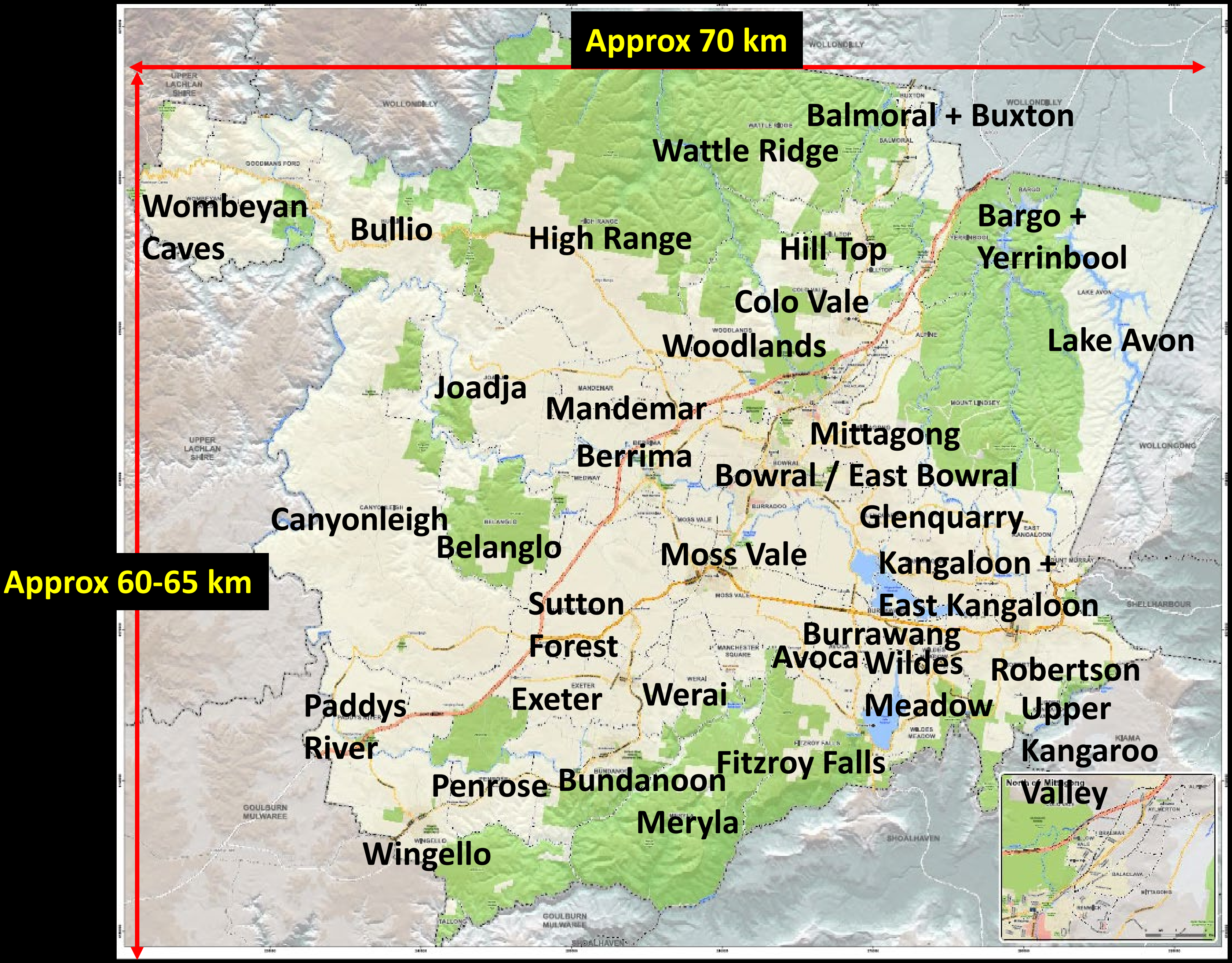
Dan Clarke - Conservation Officer – APS NSW

- Botanical Consultant – within the Ecological Consultants Association of NSW (since 2011).

- Operated DM Clarke Botanical Consulting Services (2015-2022).

- Just rebranded as **Arcane Botanica Pty Ltd** (2022).

- One of my first "big gigs" was surveying vegetation in the Wingecarribee LGA to inform the drafting of the new vegetation map in 2015. From this.....



Approx 70 km
Approx 60-65 km
Balmoral + Buxton
Wattle Ridge
Wombeyan Caves
Bullio
High Range
Hill Top
Bargo + Yerrinbool
Colo Vale
Woodlands
Lake Avon
Joadja
Mandemar
Mittagong
Berrima
Bowral / East Bowral
Glenquarry
Canyonleigh
Belanglo
Moss Vale
Kangaloon + East Kangaloon
Sutton Forest
Burrawang
Avoca
Wildes Meadow
Robertson
Upper Kangaroo Valley
Exeter
Werai
Paddys River
Fitzroy Falls
Penrose
Bundanoon
Meryla
Wingello

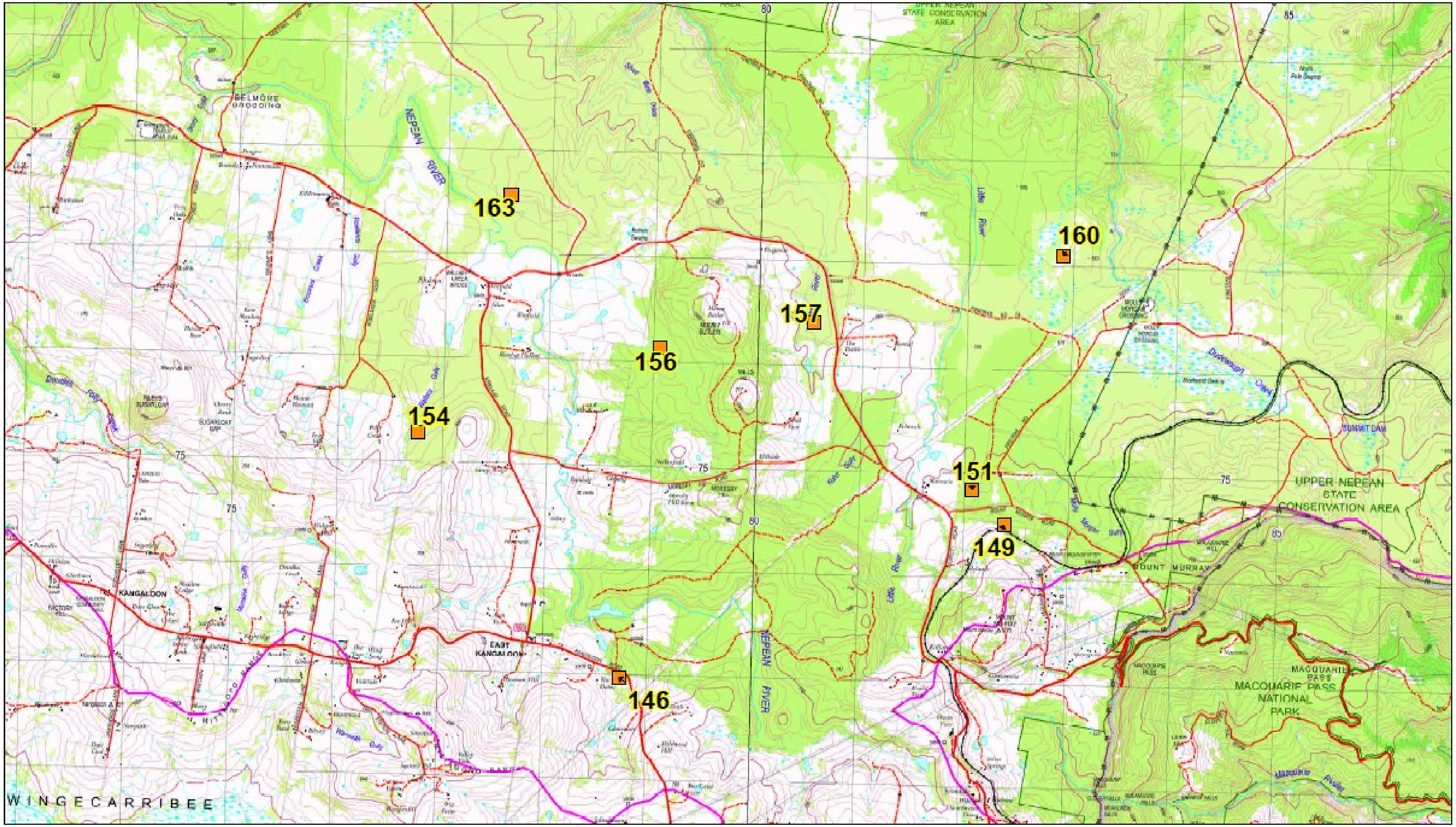
Our Mission (Dec 2015 to Apr 2016)

- Sample 150 vegetation plots (quadrats).

- Each quadrat = 20 x 20 m (0.04 ha) collecting full floristic data. Each quadrat will take an average time of 2 hours.

- 80% of quadrats were on private land.

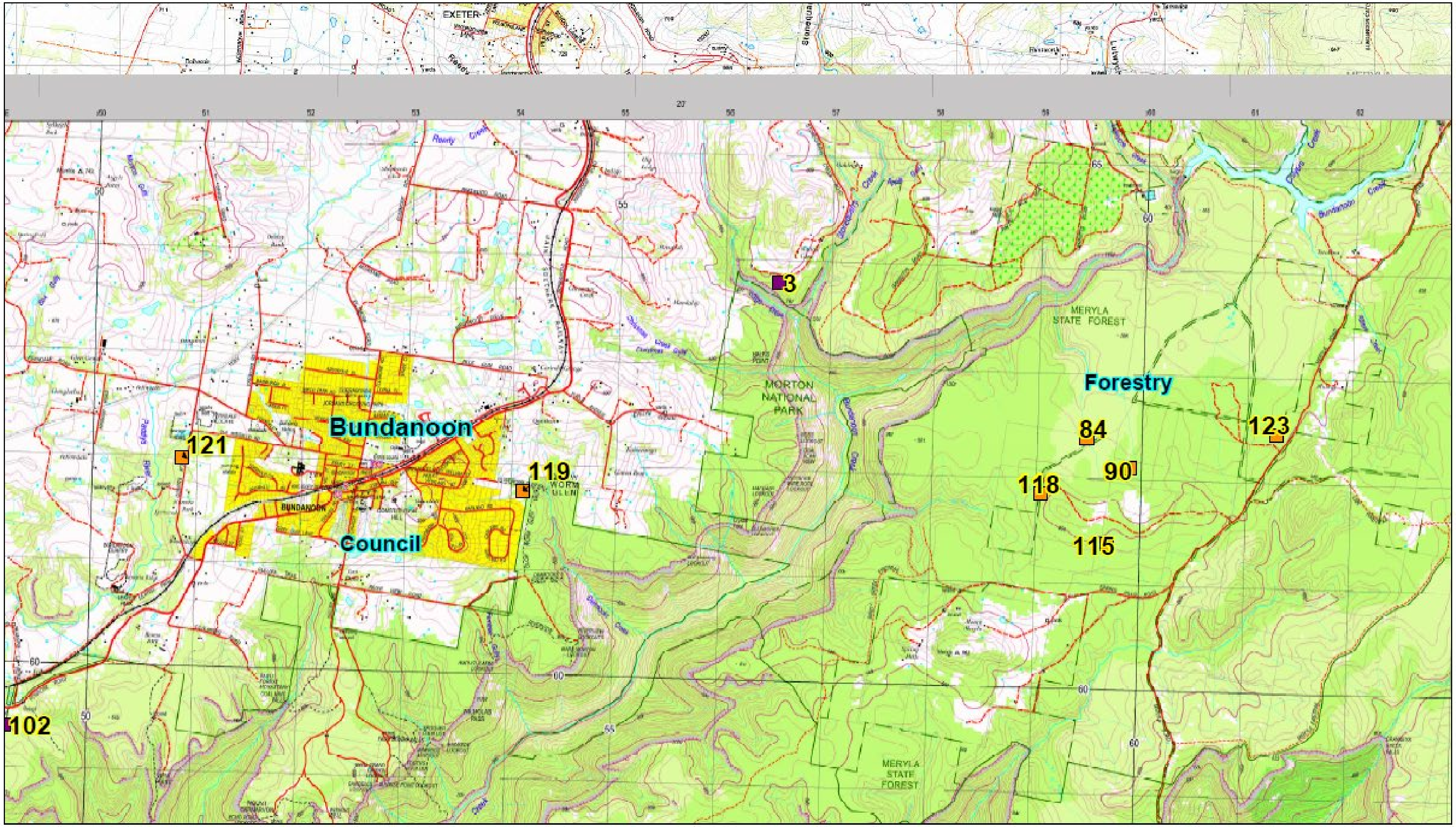
- Team = James Rees, Katherine Lykos, Tony Rodd and myself. (John Arney helped on the first day).



146 = 278736, 6173091	156 = 279132, 6176249	1 cm = 500 m
149 = 282422, 6174547	157 = 280605, 6176486	
151 = 282118, 6174889	160 = 282990, 6177125	
154 = 276816, 6175437	163 = 277708, 6177714	

NPWS / WATER MANAGEMENT managed sites

N



121 = 250855, 6161984

119 = 254121, 6161750

84 = 259500, 6162401

90 = 259917, 6162128

115 = 259719, 6161398

118 = 259065, 6161859

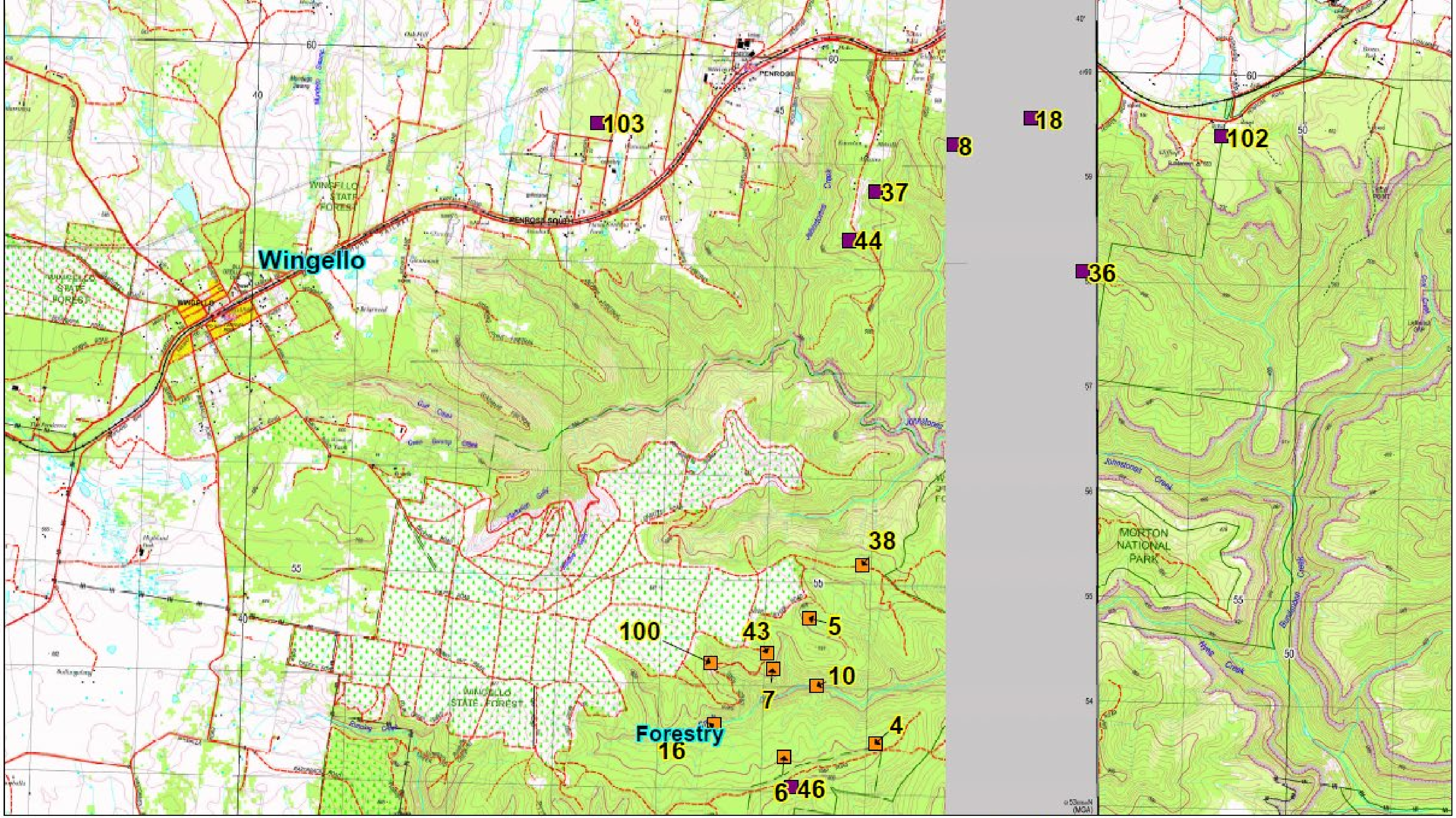
123 = 261312, 6162477

3 = 256516, 6163801

1 cm = 500 m

N

Council/Forestry Managed Sites



1 cm = 500 m

N

Forestry Managed Sites - orange
Private land - purple

4 = 246066, 6153489

5 = 245401, 6154669

6 = 245200, 6153345

7 = 245066, 6154177

10 = 245495, 6154025

16 = 244516, 6153631

38 = 245895, 6155190

43 = 245009, 6154327

100 = 244467, 6154218

8 = 246661, 6159226

18 = 247380, 6159506

36 = 247927, 6158060

37 = 245918, 6158756

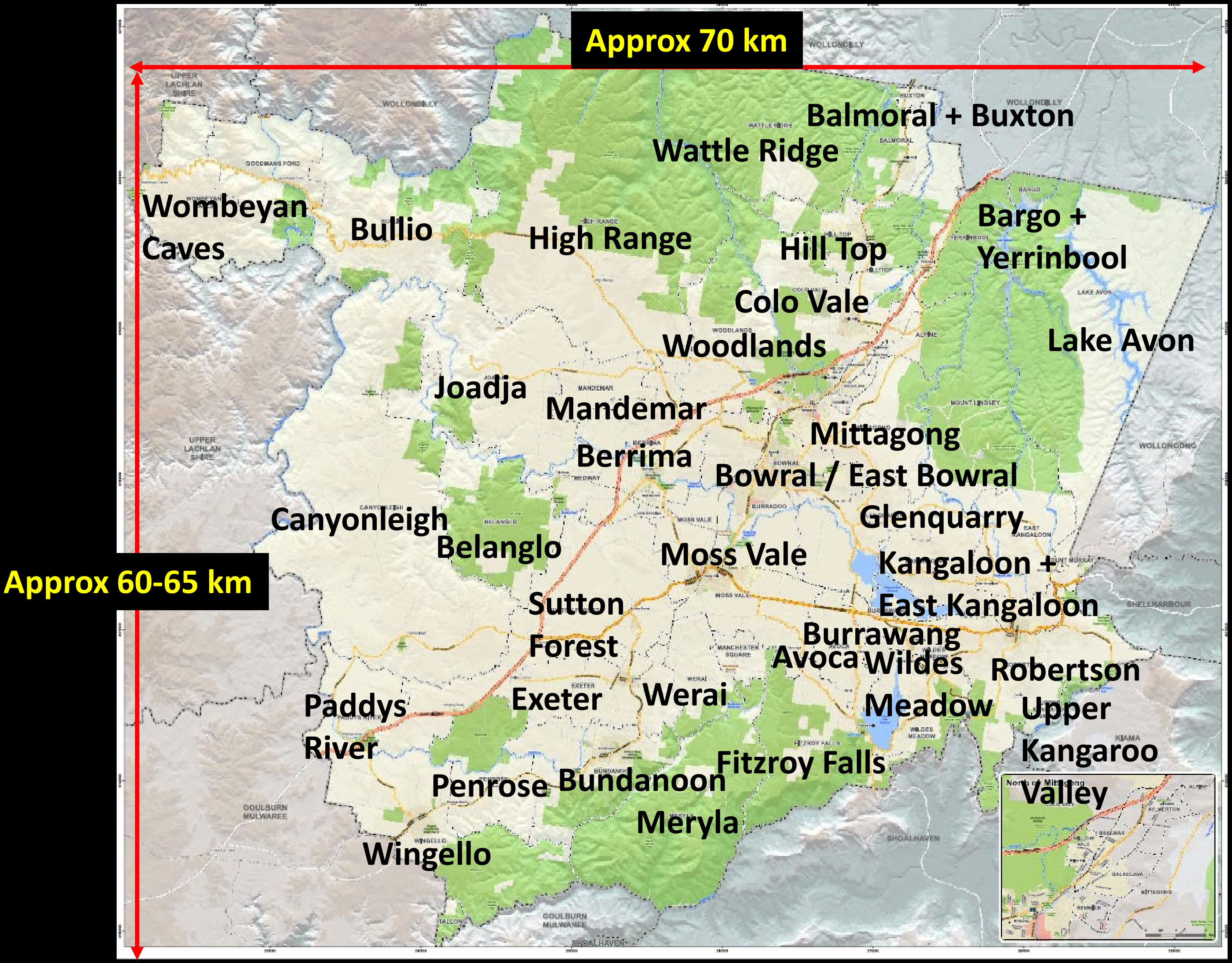
44 = 245683, 6158288

46 = 245280, 6153057

102 = 249206, 6159391

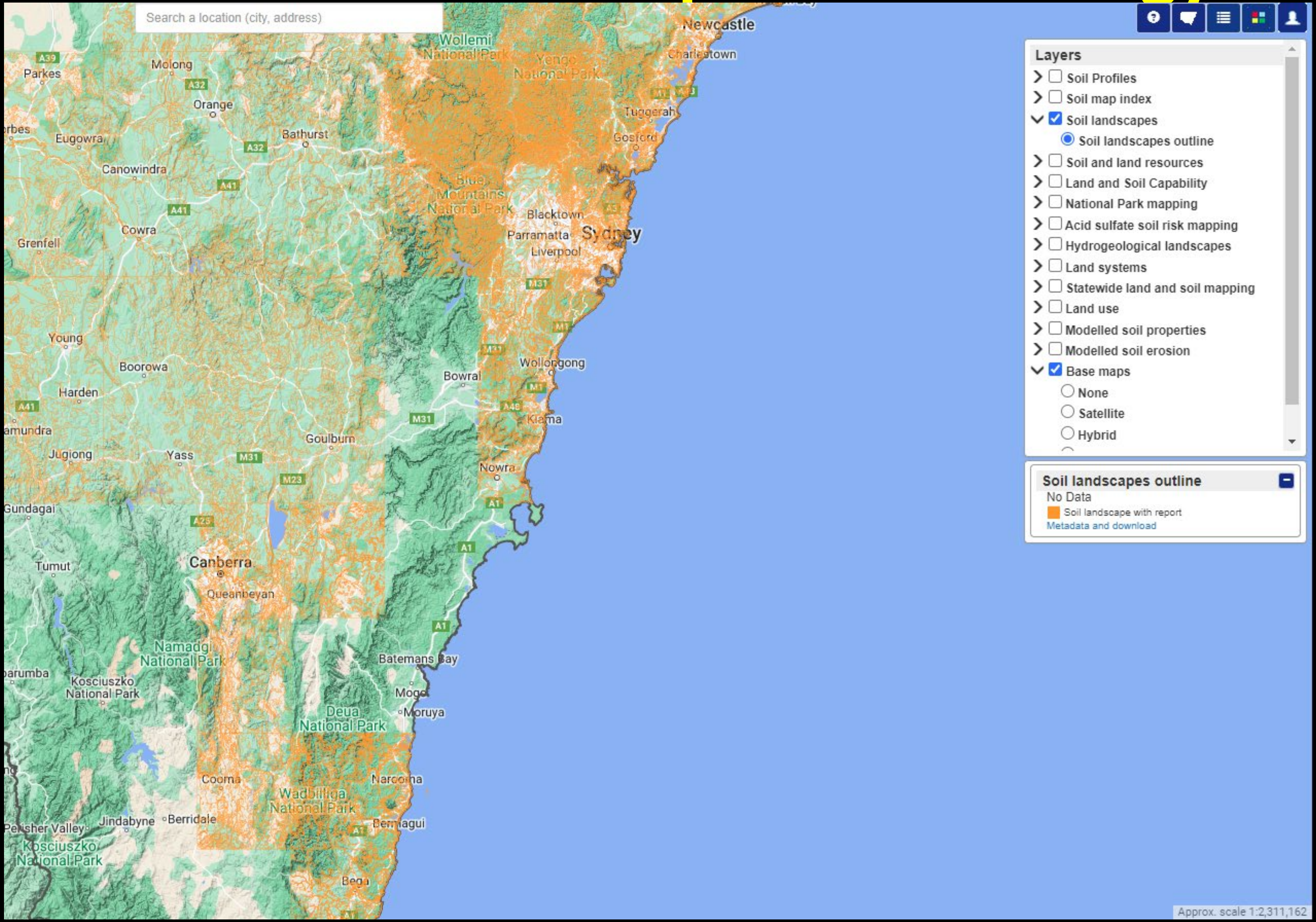
103 = 243236, 6159336

VEGETATION



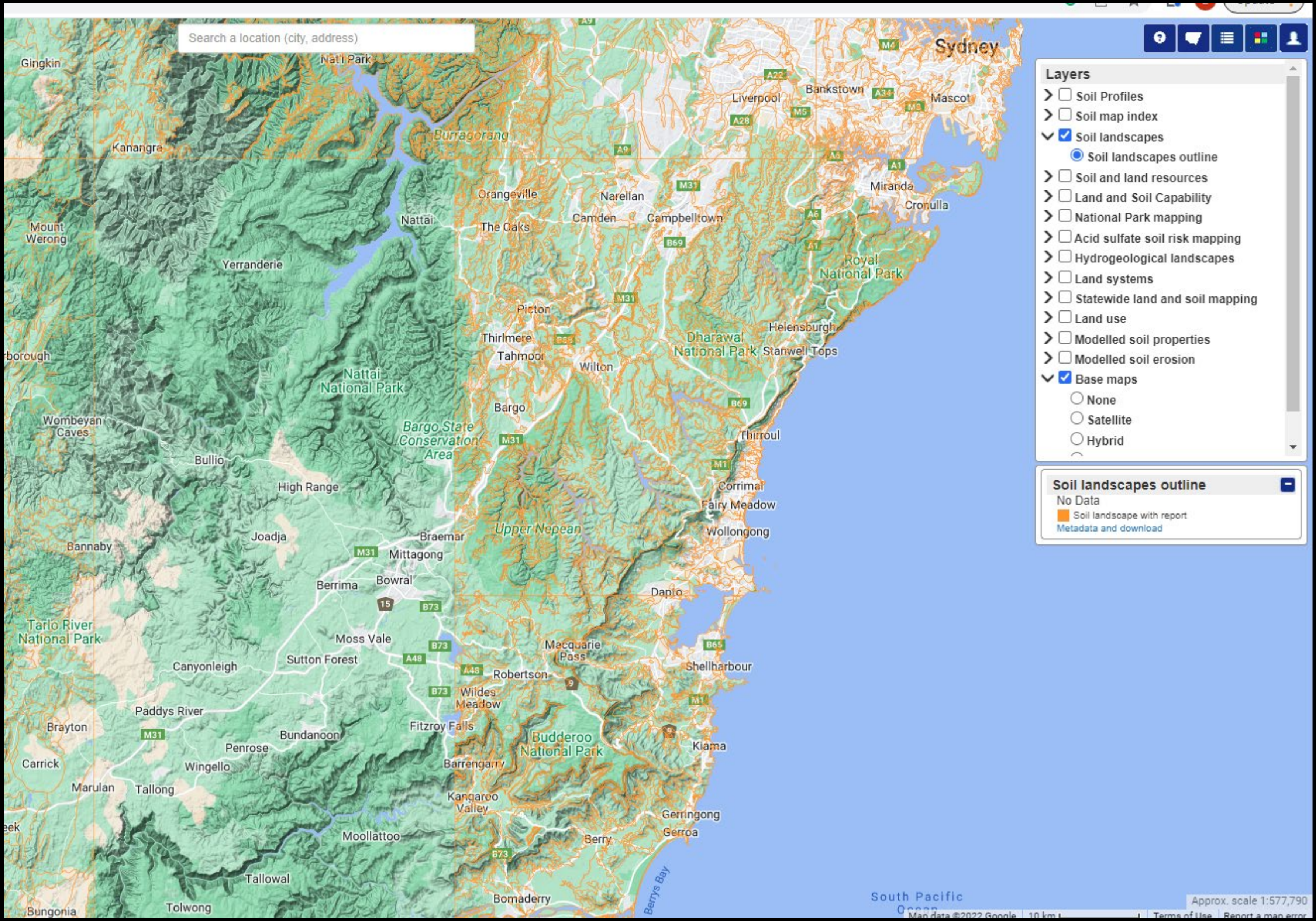
Approx 70 km
Approx 60-65 km
Balmoral + Buxton
Wattle Ridge
Wombeyan Caves
Bullio
High Range
Hill Top
Bargo + Yerrinbool
Colo Vale
Woodlands
Lake Avon
Joadja
Mandemar
Mittagong
Berrima
Bowral / East Bowral
Canyonleigh
Glenquarry
Belanglo
Moss Vale
Kangaloon + East Kangaloon
Sutton Forest
Burrawang
Avoca
Wildes Meadow
Robertson
Exeter
Werai
Paddys River
Upper Kangaroo Valley
Fitzroy Falls
Penrose
Bundanoon
Meryla
Wingello

Soil Landscapes and Geology



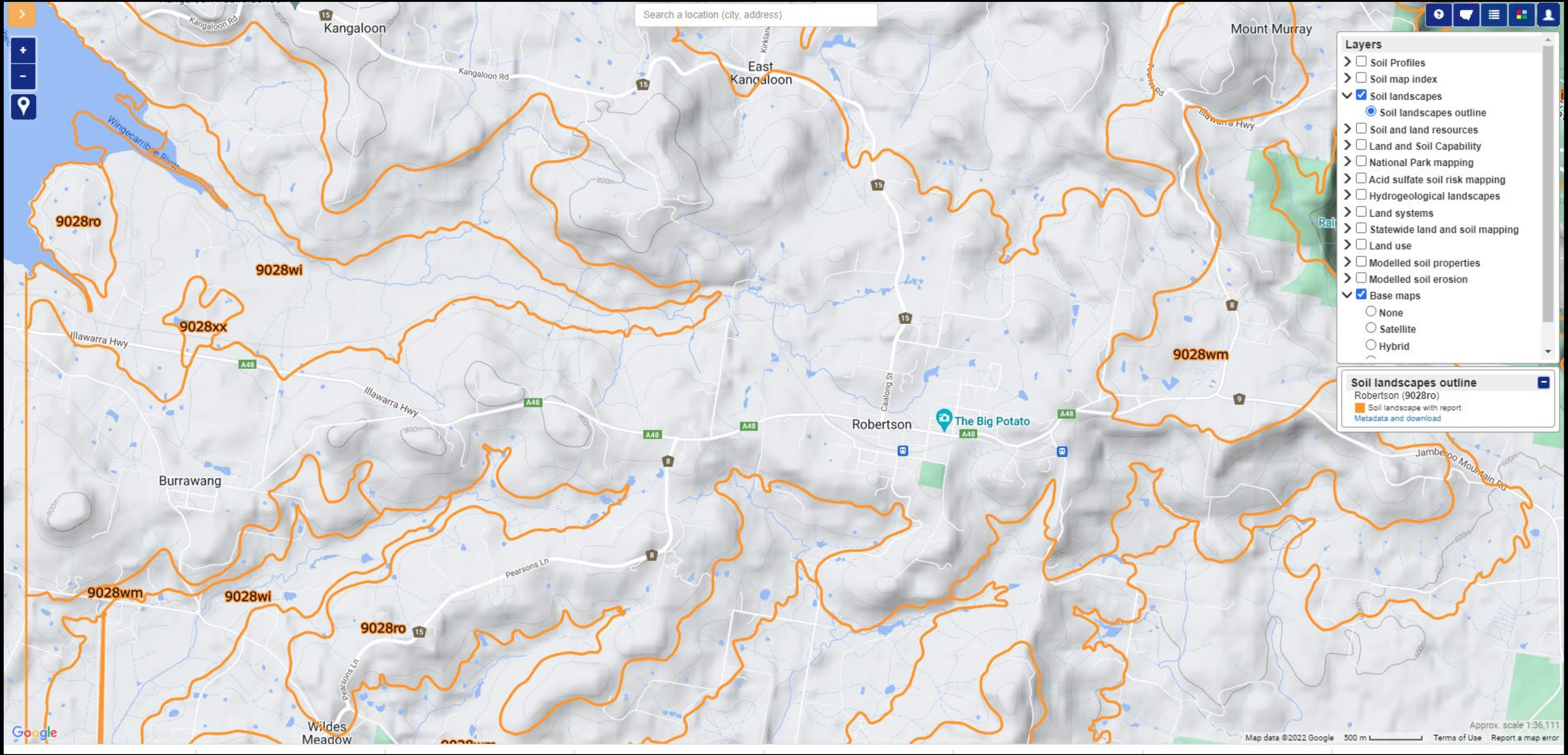
https://www.environment.nsw.gov.au/eSpade2Webapp/

Soil Landscapes and Geology



https://www.environment.nsw.gov.au/eSpade2Webapp/

Soil Landscapes and Geology



https://www.environment.nsw.gov.au/eSpade2Webapp/

ro	ROBERTSON	Residual

Landscape—undulating to rolling hills with flat-topped ridges on basalt and basanite. Relief 30–100 m. Slopes 5–15%. Remnant knolls and small rounded flat-topped crests. Extensively cleared with isolated stands of low woodland and closed-forest.

Soils—deep (>150 cm) red Krasnozems (Gn4.11) occur on upper slopes, brown Krasnozems (Gn4.31) and Red Earths (Gn2.11) occur on midslopes and Xanthozems (Gn4.31) occur on lower slopes.

Limitations—steep slopes (localised), high permeability, hardsetting and sodicity, low available water-holding capacity (topsoil).

LOCATION

Undulating to rolling low hills with flat-topped ridges on basalts and basanites on Moss Vale Tableland. Examples include Robertson, Bells Hill and Knapsack Hill.

LANDSCAPE

Geology

Robertson Basalt—tertiary alkaline olivine basalts and basanites.

Topography

Slopes 5–15%. Remnant knolls and small rounded flat-topped crests; short moderately inclined upper slopes (15–30%) grading into a complex of gently to moderately inclined mid and lower slopes with broad open valleys.

Vegetation

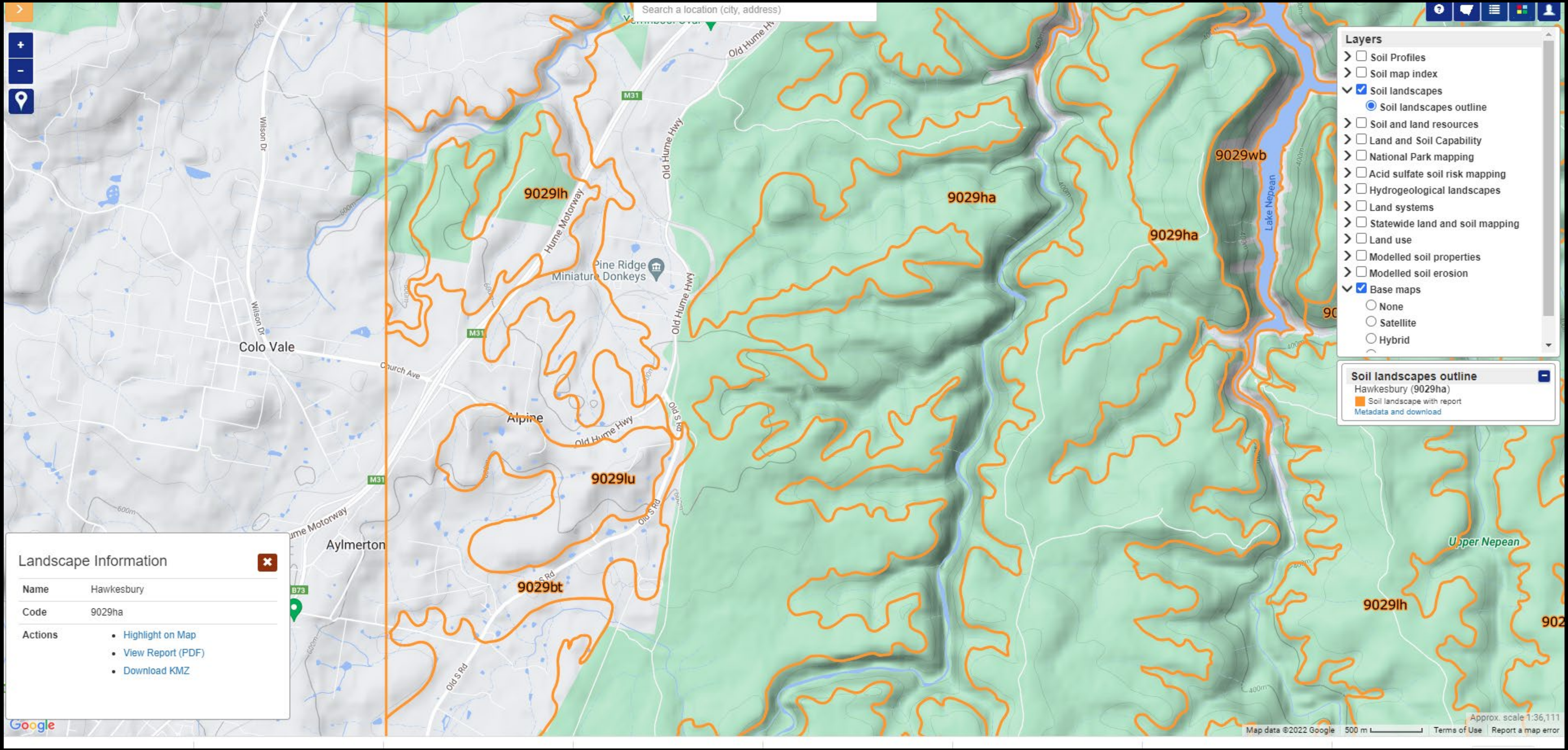
Extensively cleared with isolated remnants of low woodland with closed-forest. Common woodland species include coastal grey box (*Eucalyptus bosistoana*), cabbage gum (*Eucalyptus amplifolia*), thin-leaved stringybark (*Eucalyptus eugenioides*), ribbon gum (*Eucalyptus viminalis*), long-leaved box (*Eucalyptus goniocalyx*), small-leaved gum (*Eucalyptus panifolia*) and black sallee (*Eucalyptus stellulata*). Forest red gum (*Eucalyptus tereticornis*) grows in poorly drained areas. Small-leaved fig (*Ficus obliqua*) is the common closed-forest species.

Land Use

Dairying and beef production on improved pastures, vegetable growing (potatoes), isolated towns—for example, Robertson.

Existing Erosion

Local occurrences of sheet erosion occur on slopes >5% developing into extensive rilling unless well grassed. Minor gully erosion on upper drainage lines.



https://www.environment.nsw.gov.au/eSpade2Webapp/

ha	HAWKESBURY	Colluvial

Landscape—rugged, rolling to very steep hills on Hawkesbury Sandstone. Local relief 100–200 m; slopes >25%. Surface rock >50%. Narrow crests and ridges, narrow incised valleys, steep sideslopes with narrow rocky benches, broken scarps and boulders. Mostly uncleared eucalypt woodland, open-forest (dry sclerophyll forest) and tall open forest (wet sclerophyll forest).

Soils—shallow (<50 cm), discontinuous Lithosols/Siliceous Sands (Uc1.21, Uc6) associated with rock outcrop; Earthy Sands (Uc5.11, Uc5.23), Yellow Earths (Gn2.21) and locally deep sands on inside of benches and along joints and fractures; localised Yellow Podzolic Soils and Red Podzolic Soils (Dy4.11, Dr5.41, Dy5.21) associated with shale lenses; Siliceous Sands (Uc1.21) on narrow valley flats.

Limitations—extreme soil erosion hazard, mass movement (rock fall) hazard, steep slopes, rock outcrop, shallow, stony, highly permeable soil, very low soil fertility.

LOCATION

Steep, rugged, Hawkesbury Sandstone slopes and ridges of the Woronora Plateau, including much of the catchments of the Woronora, Cordeaux, Cataract, Avon and Hacking Rivers. Other examples

NSW mineral resources
Exploring and mining
Industry support
Geoscience
DIGS
MinEx CRC
Geophysical surveys
MinView
New Frontiers Exploration Program
Geology

1:100 000 Geological maps

Geological maps are published at 1:500 000, 1:250 000, 1:100 000 and 1:25 000 scales. Many of these maps are accompanied by comprehensive explanatory notes which can be viewed in the DIGS® online report system or can be purchased as hard copy books, where available.

This page provides links to 1:100 000 geological series maps. Some of the maps are printed; others are print-on-demand. Where available, non-georeferenced images (JPEG format), georeferenced images (ECW format) and GIS vector data (ESRI Shapefile and MapInfo Table format) are provided as free downloads on the individual pages. The index below indicates which maps are available.

Available 1:100 000 geological maps

- Araluen 1:100 000 Geological Map
- Bare Point 1:100 000 Geological Map
- Bathurst 1:100 000 Geological Map
- Berridale 1:100 000 Geological Map
- Blayney 1:100 000 Geological Map
- Bobadah 1:100 000 Geological Map

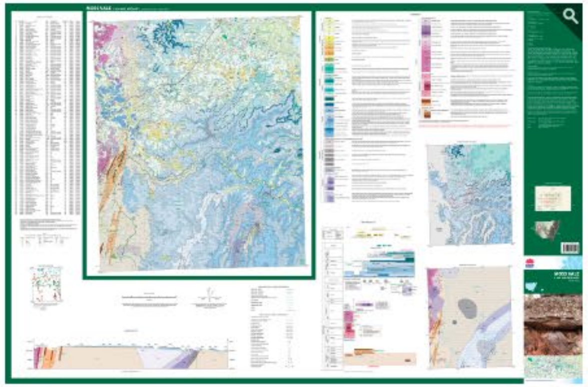
https://www.regional.nsw.gov.au/meg/geoscience/products-and-data/maps/geological-maps/1-100-000

Moss Vale 1:100 000 Geological Map

Catalogue Number: 112
Map Sheet Code: 8928
Scale: 1:100,000
2016 - First Edition (Current)

NSW GOVERNMENT

Deselect All Download



VIEW ONLINE: Google Earth (requires Google EarthTM software)
Google Maps

COMMENT: Please specify folded or flat when ordering maps. Note that this map is printed on synthetic paper which is waterproof and much tougher than conventional papers.

REFERENCE: Trigg S.J. & Campbell L.M. 2016. Moss Vale 1:100 000 Geological Sheet 8928. Geological Survey of New South Wales, Maitland.

PRICE: $19.80 Buy online

RELATED: Moss Vale - Explanatory Notes First Edition

Description	File Size	File Type	OCR	Select
Thumbnail	22.9 KB	JPG	OCR	✓
Mapsheet - Non-georeference image	15.4 MB	JPG	OCR	✓
Mapsheet - Georeference image	11.1 MB	ZIP	OCR	✓
Mapsheet - Vector, ESRI	9.6 MB	ZIP	OCR	✓
Mapsheet - Vector, MapInfo	6.1 MB	ZIP	OCR	✓
	TOTAL: 42.2 MB			DOWNLOAD

https://www.regional.nsw.gov.au/meg/geoscience/products-and-data/maps/geological-maps/1-100-000

MOSS VALE 1:100 000 GEOLOGY Geological Series Sheet 8928

MINERAL OCCURRENCES

ID	METINDEX ID	NAME	SIZE	COMMODITY	ACCURACY	MGAE	MGAN
1	217397	North Ditly Hill	OCC	Industrial minerals	200	231105	6174790
2	217396	Mt Pleasant	OCC	Industrial minerals	200	231404	6168790
3	202072	Canyonleigh, "Nandi"	N/A	Construction materials	1000	236354	6176440
4	217801	Marulan	UNKN	Construction materials	25	238382	6168990
5	203275	Unnamed sand pit	N/A	Construction materials	100	240104	6165090
6	208945	Long Swamp Peat	MED	Coal/Peat	100	241104	6166190
7	202447	Wandoo Clay/shale, Kuhn	SML	Construction materials	100	241204	6165440
8	206948	Pit on Joannou property	N/A	Construction materials	100	241954	6164990
9	201742	Joannu quarry	SML	Construction materials	100	241954	6165440
10	209796	Unnamed bauxite	N/A	Bauxite	100	242604	6168690
11	201173	Rockleigh, Belanglo Forest	MED	Construction materials	100	243104	6178690
12	201950	Rockleigh old pit	N/A	Construction materials	100	243504	6178590
13	202053	Canyonleigh pit	MED	Construction materials	100	243604	6168690
14	101092	BHP quarry	SML	Bauxite	100	243655	6169130
15	101091	Bauxite near Ellsmore Trig	SML	Bauxite	250	244265	6169275
16	209694	Unnamed bauxite	SML	Bauxite	500	244570	6165230
17	209857	Hume Highway, Exeter Turnoff	LGE	Construction materials	100	245970	6166990
18	140081	Sutton Forest Proposal	LGE	Coal/Peat	25	246604	6171190
19	209859	Sutton Forest Laterite	SML	Construction materials	100	246825	6165225
20	209860	Golden Valley Road	LGE	Construction materials	100	252604	6172790
21	206950	Mount Gingenbullen resource	N/A	Construction materials	100	254004	6175290
22	200895	New Berrima	MED	Construction materials	100	255004	6177690
23	210257	Exeter railway cutting	LGE	Construction materials	100	255104	6167890
24	202100	Exeter quarry	LGE	Construction materials	100	255304	6165890
25	209769	Stonequarry Creek Road	N/A	Construction materials	25	256854	6166890
26	101094	Conlons Find	OCC	Au–Ag	250	257071	6171065
27	209802	Unnamed pit	N/A	Construction materials	100	258254	6174490
28	209862	Green Hills area	LGE	Construction materials	100	258504	6165390
29	209806	Colyers Creek	LGE	Construction materials	100	260604	6167690
30	208178	Wingecarribee River, Moss Vale	OCC	Gems	500	260604	6175690
31	209861	Yarrawa-Meryla Roads	LGE	Construction materials	100	260804	6170340
32	209770	Meryla Road	N/A	Construction materials	25	263004	6166640
33	207184	Marulan, Shepherds Hill	N/A	Construction materials	50	226494	6158110
34	209664	Vernaville	SML	Construction materials	50	226954	6158940
35	209764	Limekiln Trig Station	OCC	Industrial minerals	50	228604	6153690
36	217400	Allens pit	UNKN	Construction materials	25	231954	6152410
37	209771	Kettles pit	MED	Construction materials	25	232430	6152523
38	218469	Coal Mine Hill	SML	Coal/Peat	250	233830	6150910
39	216590	PML 1 Wingello	N/A	Industrial minerals	50	234354	6154690
40	201172	Paddys River	UNKN	Construction materials	100	234704	6161590
41	216589	Wingello	N/A	Industrial minerals	50	235704	6158590
42	216591	PML 12 Wingello	N/A	Industrial minerals	50	235804	6160065
43	209858	South of Wingello	UNKN	Construction materials	500	239354	6155690
44	209749	Pleasant Farm landfill site	LGE	Construction materials	100	239504	6163590
45	101089	Wingello bauxite	OCC	Bauxite	250	240804	6155490
46	209856	Hanging Rock Swamp	OCC	Coal/Peat	500	240604	6162880
47	201318	Penrose sand pit	N/A	Construction materials	100	241304	6164590
48	201713	Penrose sand quarry	VLGE	Construction materials	100	241804	6163990
49	201762	Ashbank quarry	SML	Construction materials	100	241999	6158324
50	202089	Wingello State Forest sand resource	VLGE	Construction materials	25	242804	6154590
51	202461	Spotted Gum pit, Wingello	SML	Construction materials	100	242904	6152990
52	210211	Unnamed bauxite	OCC	Bauxite	50	243104	6152690
53	202613	Gap Road forestry pit	UNKN	Construction materials	100	243104	6153040
54	202088	Penrose State Forest sand resource	VLGE	Construction materials	25	243304	6162440
55	101093	Camden bauxite	SML	Bauxite	250	244395	6164409
56	202084	Penrose	SML	Construction materials	100	244944	6160290
57	202087	Unnamed sand pits	UNKN	Construction materials	100	245454	6160690
58	101090	Monks pit	SML	Bauxite	250	246054	6164190
59	209855	Ferndale Swamp	SML	Coal/Peat	500	246304	6163190
60	206944	Unnamed pit	N/A	Construction materials	100	247604	6158140
61	207035	Bundanoon quarry	MED	Construction materials	50	250204	6160790
62	207041	Bundanoon, old quarries	UNKN	Construction materials	25	250504	6161690
63	140086	Erith coal mine	LGE	Coal/Peat	25	251924	6159700
64	101114	Kangaroo Valley alluvials	OCC	Au	500	255642	6151190
65	209767	Redhills Road 1	SML	Construction materials	25	264929	6163310
66	209768	Redhills Road 2	N/A	Construction materials	25	265054	6162910
67	202338	Somerset Road quarry	SML	Construction materials	100	267404	6163590
68	107035	Fitzroy Falls sapphire occurrence	OCC	Gems	10000	269104	6163190
69	208180	Fitzroy Falls	OCC	Gems	500	270004	6163990
70	208202	Kangaroo Valley	OCC	Gems	250	270204	6152990
71	107639	Paddys Peak prospect	OCC	Au–other	2500	225577	6145186
72	210314	Bungonia B limestone	LGE	Limestone	50	226094	6142755
73	101100	O'Neills molybdenite Mine	OCC	Mo	250	226217	6138985
74	101107	Dog Den Creek alluvials	OCC	Au	250	226597	6139260
75	107015	Balchams Gully workings	OCC	Au	250	226604	6137690
76	207388	Bungonia A limestone	LGE	Limestone	50	227004	6144800
77	101101	Long Gully gossan	SML	Mn-other	250	227029	6140550
78	101103	Tolwong Block-Up mine	SML	Sn-other	250	227510	6139370
79	101104	Spring Creek alluvials	OCC	Au	250	227510	6139370
80	101108	Long Gully alluvials	OCC	Au	250	227583	6140286
81	101102	O'Neill and Charmichaels mine	OCC	Au–Ag	250	227651	6141477
82	201984	South Marulan white clay deposit	LGE	Construction materials	25	227804	6147340
83	201983	South Marulan clay shale deposit	LGE	Construction materials	100	227904	6147990
84	101099	Marulan Quarry copper occurrence	OCC	Cu	250	228092	6146884
85	207418	South Marulan	VLGE	Limestone	100	228320	6148150
86	218310	Marulan South quarry proposal	VLGE	Construction materials	250	228450	6149860
87	218344	Tangryang	UNKN	Construction materials	1000	229000	6150130
88	208781	Shoalhaven River, Bungonia	OCC	Gems	250	229304	6140290
89	203308	Shoalhaven River	OCC	Gems	50000	230104	6150190
90	101105	Tolwong North mine	OCC	Base metals-other	250	230199	6142189
91	101106	Tolwong mine	SML	Base metals-other	250	230404	6141140
92	210055	Tolwong	OCC	Industrial minerals	50	230404	6141160
93	208684	Ballanya Hill	OCC	Limestone	750	230904	6151040
94	202858	Badgery Lookdown silcrete	N/A	Industrial minerals	100	234904	6148790
95	202856	Cacura Road silcrete	N/A	Industrial minerals	100	235730	6150010
96	202857	Cacura Homestead silcrete	N/A	Industrial minerals	100	240330	6147590
97	107055	Grassy Gully SW workings	OCC	Au	250	262404	6139640
98	107056	Dead Mans adit	OCC	Au	250	262804	6139940
99	101130	Percivals claim	OCC	Au	250	262804	6140040
100	107057	Grassy Gully Creek alluvials	OCC	Au	250	262954	6140090
101	101129	Grassy Gully reef	SML	Au–Ag	250	262994	6140140
102	208182	Shoalhaven River sapphire	OCC	Gems	500	264604	6139190
103	209888	Willow Flat	LGE	Construction materials	100	265004	6141440
104	201746	Burrier sand & gravel pit	LGE	Construction materials	100	266154	6139240
105	107638	Washed Away Creek	OCC	Au	250	225908	6132964
106	107274	Hillydale prospect	SML	Co–other	250	225934	6134638
107	107014	Nuggety Ridge workings	OCC	Au	250	226354	6135990
108	101109	Jacqua Creek mine	OCC	Base metals	250	226555	6127639
109	107016	Cowhole Creek workings	OCC	Au	250	227104	6133690
110	107022	Dollypot Ridge mine	OCC	Au	250	228104	6127190
111	207461	Carmichael Slate mine	N/A	Construction materials	1000	228504	6131890
112	107080	Specimen Gully alluvials	OCC	Au	500	228604	6124490
113	101110	Wash Away Creek mines	OCC	Au	250	228608	6130242
114	107017	El Dorado workings	OCC	Au	250	229104	6134190
115	107019	Wash Away Creek alluvials	SML	Au	250	229604	6131990
116	101111	New Come Up Ridge alluvials	OCC	Au	250	230804	6134790
117	101112	Shoalhaven River alluvials	SML	Au–other	250	233309	6123932
118	107018	Great Horseshoe Bend alluvials	OCC	Au	250	233504	6134690
119	107020	Little Horseshoe Bend alluvials	OCC	Au	250	233954	6132790
120	107021	Tims Gully North alluvials	OCC	Au	250	236104	6135690
121	101113	Touga mine	SML	Base metals-other	100	236350	6128780
122	105456	Ettrema mine	OCC	Base metals-other	250	244954	6123990
123	101115	Silver Dell mine	OCC	Base metals-other	250	256437	6134001
124	101116	Foundation Creek mine	OCC	Base metals-other	250	256726	6133275
125	107024	Bundundah Creek prospect	OCC	Base metals	250	257904	6135590
126	101117	Diggers Flat mine	OCC	Base metals-other	100	258104	6128190
127	107029	Star quarry	OCC	Au	50	260374	6131330
128	107031	Pincombe Tunnel	SML	Au	50	260384	6131230
129	101120	Pioneer and Homeward Bound mines	MED	Au–Ag	50	260384	6131430
130	101126	Victory mine	OCC	Au	50	260384	6131590
131	101118	Pinnacle-Eclipse mines	MED	Au–Ag	50	260414	6131920
132	101123	Robert Bruce mine	SML	Au	250	260420	6131519
133	107028	Fountainhead mine	SML	Au	50	260504	6131600
134	101128	Sawpit Creek alluvials	SML	Au	50	260524	6131830
135	101121	Hidden Treasure mine	OCC	Au	50	260554	6131720
136	101127	Danjera Creek alluvials	SML	Au	200	260580	6132712
137	101122	Caledonian mine	MED	Au–Ag	50	260594	6131250
138	101119	Poor Man mine	OCC	Au	250	260598	6132690
139	101124	Golden Crown mine	SML	Au	50	260634	6131730
140	107030	Black Lode and Ushers Tunnel	OCC	Au	50	260664	6131430
141	101125	Golden Quarry mine	SML	Au	50	260694	6131240
142	209889	Burrier Reach	LGE	Construction materials	100	268104	6137190
143	209890	Calymea Reach	LGE	Construction materials	100	270954	6138490

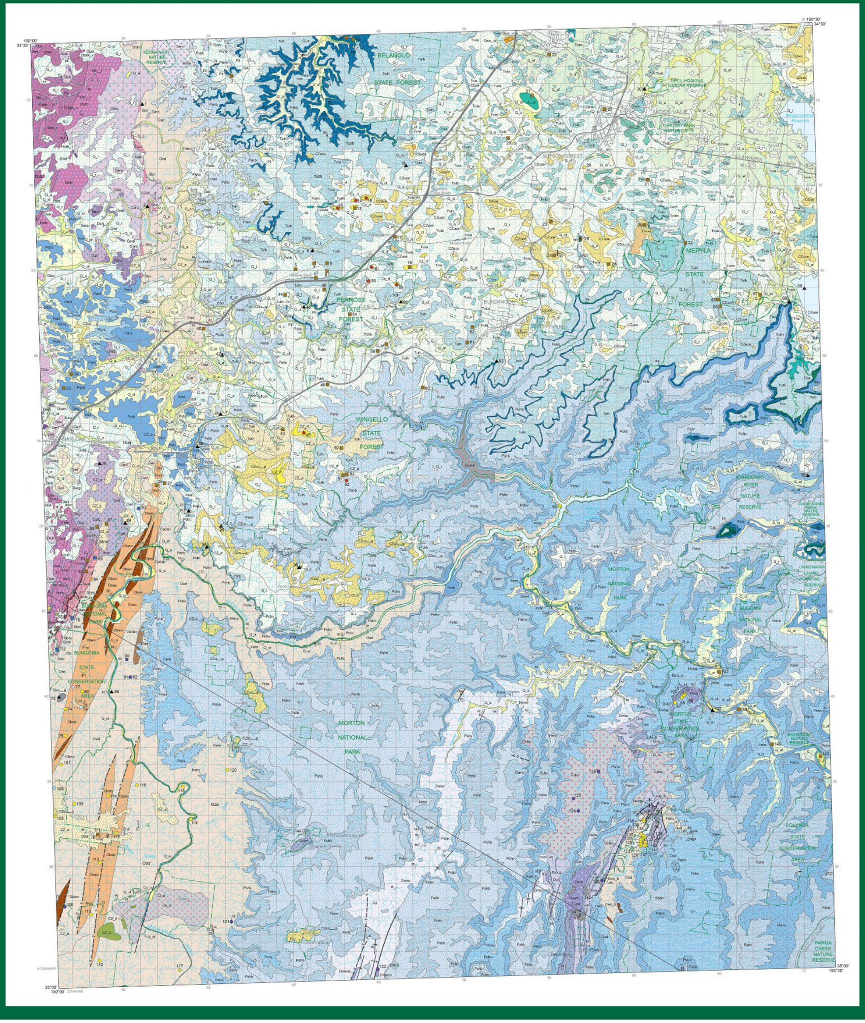
Detailed mineral occurrence information is available through the MinView website at www.resourcesandenergy.nsw.gov.au/miners-and-explorers/geoscience-information/online-services/minview. Site location is generally accurate to within 100 m of stated coordinates.

MINERAL OCCURRENCE NUMBERS
The symbols for the significant mineral and construction material sites are systematically numbered from the top left hand corner in a band approximately 7.5 minutes of an arc wide (i.e. four horizontal strips down the map).

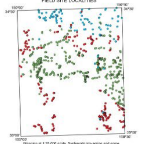
ACCURACY
Locational accuracy is estimated and based of the original observation data. In general the locational accuracy of an individual site, shown on the map face is between 100 m and 300 m.

SIZE

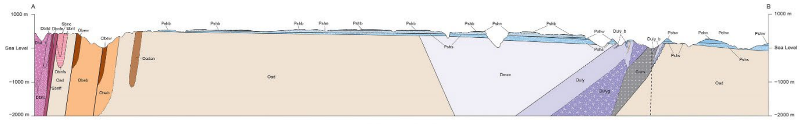
OCC = occurrence, SML = small, MED = medium, LGE = large and UNKN = unknown



FIELD SITE LOCALITIES



CROSS-SECTION



Vertical exaggeration = 2x

TOPOGRAPHICAL SYMBOL REFERENCE

National park, nature reserve, state conservation area, state forest boundary

Gas pipeline

Watercourse, major

Watercourse, minor

Quarry

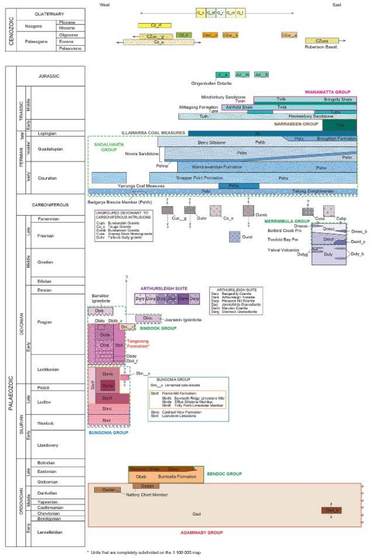
Locality • Hanging Rock

GEOLOGICAL SYMBOL REFERENCE

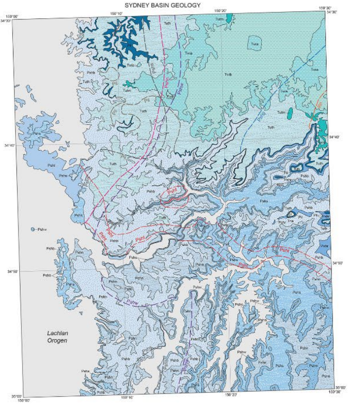
Geological boundary, accurate
Geological boundary, approximate
Geological boundary, inferred
Fault, accurate
Fault, approximate
Fault, inferred
Thrust fault, accurate
Anticline, accurate
Anticline, approximate
Syncline, accurate
Syncline, approximate
Bedding trend
Strike and dip of bedding
Strike and dip of inverted strata
Horizontal bedding
Strike and dip of cleavage
Strike and dip of flow banding
Strike and dip of joint
Vertical joint
Minor anticline showing plunge
Minor syncline showing plunge
Minor fold showing plunge
Inclined fault, sense of displacement unknown
Palaeocurrent direction
Cross-section line A B

REFERENCE

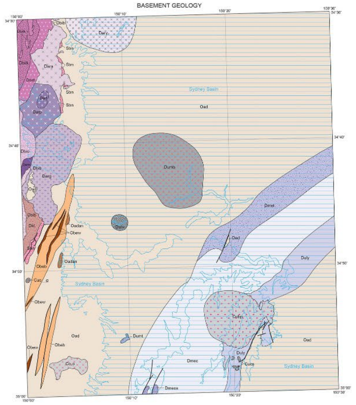
TIME–SPACE PLOT



SYDNEY BASIN GEOLOGY



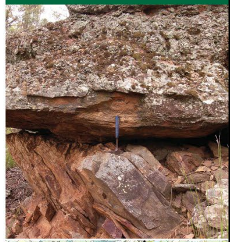
BASEMENT GEOLOGY

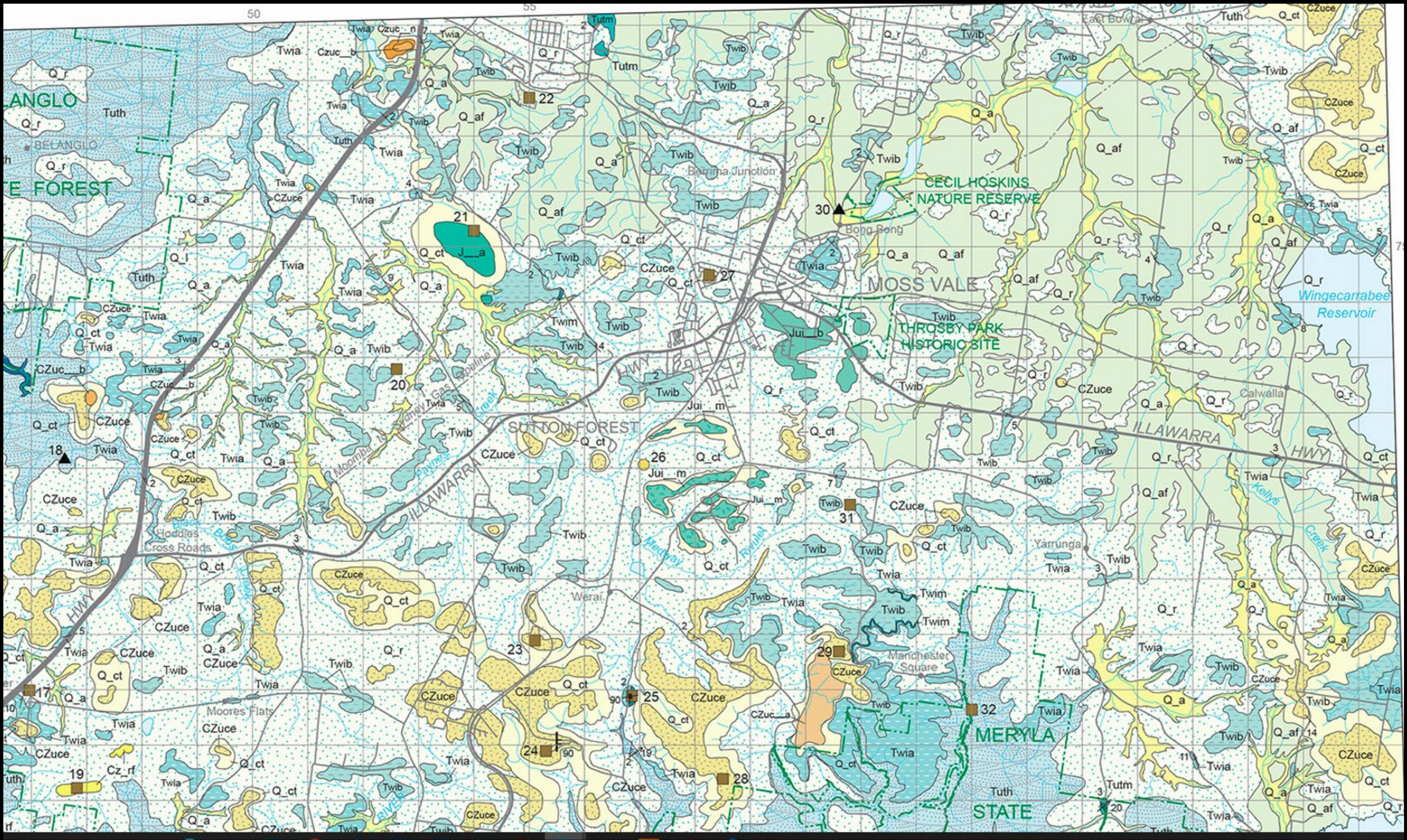


Credits

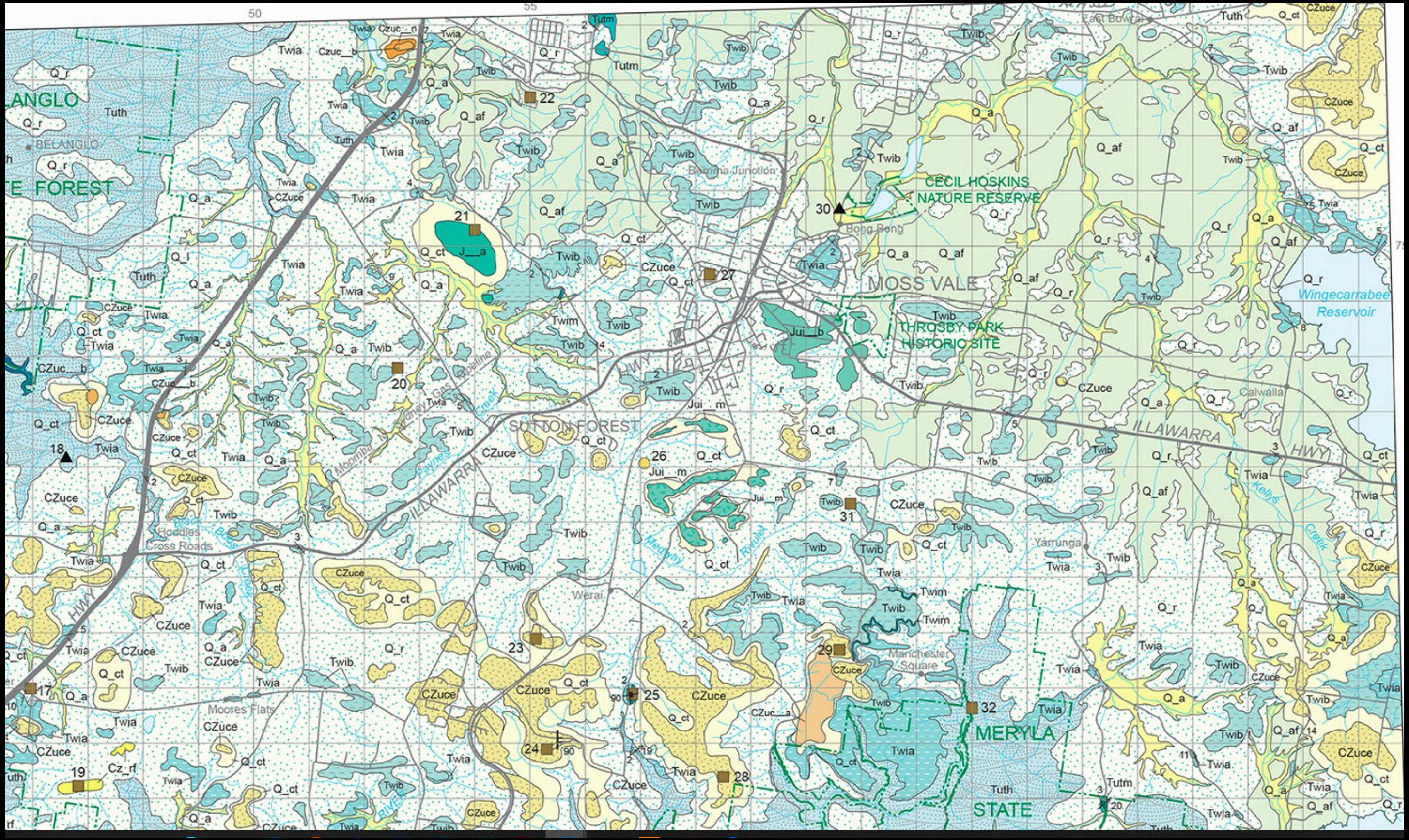
Index to adjoining maps

MOSS VALE
1:100 000 GEOLOGY
Sheet 8928





https://www.regional.nsw.gov.au/meg/geoscience/products-and-data/maps/geological-maps/1-100-000



Quaternary alluvium – floodplain deposits.

Robertson Basalt

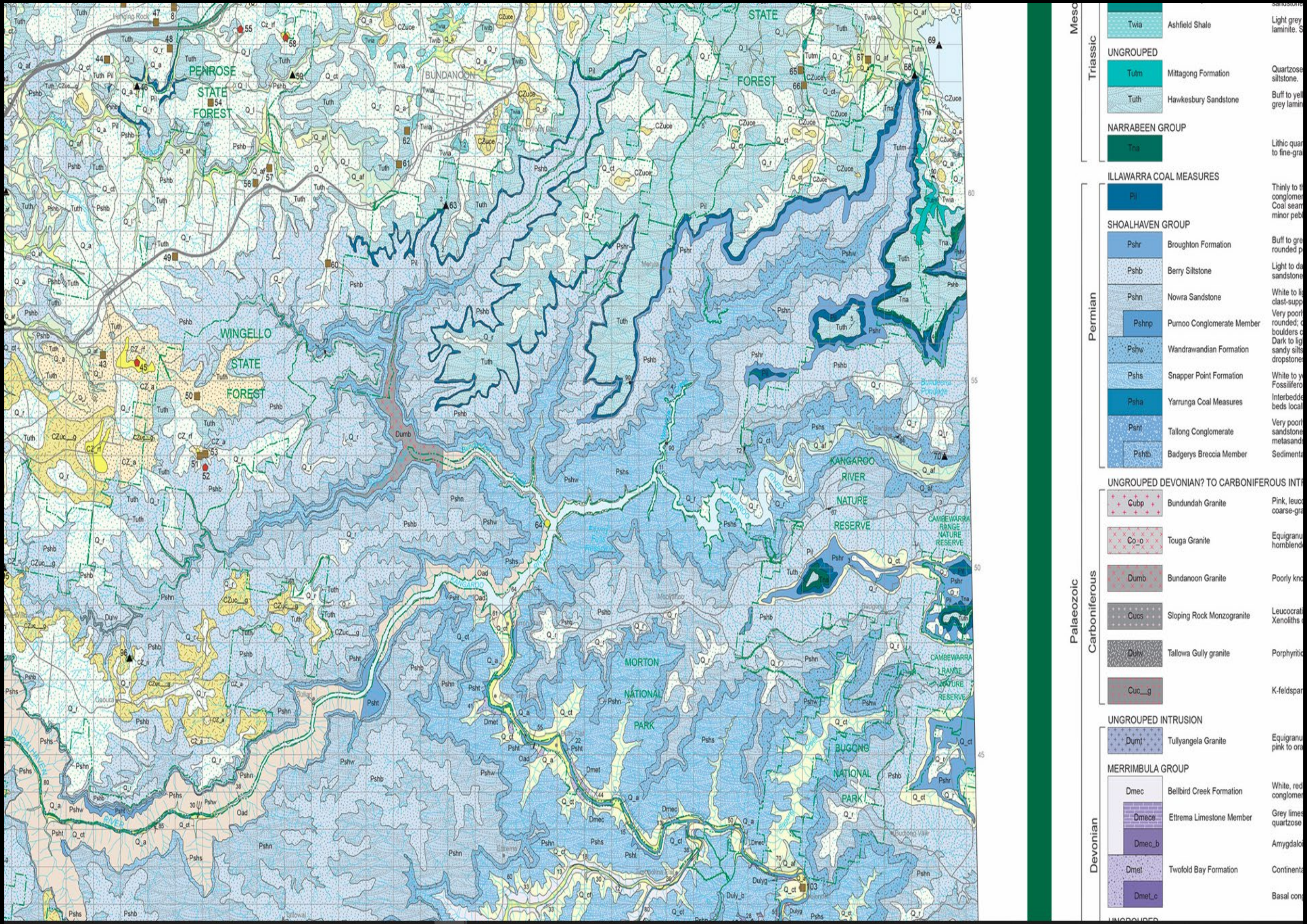
Bringelly Shale / Ashfield Shale

Minchinbury Sandstone

Ungrouped Jurassics = Gingenbullen Dolerite and Syenite-monzanite-diorite (volcanics)

Hawkesbury Sandstone

https://www.regional.nsw.gov.au/meg/geoscience/products-and-data/maps/geological-maps/1-100-000



https://www.regional.nsw.gov.au/meg/geoscience/products-and-data/maps/geological-maps/1-100-000

Shoalhaven Group:

Berry Siltstone
Nowra Sandstone
Broughton Formation – sandstone possibly containing fossils
Illawarra Coal Measures

VEGETATION

- Dry sclerophyll woodlands and forest (shrubby to grassy)

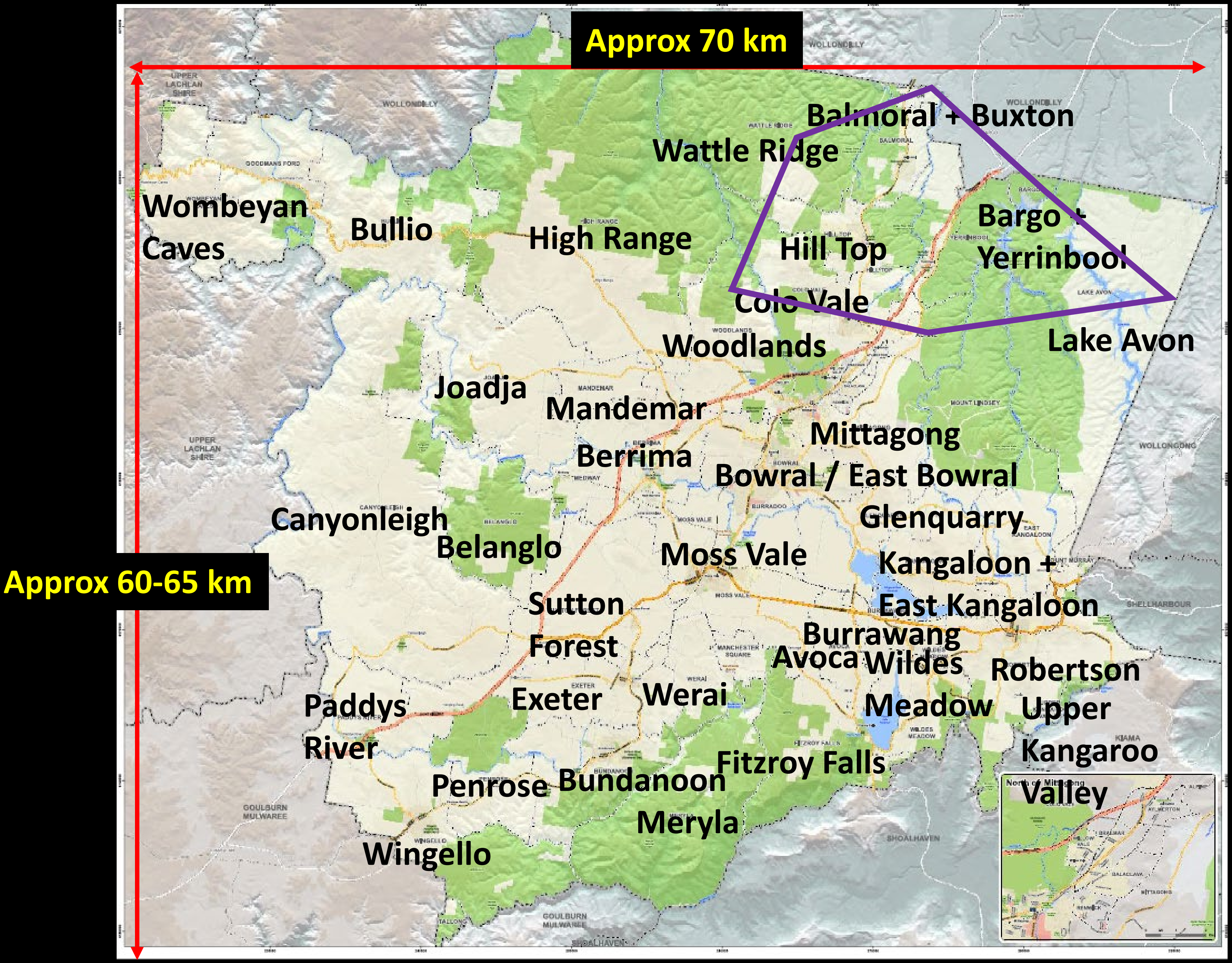
- Wet/moist sclerophyll woodlands and forests

- Swampy woodlands and swamp-shrublands
- Swamps – dominated by sedges and rushes

- Heathlands and shrublands

- Gully Rainforest and Higher rainforest (Robertson Rainforest) – generally warm temperate.

- Derived grasslands



Dan Clarke – Conservation Officer – APS NSW

Vegetation in sub-areas

1. Balmoral , Bargo, Hill Top, Yerrinbool

- Strong dominance of Hawkesbury and Lucas Heights (Mittagong Formation – alternating shale and fine-grained sandstone).
- Dry sclerophyll sandstone-sandy woodlands and forests.

Vegetation in sub-areas

1. Balmoral , Bargo, Hill Top, Yerrinbool

Canopy: *Corymbia gummifera, Angophora costata, Eucalyptus sparsifolia, E. globoidea, E. sclerophylla, E. sieberi, E. piperita.*

Midstorey: *Leptospermum trinervium, Banksia spinulosa, Persoonia laurina, Bossiaea obcordata, Persoonia levis, Acacia myrtifolia.*

Groundlayer: *Anisopogon avenaceus, Microlaena stipoides, Dianella caerulea, Cyathochaeta diandra, Entolasia stricta, Lomandra longifolia.*

1. Balmoral , Bargo, Hill Top, Yerrinbool

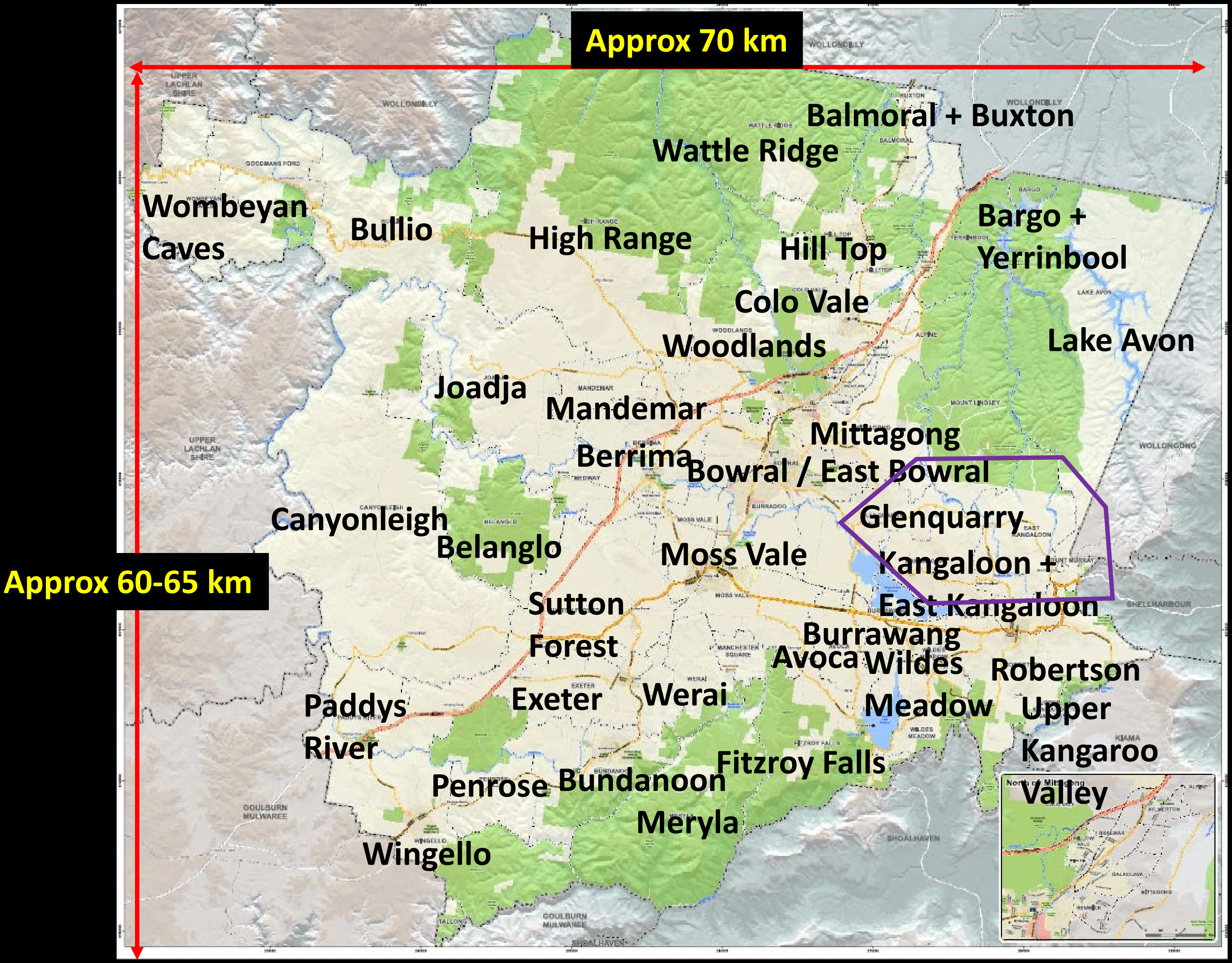
Eucalyptus sclerophylla
E. globoidea / sparsifolia
E. sieberi
E. piperita
Corymbia gummifera

1. Balmoral , Bargo, Hill Top, Yerrinbool

Eucalyptus sclerophylla
E. globoidea / sparsifolia
E. sieberi
E. piperita
Corymbia gummifera

1. Balmoral , Bargo, Hill Top, Yerrinbool

Eucalyptus sclerophylla
E. globoidea / sparsifolia
E. sieberi
E. piperita
Corymbia gummifera



Dan Clarke – Conservation Officer – APS NSW

Vegetation in sub-areas

2. Kangaloon / East Kangaloon / Glenquarry

- Strong dominance of Wildes Meadow (shale-based), Maddens Plains (swamps on sandstone) and Robertson soils landscapes (basalt).

- Mixture of swampy vegetation, moist sclerophyll forest and drier sclerophyll forest.

Vegetation in sub-areas

2. Kangaloon / East Kangaloon / Glenquarry

Canopy:

- Swampy: *Eucalyptus ovata, Eucalyptus cypellocarpa, E. piperita, E. sclerophylla,*
- Drier: *Eucalyptus sieberi* (getting large), *E. piperita, E. radiata, Corymbia gummifera, E. globoidea,*
- Moister (enriched-sand / shale / basalt) – *E. fastigata, E. obliqua, E. cypellocarpa, E. smithii, E. piperita, E. radiata, E. quadrangulata, E. elata* (possibly).

Midstorey:

- *Leptospermum* and *Melaleuca* midstoreys (swampy)
- Drier – *Banksia / Persoonia / Leptospermum*
- Moister – *Pittosporum undulatum / Acacia / Elaeocarpus / Ceratopetalum apetalum / Prostanthera lasianthos* and *Cyathea / Dicksonia*

2. Kangaloon / East Kangaloon / Glenquarry

Eucalyptus cypellocarpa
E. ovata
E. piperita

2. Kangaloon / East Kangaloon / Glenquarry

Eucalyptus cypellocarpa
E. ovata
E. piperita

2. Kangaloon / East Kangaloon / Glenquarry

Eucalyptus sieberi
E. radiata
E. piperita

2. Kangaloon / East Kangaloon / Glenquarry

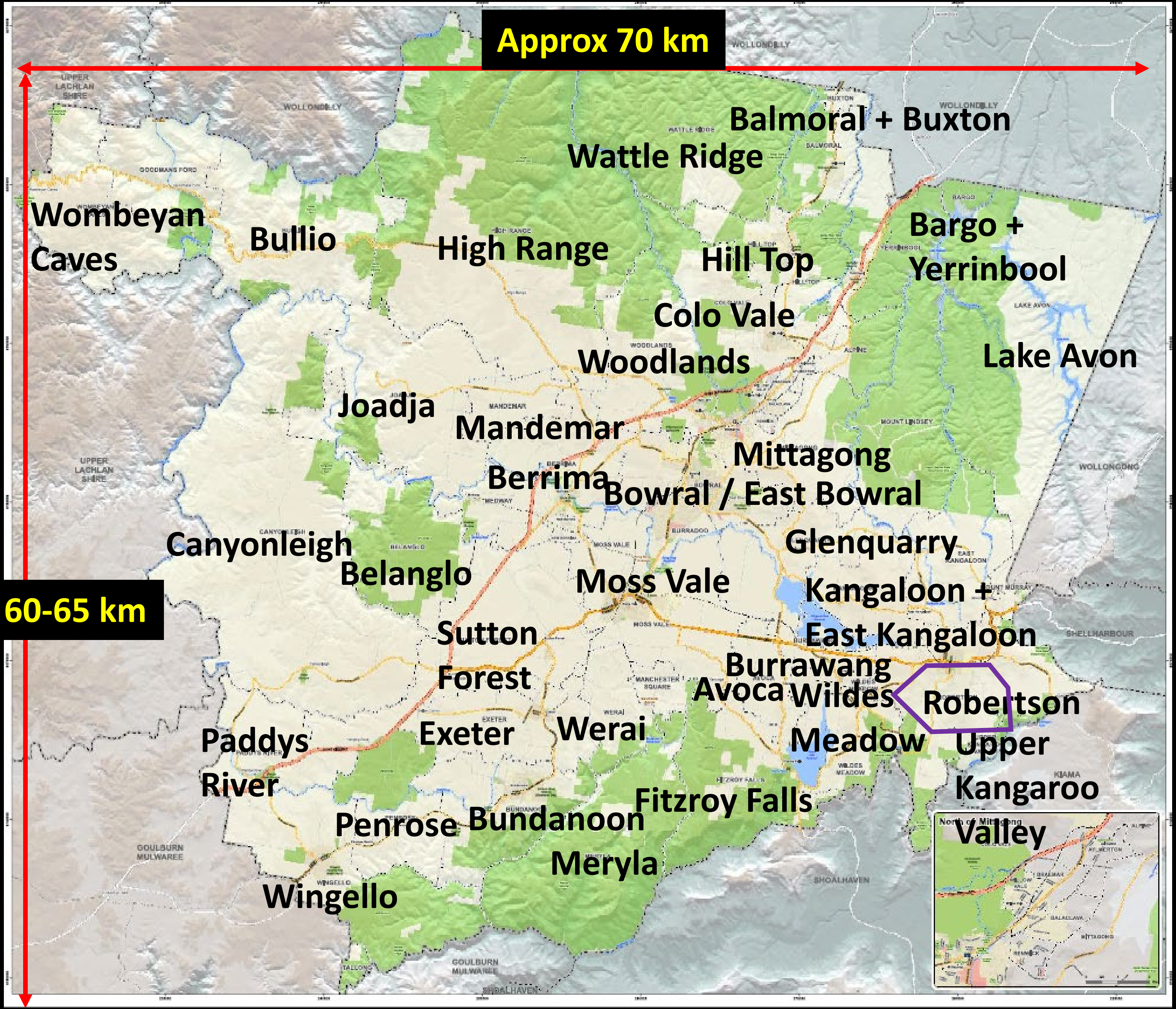
Eucalyptus cypellocarpa

2. Kangaloon / East Kangaloon / Glenquarry

Eucalyptus sieberi
E. obliqua
E. piperita

2. Kangaloon / East Kangaloon / Glenquarry

Prostanthera lasianthos



Dan Clarke – Conservation Officer – APS NSW

Vegetation in sub-areas

3. Robertson

- Robertson basalt deposits / Wildes Meadow (Shale), some sandy country.
- Supports Robertson Rainforest and tall moist sclerophyll forests.

Vegetation in sub-areas

3. Robertson

Wet sclerophyll forest

Canopy: *E. fastigata, E. obliqua, E. smithii, E. cypellocarpa, E. piperita, E. radiata.*

Midstorey: *Pittosporum undulatum, Cyathea australis, Acacia melanoxylon, Leucopogon lanceolatus, Prostanthera lasianthos*

Groundlayer: *Range of grasses, forbs, climbers, Hibbertia empetrifolia and H. dentata.*

3. Robertson

Eucalyptus fastigata
E. cypellocarpa
E. smithii

3. Robertson

Eucalyptus smithii

3. Robertson

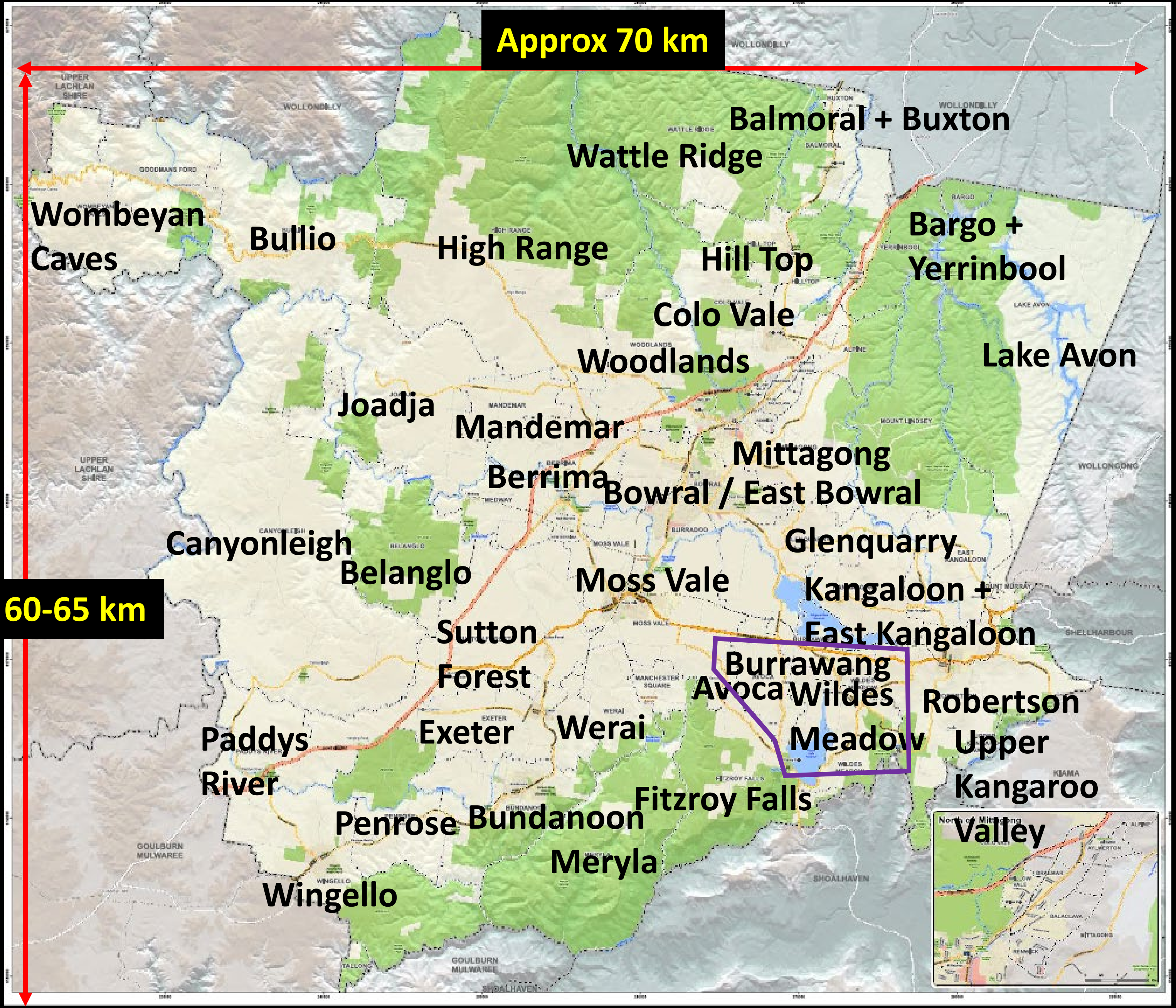
Eucalyptus fastigata

Vegetation in sub-areas
3. Robertson Rainforest

Canopy: *Doryphora sassafras, Acmena smithii, Ceratopetalum apetalum, Quintinia sieberi, Polyosma cunninghamii*

Midstorey: *Pittosporum undulatum, Cyathea australis, Dicksonia antarctica, Coprosma quadrifida, Tasmannia insipida, Acacia melanoxylon.*

Groundlayer: *Range of rainforest climbers, ferns and scramblers.*



Dan Clarke – Conservation Officer – APS NSW

Vegetation in sub-areas

4. Avoca / Wildes Meadow / Burrawang

- Mixtures of:
  a. dry sandy woodland/forest
  b. taller moist forests on enriched shale and basalt.

Vegetation in sub-areas

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

Canopy: *Eucalyptus obliqua / cypellocarpa / fastigata / piperita / sieberi /*

Midstorey: *Pittosporum undulatum, Cyathea australis, Acacia melanoxylon, Leucopogon lanceolatus, Banksia spinulosa, Acacia obtusifolia,*

Groundlayer: *Poa labillardierei, Microlaena stipoides, Geranium solanderi, Hibbertia scandens, Oplismenus imbecillis*

Vegetation in sub-areas

4. Avoca / Wildes Meadow / Burrawang (sandy forests / woodland)

Canopy: *Eucalyptus sclerophylla, E. sieberi, E. piperita, E. dives, Corymbia gummifera, E. globoidea*

Midstorey: *Banksia spinulosa / serrata / oblongifolia, Persoonia levis / linearis / mollis* subsp. *ledifolia / Lambertia formosa. Leptospermum trinervium,*

Groundlayer: *Lomandra longifolia, Dianella caerulea, Anisopogon avenaceus, Cyathocheata diandra,*

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

E. obliqua
E. piperita
E. cypellocarpa

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

E. obliqua
E. piperita
E. cypellocarpa

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

E. obliqua
E. piperita
E. cypellocarpa

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

Eucalyptus fastigata

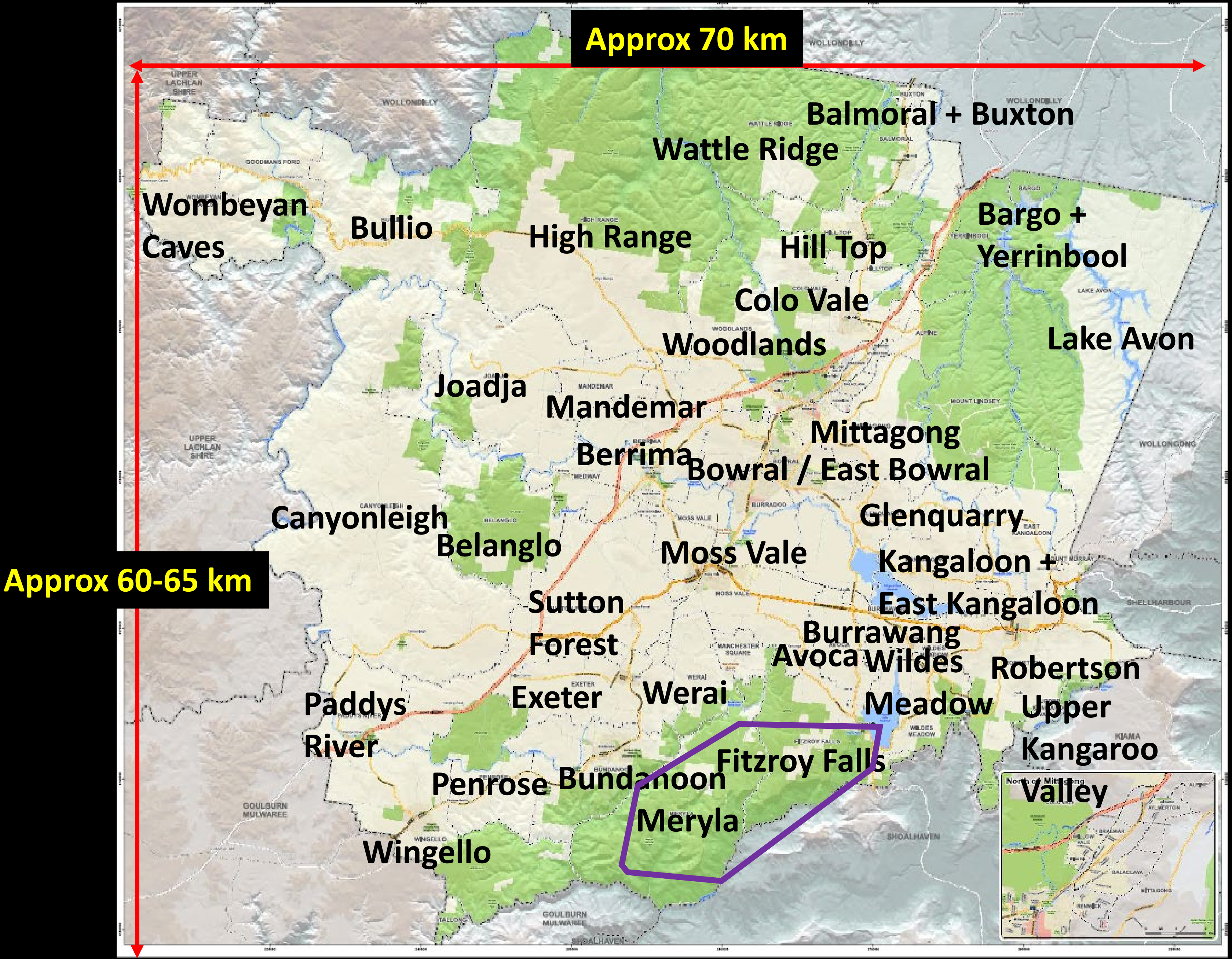
4. Avoca / Wildes Meadow / Burrawang (enriched forests)

4. Avoca / Wildes Meadow / Burrawang (enriched forests)

4. Avoca / Wildes Meadow / Burrawang (sandy forests)

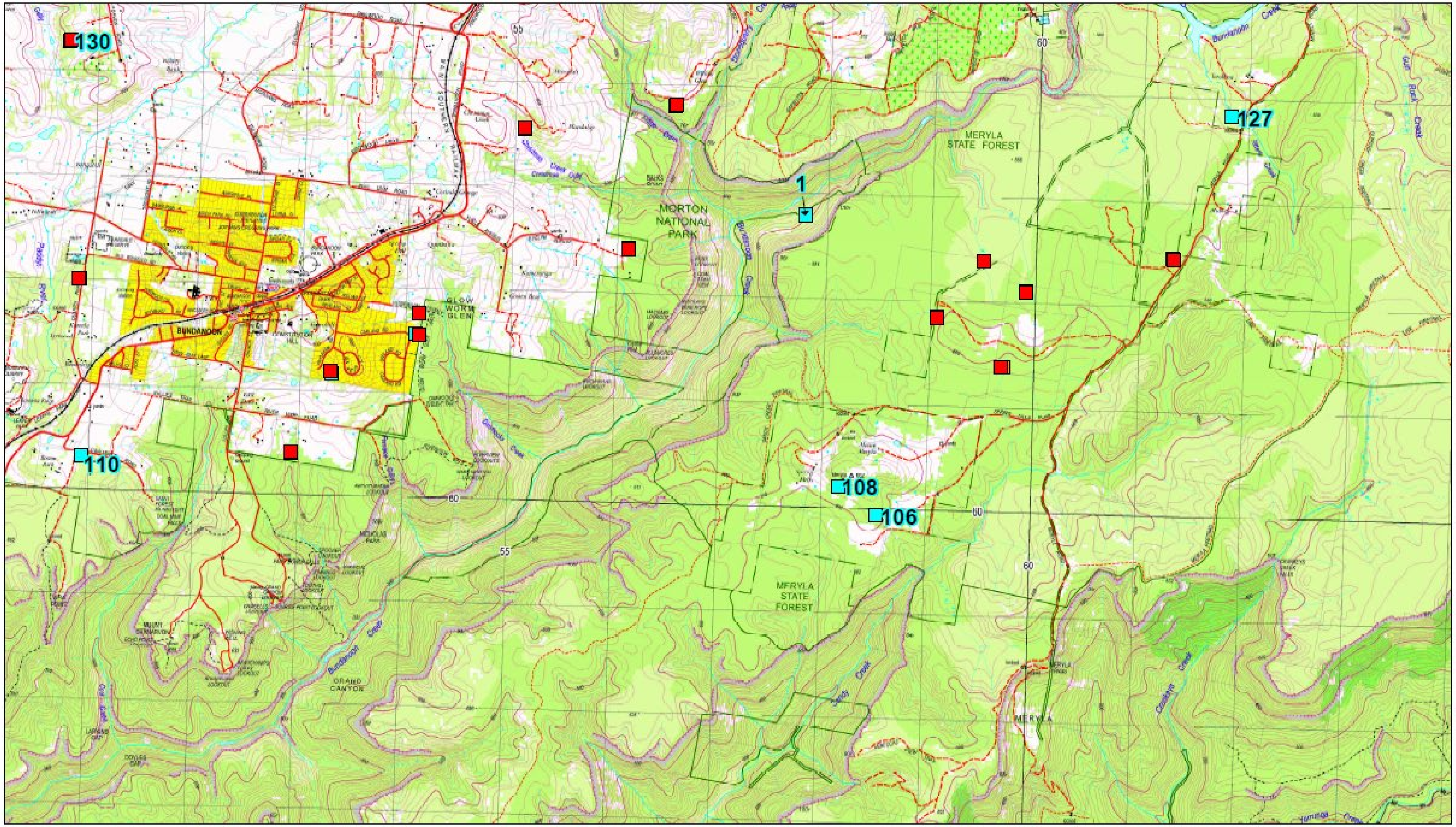
4. Avoca / Wildes Meadow / Burrawang (sandy woodland/forest)

Persoonia mollis subsp. *ledifolia*



Dan Clarke – Conservation Officer – APS NSW

5. Fitzroy Falls / Meryla SF



110 = 250921, 6160297

108 = 258166, 6160215

106 = 258534, 6159949

127 = 261837, 6163850

1 cm = 500 m

N

Vegetation in sub-areas

5. Fitzroy Falls / Meryla State Forest

- Large amount of Hawkesbury- sandy soils moving to enriched loam soils – dry sclerophyll forest and woodland – with some plateaus of moist sclerophyll forest on basalt. Some swampy areas too.

Vegetation in sub-areas

5. Fitzroy Falls / Meryla State Forest

Canopy: *Eucalyptus sclerophylla, E. globoidea, E. piperita, E. sieberi, Corymbia gummifera, E. quadrangulata, Syncarpia glomulifera, E. paniculata*

Midstorey: *Banksia spinulosa / serrata / oblongifolia, Persoonia levis / linearis / mollis* subsp. *ledifolia / Lambertia formosa. Leptospermum trinervium, Dodonaea triquetra, Bossiaea*

Groundlayer: *Lomandra / Dianella / Hibbertia / Gonocarpus, Pomax umbellata*

5. Fitzroy Falls / Meryla State Forest

E. sclerophylla
E. piperita
E. globoidea

5. Fitzroy Falls / Meryla State Forest

E. ovata
E. aquatica
E. sclerophylla

5. Fitzroy Falls / Meryla State Forest

E. paniculata
E. piperita
S. glomulifera
C. gummifera

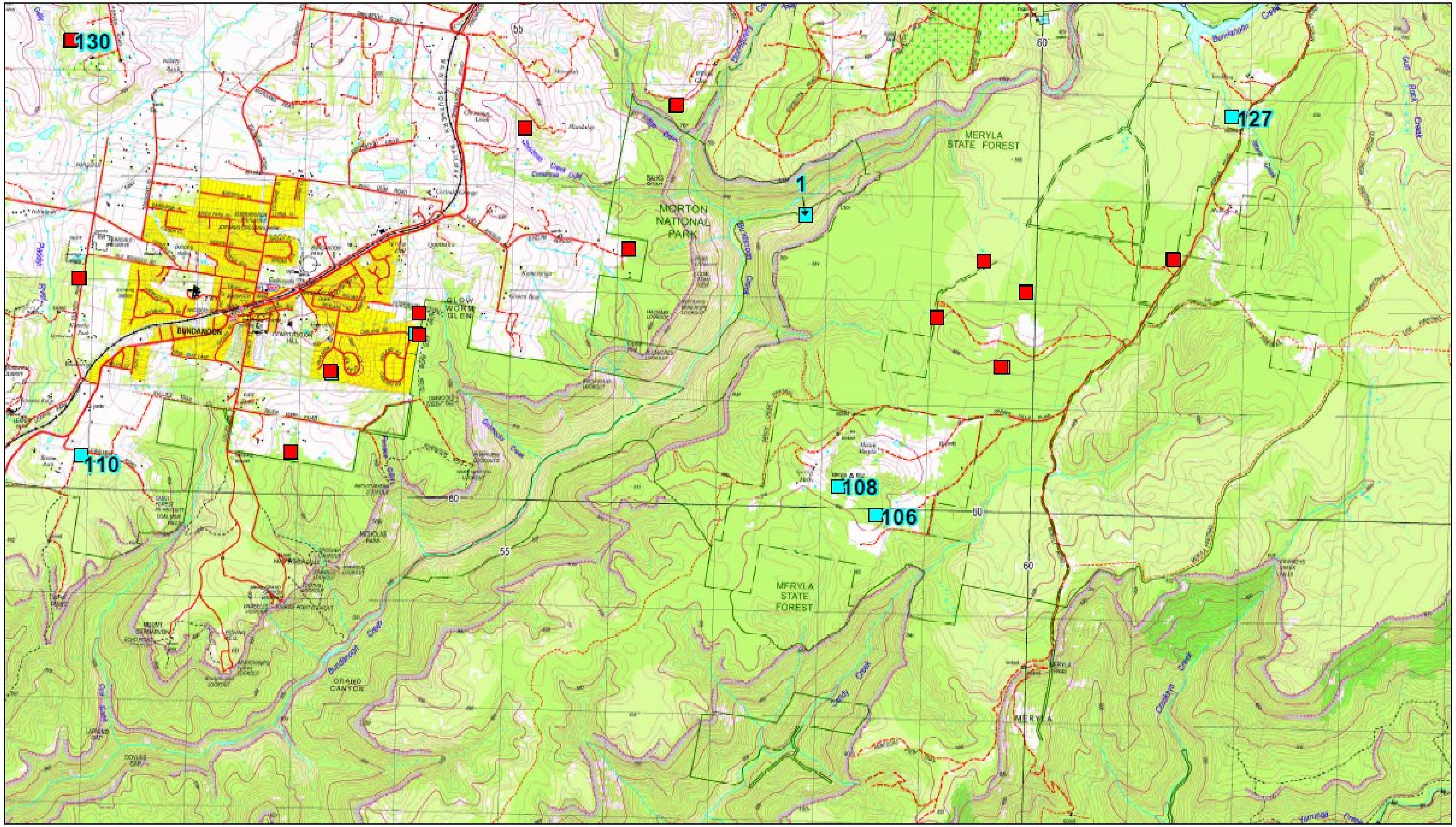
5. Fitzroy Falls / Meryla State Forest

E. globoidea
E. piperita
E. cypellocarpa

5. Fitzroy Falls / Meryla State Forest

E. smithii
E. piperita
E. globoidea

5. Fitzroy Falls / Meryla SF



110 = 250921, 6160297

108 = 258166, 6160215

106 = 258534, 6159949

127 = 261837, 6163850

1 cm = 500 m

N

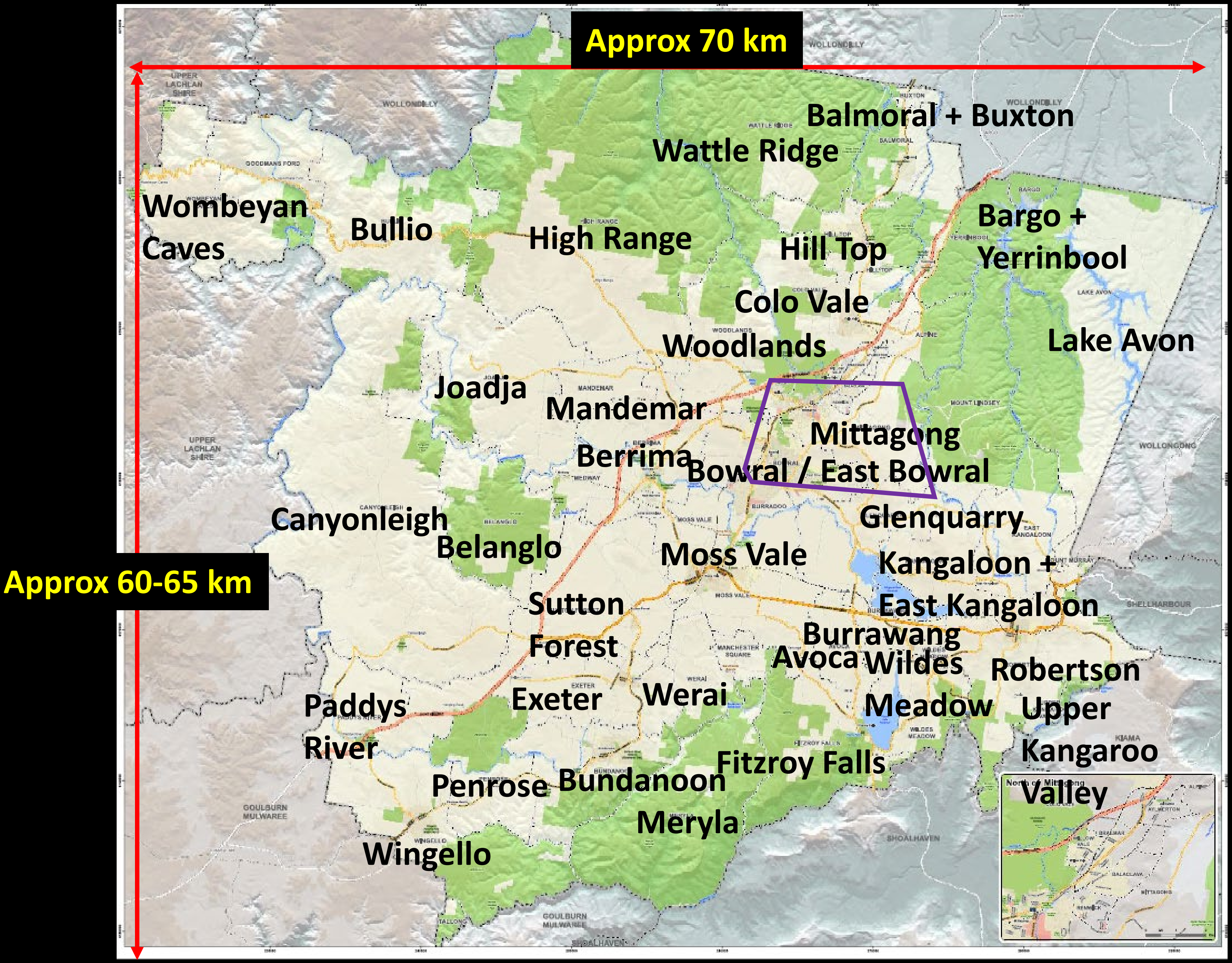
5. Fitzroy Falls / Meryla SF

5. Fitzroy Falls / Meryla SF

E. obliqua
E. quadrangulata
E. cypellocarpa
E. fastigata

5. Fitzroy Falls / Meryla SF

E. obliqua
E. quadrangulata
E. cypellocarpa
E. fastigata



Dan Clarke – Conservation Officer – APS NSW

Vegetation in sub-areas

6. Mittagong / Bowral / East Bowral

- Mixtures of sandstone woodland and forest, some moist swampy woodlands, and some enriched taller forest on shales/basalts (Southern Highlands Shale Woodlands.
- Local high points – Mt Gibraltar.

Vegetation in sub-areas
6. Mittagong / Bowral / East Bowral

Canopy: *Eucalyptus quadrangulata, E. ovata, E. mannifera, E. amplifolia, E. globoidea / sparsifolia, Corymbia gummifera, E. fastigata, E. viminalis, E. punctata*
Basalt/shale: *E. fastigata / cypellocarpa / obliqua / quadrangulata / piperita, viminalis*

Midstorey: mixture of previous

Groundlayer: mixture of previous

6. Mittagong / Bowral / East Bowral

E. globoidea
C. gummifera
E. sieberi

6. Mittagong / Bowral / East Bowral

E. sparsifolia
C. gummifera
E. sieberi

6. Mittagong / Bowral / East Bowral

Southern
Highlands
Shale
Woodlands

E. ovata
E. piperita
E. radiata

6. Mittagong / Bowral / East Bowral

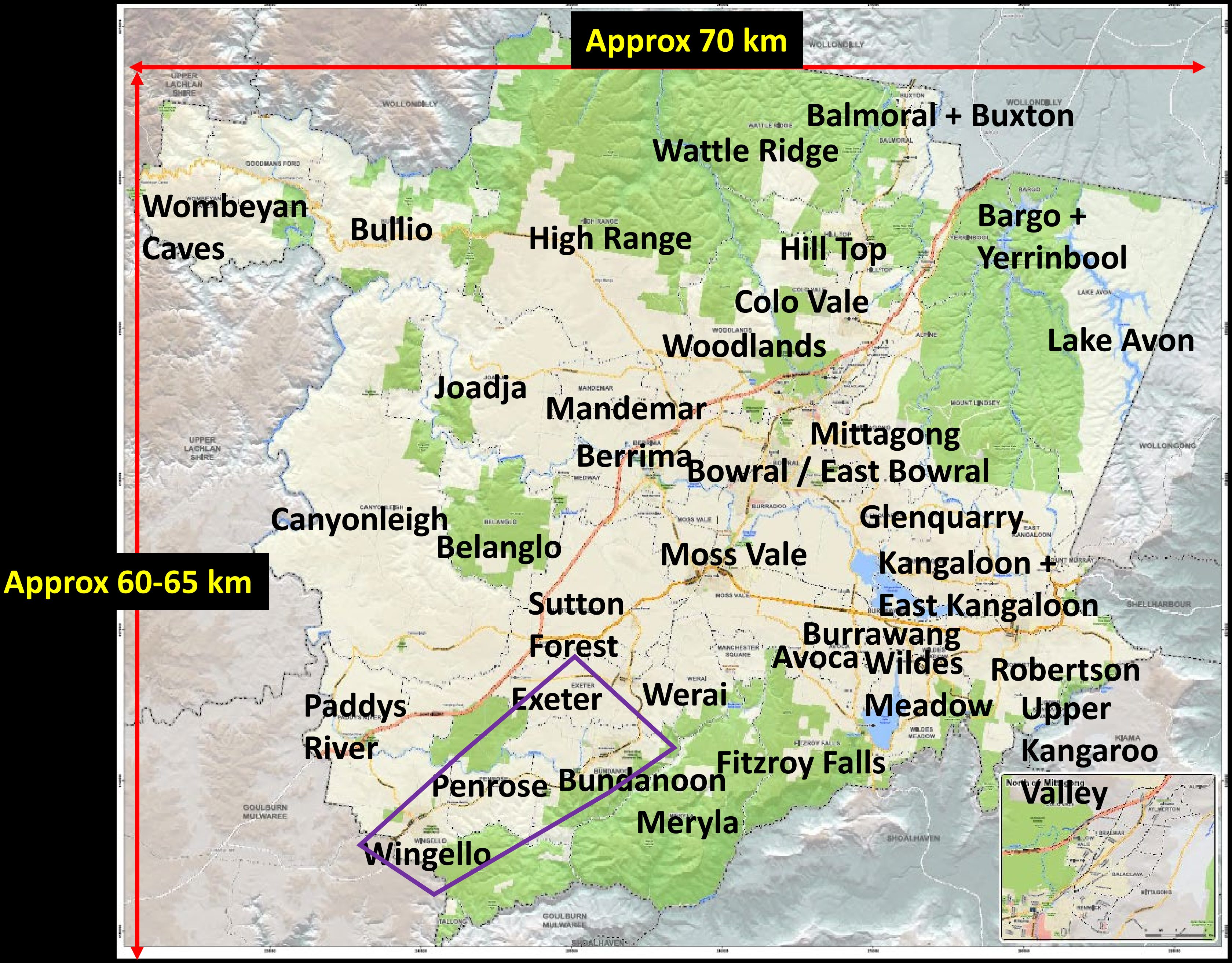
E. ovata
E. piperita
E. radiata

6. Mittagong / Bowral / East Bowral

Eucalyptus cypellocarpa

6. Mittagong / Bowral / East Bowral

Eucalyptus quadrangulata



Dan Clarke – Conservation Officer – APS NSW

Vegetation in sub-areas

7. Exeter / Bundanoon / Penrose / Wingello

- Mixtures of sandstone-sandy woodland and forest (more Penrose and Wingello), some moist swampy areas (Penrose), and some enriched taller forest on shales/basalts (Southern Highlands Shale Woodlands) (Bundanoon / Exeter) ……and some gully rainforest (Bundanoon-Penrose).

Vegetation in sub-areas

7. Exeter / Bundanoon / Penrose / Wingello

Canopy: *Eucalyptus sclerophylla, E. radiata, E. dives, Corymbia gummifera, E. elata, E. globoidea / sparsifolia, E. viminalis, Syncarpia glomulifera, Angophora costata, E. pauciflora* (Exeter / Sallys Corner), *E. blaxlandii.*
Basalt/shale: *E. fastigata / cypellocarpa / obliqua / quadrangulata / piperita, viminalis*

Midstorey: mixture of previous

Groundlayer: mixture of previous

Vegetation in sub-areas

8. Paddys River

- Known for swampy sandy woodlands
- Known for Paddys River Box – *Eucalyptus macarthurii*

7. Exeter / Bundanoon / Penrose / Wingello

E. sieberi
E. piperita
C. gummifera

7. Exeter / Bundanoon / Penrose / Wingello

7. Exeter / Bundanoon / Penrose / Wingello

7. Exeter / Bundanoon / Penrose / Wingello

E. cypellocarpa

7. Exeter / Bundanoon / Penrose / Wingello

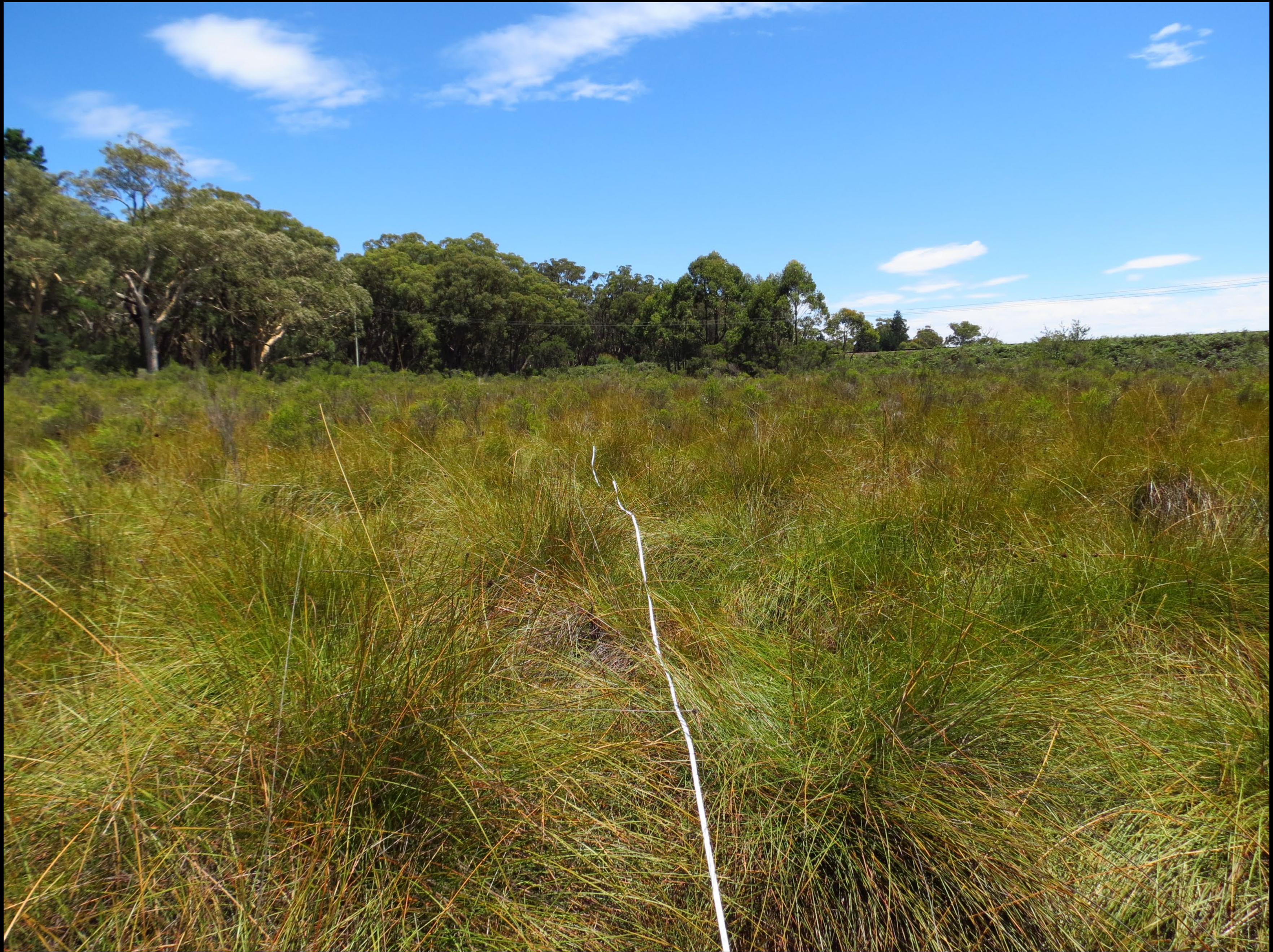
7. Exeter / Bundanoon / Penrose / Wingello

E. sieberi
E. paniculata
S. glomulifera
E. globoidea

7. Exeter / Bundanoon / Penrose / Wingello

Eucalyptus elata + radiata

7. Exeter / Bundanoon / Penrose / Wingello



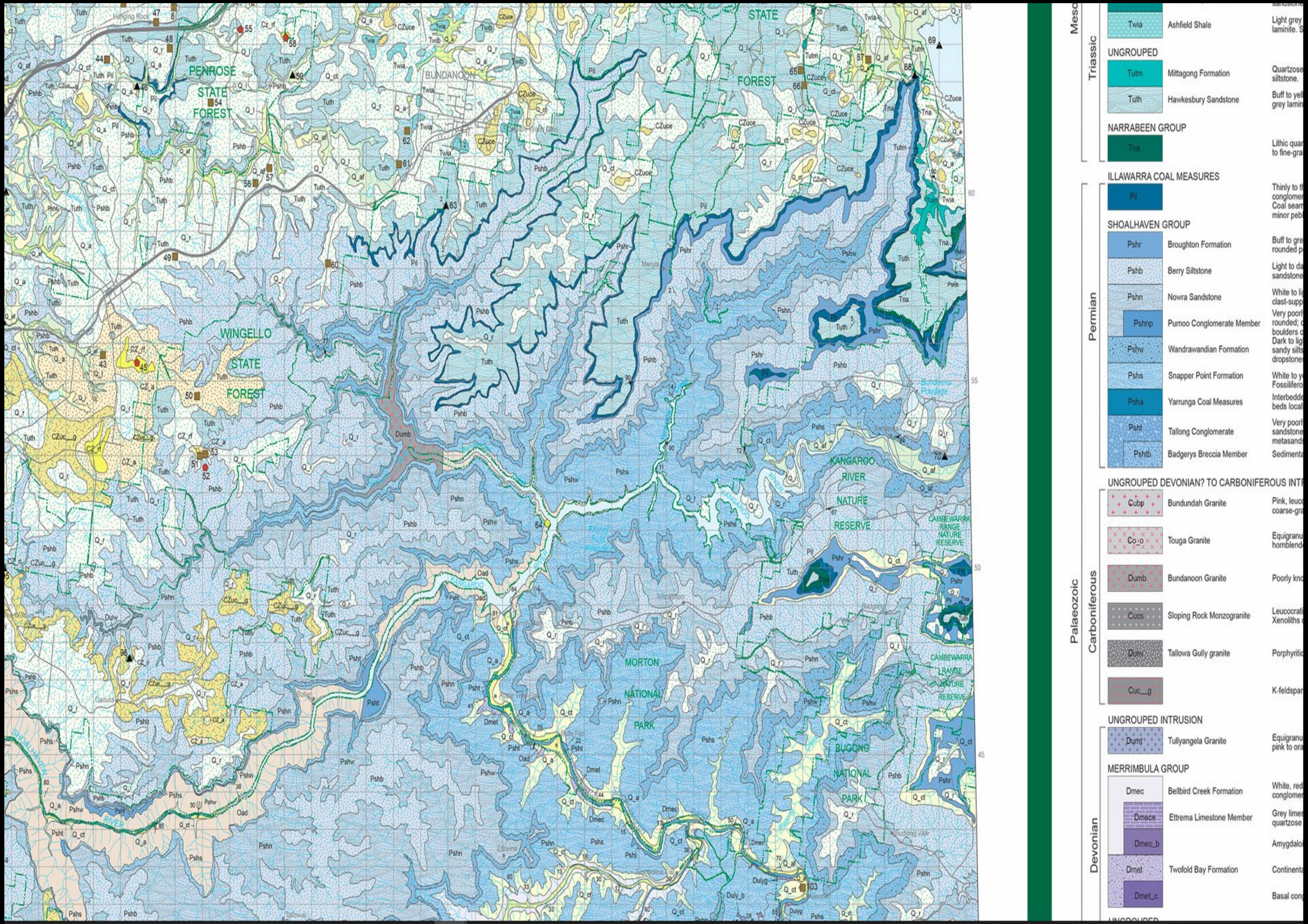
7. Exeter / Bundanoon / Penrose / Wingello

7. Exeter / Bundanoon / Penrose / Wingello

7. Exeter / Bundanoon / Penrose / Wingello

7. Exeter / Bundanoon / Penrose / Wingello

Phyllota humifusa



Shoalhaven Group:

Berry Siltstone
Nowra Sandstone
Broughton Formation – sandstone possibly containing fossils
Illawarra Coal Measures

https://www.regional.nsw.gov.au/meg/geoscience/products-and-data/maps/geological-maps/1-100-000

7. Exeter / Bundanoon / Penrose / Wingello

Doryphora sassafras
Ceratopetalum apetalum
Acmena smithii

7. Exeter / Bundanoon / Penrose / Wingello

Doryphora sassafras
Ceratopetalum apetalum
Acmena smithii

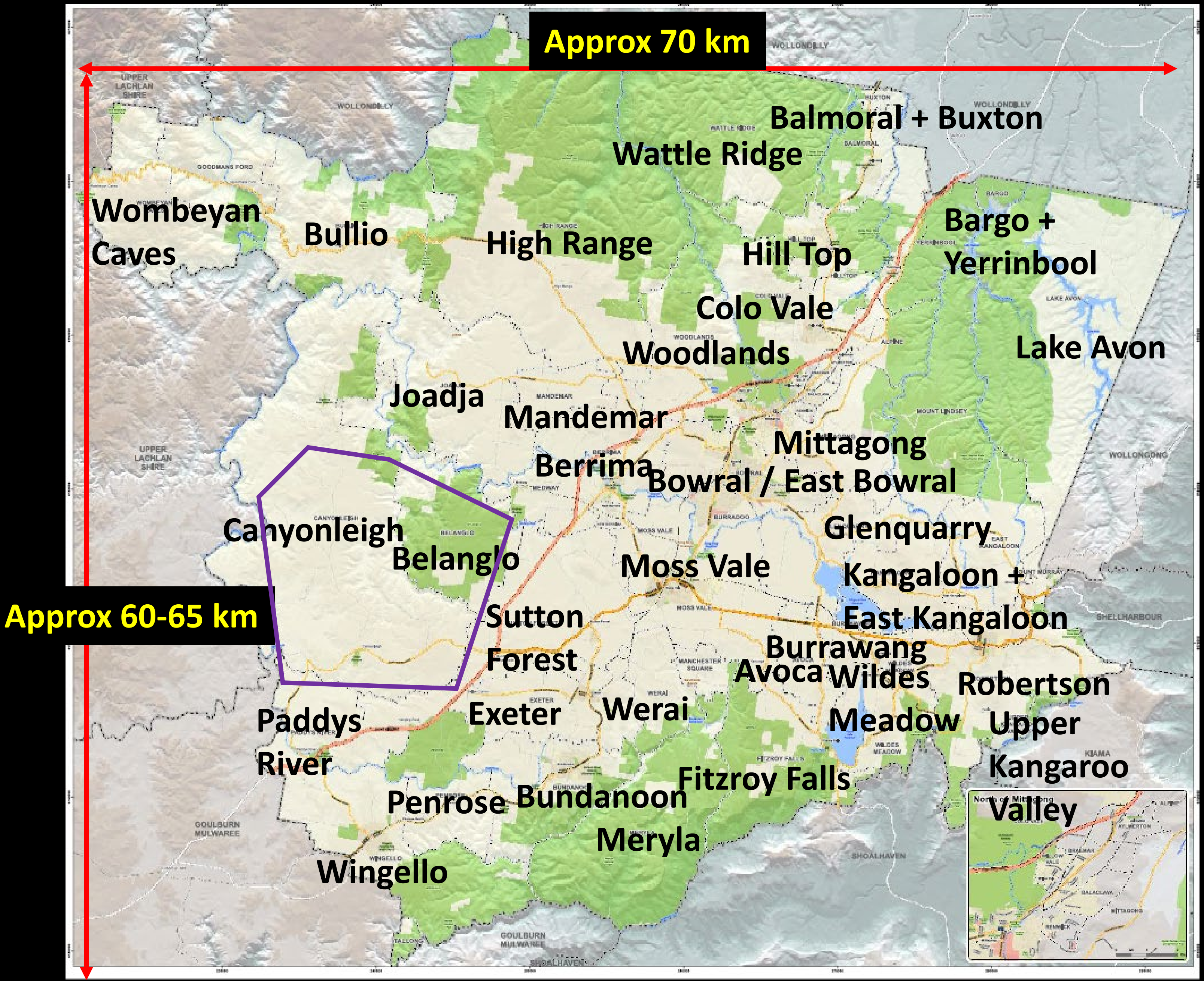
7. Exeter / Bundanoon / Penrose / Wingello

Doryphora sassafras
Ceratopetalum apetalum
Acmena smithii

Eucalyptus macarthurii

Eucalyptus macarthurii

Gambells Rest Campground



Dan Clarke – Conservation Officer – APS NSW

Vegetation in sub-areas

9. Canyonleigh (and Tugalong Rd)

- Mixtures of sandstone woodland and forest and more central tablelands-type vegetation.
- Tugalong road runs up to Guula Ngurra National Park (Koala Country).

Vegetation in sub-areas

9. Canyonleigh (and Tugalong Rd) + Belanglo

Canopy: *Eucalyptus rossii/sclerophylla, Eucalyptus punctata, E. agglomerata, E. sieberi, Eucalyptus cinerea, Eucalyptus radiata* and also *E. smithii*

Midstorey: *Allocasuarina littoralis, Cassinia spp, Olearia viscidula, Podolobium ilicifolium.*

Groundlayer: *Stypandra glauca, Gonocarpus tetragynus, Lomandra filiformis subsp. coriacea, Lomandra longifolia*

9. Canyonleigh (and Tugalong Rd)

Eucalyptus agglomerata
Eucalyptus punctata
Eucalyptus globoidea

9. Canyonleigh (and Tugalong Rd)

Eucalyptus agglomerata
Eucalyptus punctata
Eucalyptus globoidea

9. Canyonleigh (and Tugalong Rd)

Eucalyptus sclerophylla
Eucalyptus dives

9. Canyonleigh (and Tugalong Rd)

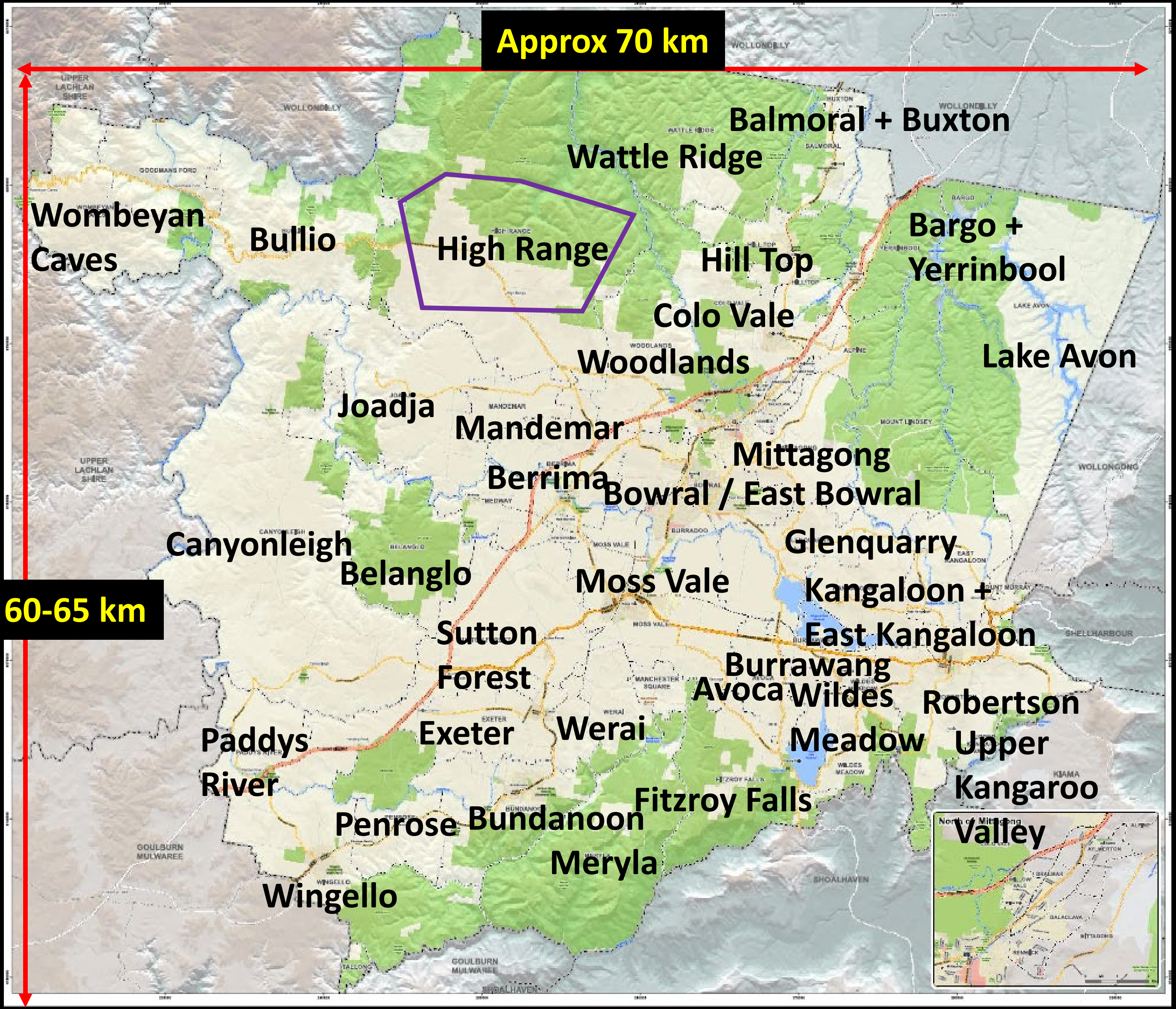
E. rossii/sclerophylla intergrades

9. Canyonleigh (and Tugalong Rd)

Eucalyptus macrorhyncha
Casuarina cunninghamiana

9. Canyonleigh (and Tugalong Rd)

Eucalyptus macrorhyncha
Eucalyptus cinerea
Eucalyptus mannifera
Eucalyptus bridgesiana



Dan Clarke – Conservation Officer – APS NSW

Vegetation with Areas

10. High Range – Wombeyan Caves Rd and north (also towards Joadja)

- Mixture of sandy scribbly gum woodlands / swampy woodlands and drier vegetation on Bindook porphyry (volcanic complex)

- Dry sclerophyll woodland-forest on flat and steep terrain with some swampy vegetation

Vegetation in sub-areas

10. High Range – Wombeyan Caves Rd and north (also towards Joadja)

Canopy: *Eucalyptus sclerophylla, Eucalyptus rubida, E. piperita, E. sieberi, E. smithii, E. elata* and getting to the western extent of *Angophora costata.*

Midstorey: *Allocasuarina littoralis, Cassinia spp., Lissanthe strigosa, Olearia viscidula, Persoonia mollis* subsp. *revoluta,*

Groundlayer: *Poa sieberiana, Geranium solanderi, Austrostipa scabra, Cheilanthes sieberi, Lomandra longifolia.*

10. High Range – Wombeyan Caves Rd and north-south

Eucalyptus elata
Eucalyptus radiata

10. High Range – Wombeyan Caves Rd and north-south

Eucalyptus sclerophylla
Eucalyptus dives
Eucalyptus rubida

10. High Range – Wombeyan Caves Rd and north-south

Eucalyptus sclerophylla
Eucalyptus rubida

10. High Range – Wombeyan Caves Rd and north-south

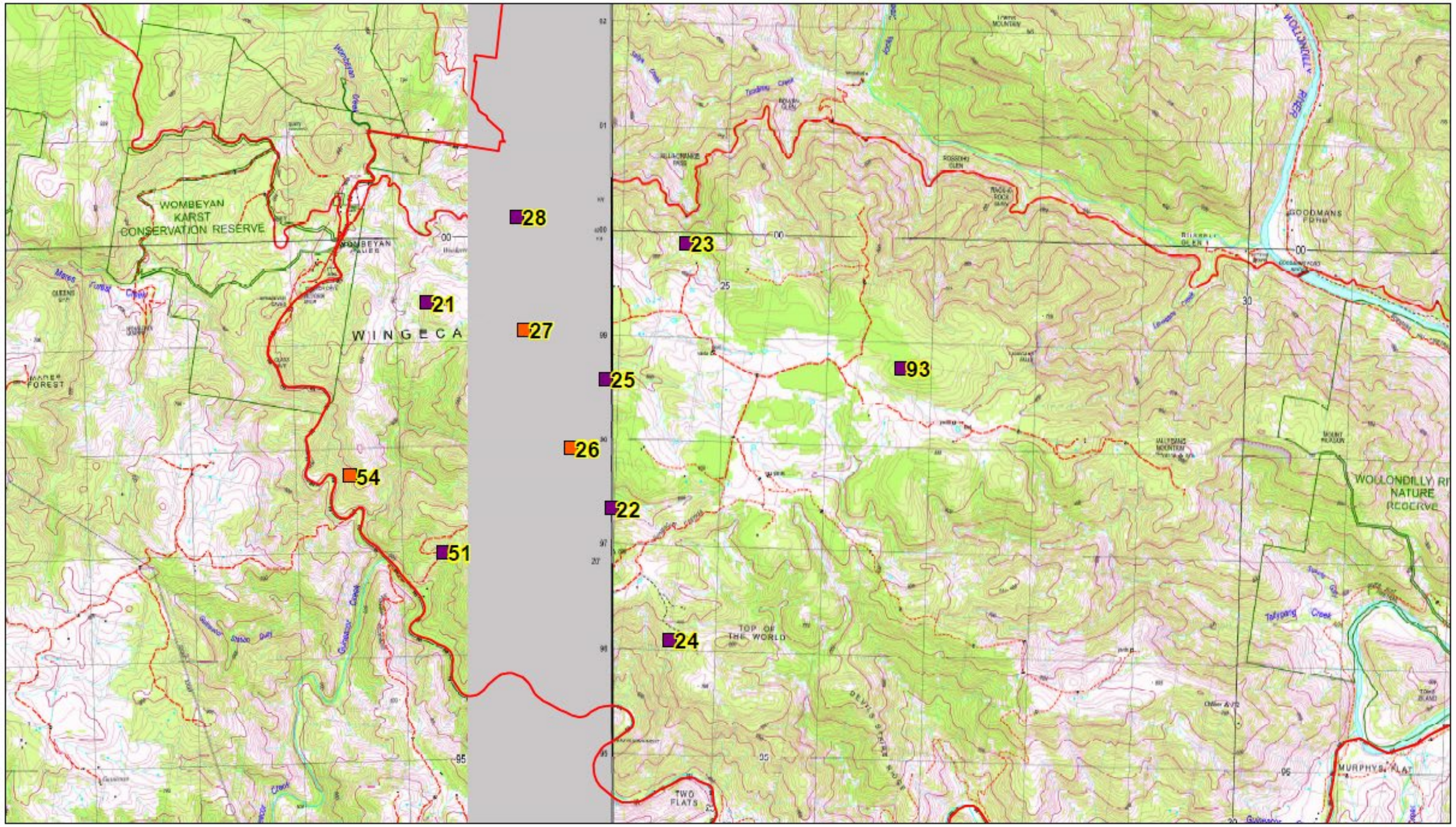
Vegetation with Areas

11. Wombeyan Caves (east of)

- Strong dominance of Barralier Ignimbrite (volcanics but in a dry area) and Bindook porphyry (volcanic complex).
- Dry sclerophyll woodland-forest on steep terrain.

Vegetation with Areas

Wombeyan Caves (east of)



Purple / Orange Private lands

1 cm = 500 m

N

21 = 222132, 6199257
22 = 223958, 6197345
23 = 224601, 6199896
24 = 224547, 6196097

25 = 223866, 6198575
26 = 223554, 6197900
27 = 223079, 6199018
28 = 222975, 6200097

51 = 222360, 6196872
54 = 221445, 6197576
93 = 226698, 6198749

Vegetation in sub-areas

12. Wombeyan Caves (east of)

Canopy: *Eucalyptus tereticornis, Eucalyptus melliodora, E. macrorhyncha, E. albens / moluccana, E. blaxlandii, E. bosistoana*

Midstorey: *Bursaria spinosa, Cassinia spp., Lissanthe strigosa, Olearia viscidula, Pittosporum undulatum,*

Groundlayer: *Poa sieberiana, Geranium solanderi, Austrostipa scabra, Cheilanthes sieberi, Lomandra longifolia.*

11. Wombeyan Caves (east of)

11. Wombeyan Caves (east of)

Eucalyptus bosistoana
Eucalyptus blaxlandii
Eucalyptus moluccana

11. Wombeyan Caves (east of)

11. Wombeyan Caves (east of)

11. Wombeyan Caves (east of)

Eucalyptus sieberi
Eucalyptus blaxlandii
Eucalyptus globoidea

11. Wombeyan Caves (east of)

12. Wombeyan Caves (east of)