

Accessory Publication

Presented in the table below are *Nangura spinosa* survey locations, survey dates and survey site attributes (Fig. 2 in the main text of this paper shows the general locality of these survey sites). Also presented in this document are maps of survey sites 3-24 showing survey transects, transect widths and survey methods at each site. Maps of survey sites one and two have been omitted. The skink occurs on these two sites and omission of the two maps is to minimise risk of illegal disturbance or collecting.

Site	Location	Survey Date	Survey Altitude Range (altitude skink present)[m]	Geological Mapping_Rock Name (dominant rock) ⁺	Regional Ecosystem Mapping#	Digital Soil Atlas Mapping_Soil Map Unit (soil type)*	Skink Present
1	Nangur National Park (NP)	2001-Apr 2010	275-440 (315-350)	Neara Volcanics/cg (mafites)	12.12.13/12.12.17/12.8.13/12.8.21 12.12.7/12.12.8 Non-remnant (=cleared)	Me6 (Gn3.11) Me6 (Gn3.11) Me6 (Gn3.11)	Yes No No
				Neara Volcanics (mafites)	12.12.13/12.12.17/12.8.13/12.8.21	Me6 (Gn3.11)	No
				Main Range Volcanics (basalt)	12.12.13/12.12.17/12.8.13/12.8.21 Non-remnant (= cleared)	Me6 (Gn3.11) Me6 (Gn3.11)	Yes No
				Aranbanga Volcanics Group/r (felsites)	12.12.13/12.12.17/12.8.13/12.8.21 12.12.24	Me6 (Gn3.11) Me6 (Gn3.11)	No No
				Ri/s SEQ (felsites)	12.12.13/12.12.17/12.8.13/12.8.21 12.12.13/12.8.21/12.8.13 12.12.7/12.12.8	Me6 Gn3.11 Me6 (Gn3.11) Me6 (Gn3.11)	No No No
				Qa-SEQ (alluvium)	12.12.13/12.12.17/12.8.13/12.8.21	Me6 (Gn3.11)	No
2	Oakview NP/State Forest (SF)/Resources Reserve	Jan 2001-Apr 2010	140-638 (395-638)	North Arm Volcanic Group (mixed mafites & felsites)	12.12.13/12.12.16/12.12.17 Hoop Pine plantation 12.12.15 ecotone with 12.12.13/12.12.16/12.12.17 12.12.15	Mm5 (Gn3.42) Mm5 (Gn3.42) Mm5 (Gn3.42)	Yes Yes Yes
				Neara Volcanics (mafites)	12.12.13/12.12.16/12.12.17 Hoop Pine plantation	Mm5 (Gn3.42) Mm5 (Gn3.42)	No Yes
				Karandah Granodiorite/a (granitoid)	12.12.13/12.12.16/12.12.17 Hoop Pine plantation	Mm5 (Gn3.42) Mm5 (Gn3.42)	No No
				Wide Bay Creek Gneiss (metamorphic rock)	12.12.13/12.12.16/12.12.17 Hoop Pine plantation	Mm5 (Gn3.42) Fu5 (Um2.12) Mm5 (GN3.42) Fu5 (Um2.12)	No No No No
				Manumbar Metamorphics/a (mafites)	12.12.13/12.12.16/12.12.17 Hoop Pine plantation	Mm5 (Gn3.42) Fu5 (Um2.12) Mm5 (Gn3.42) Fu5 (Um2.12)	No No No No
				Rg/i-SEQ (granitoid)	12.12.13/12.12.16/12.12.17	Fu5 (Um2.12)	No
3	Cinnabar SF	Mar 2001 Jan 2005	195-380	Neara Volcanics (mafites)	12.12.13 Hoop Pine plantation 12.12.24/12.12.28x1 12.12.7/12.12.8	LK8 (Um4.1) Rs1 (Db1.12) LK8 (Um4.1) LK8 (Um4.1) Rs1 (Db1.12) LK8 (Um4.1)	No No No No No No
				Woolooga Quartz Monzonite (granitoid)	12.11.11/12.11.10 12.12.5 12.12.13/12.12.16	Mm5 (Gn3.42) Mm5 (Gn3.42) Mm5 (Gn3.42)	No No No
				Neara Volcanics (mafites)	12.12.5 12.12.13/12.12.16	Mm5 (Gn3.42) Mm5 (Gn3.42)	No No
4	Brooyar SF 2	Oct 2003	170-430	Amamoor beds/b; (mafites)	12.12.5 Cleared	Mm5 (Gn3.42) Mm5 (Gn3.42)	No No
				5	Wrattans NP	Oct 2003	460-490
Gobongo Metamorphics (metamorphosed sedimentary rock)	12.11.10 12.11.14/12.11.3/12.12.12/12.12.15	Pu1 (Dr4.41) Pu1 (Dr4.41)	No No				

6	The Breezer (private land)	June 2004	235-420	Neara Volcanics (mafites)	12.12.13 12.12.7/12.12/8	LK8 (Um4.1) LK8 (Um4.1)	No No
7	Jimmys Scrub SF	June 2004	420-560	North Arm Volcanic Group? (mixed mafites & felsites)	12.12.13 Hoop Pine plantation	Pu1 (Dr4.41) Pu1 (Dr4.41)	No No
				Neara Volcanics (mafites)	12.12.13 12.12.12/12.12.15 Non-remnant (=cleared)	Pu1 (Dr4.41) Pu1 (Dr4.41) Pu1 (Dr4.41)	No No No
				Mt Mia Serpentinite (ultramafic rock)	12.12.13 12.11.14/12.11.3/12.12.12/12.12.15 Hoop Pine plantation	Pu1 (Dr4.41) Pu1 (Dr4.41) Pu1 (Dr4.41)	No No No
				PRg/g (granitoid)	12.12.13 Hoop Pine plantation	Pu1 (Dr4.41) Pu1 (Dr4.41)	No No
				Claddagh Granodiorite (granitoid)	Hoop Pine plantation	Pu1 (Dr4.41)	No
8	Elgin Vale SF	April-May 2007	420-720	Neara Volcanics (mafites)	12.12.13 Hoop Pine plantation	Rh10 (Db3.12) Rh10 (Db3.12)	No No
	Wrattans NP	April-May 2007	500-740	Rg?-SEQ (felsites)	12.12.13 Hoop Pine plantation	Rh10 (Db3.12) Rh10 (Db3.12)	No No
				Neara Volcanics (mafites)	12.12.13	Rh10 (Db3.12)	No
				Rg?-SEQ (felsites)	12.12.13	Rh10 (Db3.12)	No
9	Mt Stanley SF	April-May 2007	400-540	Neara Volcanics (mafities)	12.12.13 Hoop Pine plantation	Rh10 (Db3.12) Rh10 (Db3.12)	No No
	Wrattans NP	April-May 2007	500-520	Neara Volcanics (mafities)	12.12.13	Rh10 (Db3.12)	No
10	East Nanango SF	March 2007	420-560	Main Range Volcanics (basalt)	12.8.13 12.9-10.17 Hoop Pine plantation	Fu3 (Um2.12) Fu3 (Um2.12) Fu3 (Um2.12)	No No No
				Esk Formation (sedimentary rock)	12.9-10.7 12.9-10.16 12.9-10.17	Fu3 (Um2.12) Fu3 (Um2.12) Fu3 (Um2.12)	No No No
				TQr-r-SEQ (colluvium)	12.8.13 Hoop Pine plantation	Fu3 (Um2.12) Fu3 (Um2.12)	No No
11	Googa SF	Mar 2007	540-560	Td-r-SEQ>Main Range Volcanics (ferricrete)	12.5.13/12.5.6 12.5.13	Mp4 (Gn3.11) Fu3 (Um2.12) Mp4 (Gn3.11)	No No No
				TQr-r-SEQ (colluvium)	12.5.13/12.5.6	Mp4 (Gn3.11) Fu3 (Um2.12)	No No
12	Yarraman SF	Mar 2007	630-645	Td-r-SEQ (ferricrete)	12.5.13	Gd4 (Um6.21) Mp4 (Gn3.11)	No No
				Main Range Volcanics (basalt)	12.8.13	Mp4 (Gn3.11)	No
13	Bunya Mountains NP	Mar 2007	620-820	Main Range Volcanics (basalt)	12.8.16 12.8.21 12.8.21/12.8.23 12.8.21	Gd4 (Um6.21) Gd4 (Um6.21) Gd4 (Um6.21) Kb6 (Ug5.13)	No No No No
14	Reinke Scrub Conservation Park (CP)	Mar 2007	350-430	Td-r-SEQ (ferricrete)	11.5.2 11.5.15 11.11.4/11.11.4a Non-remnant (=cleared)	Mp5 (Gn3.11) Mp5 (Gn3.11) Ub71 (Dy3.42) Mp5 (Gn3.11) Mp5 (Gn3.11)	No No No No No
				Fifer Creek Metamorphics (metamorphosed sedimentary rock)	11.11.4/11.11.4a 11.11.5	Ub71 (Dy3.42) Ub71 (Dy3.42)	No No

15	Waroon NP	Sept 2005	270-340	Aranbanga Volcanics Group (mixed mafites & felsites)	12.8.21	Tb67 (Dy3.41)	No
				Td\ r-SEQ (ferricrete)	12.8.21	Tb67 (Dy3.41)	No
16	Jack Smith CP	Jan 2005	490-500	Td\ r-SEQ (ferricrete)	12.5.13	Mz11 (Gn2.11)	No
17	Boat Mountain CP	Oct 2001 Jan 2005	480-580	Main Range Volcanics (basalt)	12.5.1 12.5.13	Me6 (Gn3.11) Me6 (Gn3.11)	No No
				Td\ r-SEQ (ferricrete)	12.5.1 12.5.13 12.8.13/12.8.21	Me6 (Gn3.11) Me6 (Gn3.11) Me6 (Gn3.11)	No No No
18	Grongah NP (Teebar section)	Sept 2005	185-205	Mount Marcella Volcanics/v (granitoid)	12.12.13/12.12.26/12.12.8 12.12.13/12.12.26/12.12.8	Mn6 Cd5 (Uc2.12)	No No
19	Grongah NP	Mar 2001	405-505	Aranbanga Volcanic Group (mafites & felsites)	12.12.13 12.12.8	Cd5 (Uc2.12) Cd5 (Uc2.12)	No No
				Cedarton Volcanics (mafites)	12.12.13	Cd5 (Uc2.12)	No
20	Mudlo NP	Mar 2001	275-445	Neara Volcanics/s (sedimentary rock)	12.11.10/12.12.13	Cd5 (Uc2.12)	No No
				CPh-SQ (strat)	12.11.10/12.12.13	Cd5 (Uc2.12) Gd7 (Um6.21)	No No
				Rg/i-SEQ (granitoid)	12.11.10/12.12.13	Gd7 (Um6.21)	No
				Rg/d-SEQ (granitoid)	12.11.10/12.12.13	Gd7 (Um6.21)	No
21	Mudlo NP	Feb 2010	190-445	Neara Volcanics/s (sedimentary rock)	12.11.10/12.12.13	Cd5 (Uc2.12)	No
				CPh-SQ (rudite)	12.11.10/12.12.13	Cd5 (Uc2.12) Gd7 (Um6.21)	No No
				Karandah Granitoid (granitoid)	12.11.10/12.12.13	Cd5 (Uc2.12)	No
22	Mudlo NP	Feb 2010	300-380	Neara Volcanics (mafites)	12.12.13	Gd7 (Um6.21)	No
23	Grongah NP	Feb 2010	170-290	Unnamed intrusions in Gympie Block (granitoid)	12.12.13 12.12.12/12.12.5/12.11.14/12.11.6	Ub69 (Dy3.42) Ub69 (Dy3.42)	No No
24	Glenbar NP (Mt Urah section)	Feb 2010	80-350	Biggenden beds, Cedarton Volcanics, Gympie Group (mafites)	12.12.13/12.12.5/12.12.8 12.12.1 12.9-10.16/12.9-10.8/12.11.10/12.11.8	Cd6 (Uc2.12) Cd6 (Uc2.12) Cd6 (Uc2.12)	No No No
				Unnamed intrusions in Gympie Block (granitoid)	12.12.13/12.12.5/12.12.8 12.9-10.16/12.9-10.8/12.11.10/12.11.8	Cd6 (Uc2.12) Cd6 (Uc2.12)	No No

+ Geological data extracted from ESRI ArcMAP 9.2 GIS mapping using the shape file "Sq_geol_06_r.shp" and associated data base provided by the Queensland Department of Natural Resources and Water in March 2007

Queensland Regional Ecosystem mapping version 6b 2009 (DERM, 2009)

* The description of digital soil atlas map units and associated soils is given below.

Soil atlas map unit attributes taken from the Explanatory Notes file for the Digital Atlas of Australian Soils. File downloaded January 2010 from <http://www.asris.csiro.au>.

- Cd5:** Granite--steep hilly land with some low hilly areas--many steep slopes with much bare rock: chief soils are leached sands (Uc2.12) with some (Uc4.1) soils. Other soils are (Dy5.81) on slopes, (Dy3.81) and (Dy3.41) on foothill slopes and narrow valley floors, and (Gn3.11) and (Gn2.14) on small areas in some localities.
- Fu3:** Steep hilly to mountainous terrain on metasediments and phyllites rising to 2800 ft above sea level: chief soils on the slopes are shallow and stony leached loams (Um2.1), and also (Um5.2) loams. Associated are: (Dr2.11) and (Dy2.11) soils in less elevated sites; (Uc6.11) sands with some (Dr5.81) and (Dy5.81) soils on included granites; and (Gn3.11) soils on small basaltic residuals. As mapped, narrow terraced valleys of unit MM9 are included in some localities.
- Fu5:** Steep hilly to mountainous land on shales and phyllites, with narrow crests and steep to very steep slopes to narrow valleys: chief soils are leached loams (Um2.12) on crests and slopes. Associated are (Um4.1), (Uc2.12), (Uc4.1), and (Dy3.41) on slopes. Other soils include (Dr3.41) on slopes and (Gn3.12) and (Gn3.42) on dyke rocks.
- Gd4:** Steep hilly to submountainous basaltic uplands: crests and steep slopes of flat-topped and also rounded hills, with dark shallow porous loamy soils (Um6.21), shallow friable clays (Uf6.11), shallow cracking dark clays (Ug5.12), and red friable earths (Gn3.12), all often very stony. Both (Gn3.41) and (Dr4.11) soils are present on some steep eastern slopes in the Sheet 4 occurrences of this unit. Unit Gd4 grades into: soils of unit Kb6 at lower levels and in the drier portions of the area; and soils of unit Mp3 at higher levels in the wetter portions of the area. Minor areas of other undescribed soils are likely.
- Gd7:** Steep hilly to mountainous serpentine country with much rock outcrop in places: chief soils are probably dark porous loamy soils (Um6.21), dark plastic clays (Uf6.32), and dark friable earths (Gn3.42): other soils may include (Ug5.12) on slopes, and (Dd) and (Dg) soils on creek flats. As mapped, areas of unit Fu5 and low hilly areas of unit Mm4 along some streams are included.
- Kb6:** Rolling basaltic uplands: chief soils are dark cracking clays (Ug5.13) in association with many other soils, as follows: (i) crests and steep slopes of the flat-topped and rounded hills at the relatively higher elevations of dark shallow porous loamy soils (Um6.21), shallow friable clays (Uf6.11), and shallow cracking dark clays (Ug5.12); passing to (ii) gentle slopes on flat-topped hills, ridges, steps, and knolls of (Um6.21), red friable earths (Gn3.12), and shallow dark cracking clays (Ug5.12 and Ug5.13); passing to (iii) long gentle slopes of deeper, dark cracking clays (Ug5.13 and Ug5.S) with linear gilgai, also with smaller areas of (Uf6.21) and (Gn3.12) soils; and passing to (iv) narrow valley plains of unit Kd5 soils in the lower-lying situations.










- LK8:** Mountainous country of volcanic rocks and boulder-beds with steep to very steep slopes, scarps, and rock outcrops: chief soils are shallow loamy soils (Um4.1) having an A2 horizon and dark porous loamy soils (Um6.21). Associated are (Uf6.32) and (Gn3.14) soils on the more moderate slopes and crests. Other soils include (Db1.12), (Dd3.12), and (Gn3.42) on volcanic rocks and (Uc2.12) and (Dy3.41) on included sedimentary rocks.
- Me6:** Close pattern of hills with rounded crests and short moderate to steep slopes below the scarp of the adjacent (Gn3.11) plateau; sedimentary and igneous rocks; some outcrop on crests: chief soils are brown friable earths (Gn3.22) on mid to lower slopes. Associated are (Um4.1) soils on ridge crests and upper steep slopes, (Gn3.42 and Gn3.41) on mid to lower slopes, and some (Ug5.16 and Ug5.14) on low broad crests and lower slopes. Minor soil occurrences include (Um4.2 and Um4.3) soils on ridges. Several small plateau areas of units Mp4 and/or Mz12 are included.
- Mm5:** Steep hilly terrain on volcanic rocks and shales with steep slopes to V-valleys, and some alluvial flats in the foothills: chief soils are neutral and acid dark friable earths (Gn3.42 and Gn3.41) on the volcanic rocks and (Dy3.41) soils on the shales. Associated are (Db1.12), (Um4.1), and (Gn3.11) soils on volcanic rocks, and (Um2.12) and (Dr3.41) soils on shales. Other soils include: (Dy2.41) and (Uc2.12) on granite; (Gn2.14) on granodiorite; (Gn3.22) on andesite; (Um6.21) and (Uf6.32) on ultrabasic rocks; and (Dd1.33) soils on minor creek flats.
- Mp4:** Plateaux and plateau remnants of lateritized basalts, and basalts, at moderate elevations (less than 2000 ft above sea level)-generally pedimented lateritic landscapes of undulating to rolling relief with flat-topped ridges (some cuestas) and knolls: chief soils on the long smooth but uneven slopes are acidic red friable earths (Gn3.11) with variable amounts of laterite. Associated are shallow to deep forms of acidic red earths (Gn2.11); in some areas of these soils smooth pedes become apparent from a depth of 3 ft. Other soils include: yellow earths (Gn2.2) and shallow (Um) soils all with variable amounts of lateritic materials on or around the ridges, cuestas, knolls, and low convex rises; some (Gn3.71), (Gn3.74), and (Gn3.51) soils with variable laterite content on floors of the broad shallow valleys; some (Gn3.12) soils on slopes; and some (Uf6.21) soils on escarpments. Some local variations between different areas of this unit are to be expected.
- Mz11:** Low hilly upland of broad gently sloping ridges and short moderate to gentle slopes grading to almost rolling terrain: chief soils are red earths (Gn2.11 and Gn2.14) on gently sloping broad crests. Associated are (Dr2.41) and other (Dr) soils with (Dy3.41) and (Dy2.41) on dissection slopes, (Dy3.43) and (Ug5.15) on lower slopes and flats, and (Ug5.24) and (Gn3.43) on broad rises and knolls slightly below the (Gn2.1) soil areas.

- Pu1:** Strongly hilly to mountainous country on metasediments and granites with andesites; narrow ridge crests and short moderate to steep slopes to valleys: chief soils are friable acid red soils (Dr4.41) with (Dr5.41), (Dr4.21), and (Dr4.11). Associated are: gritty (Um2.12), (Um4.1), and (Uc2.12) soils on crests and upper slopes; some (Gn3.11) and (Gn3.71); some (Dy5.21), (Dy5.41), (Dy4.41), and (Dy4.21) soils; and some (Dy3.41), (Dy2.41), (Db1.41), and (Dr2.41) soils on exposed slopes and around the margins of the unit.
- Rs1:** Low hilly to hilly country on volcanic rocks and boulder beds, with gentle to moderate slopes; open valleys with relatively wide stream flats: chief soils are hard neutral brown soils (Db1.12) in complex with friable neutral dark soils (Dd3.12) on crests and slopes. Associated are (Gn3.42), (Dr2.12), and (Gn3.12) soils on hill slopes. Other soils include (Dd1.33), showing very weak gilgai, along stream flats.
- Tb67:** Hilly granitic country of moderate relief with broad convex slopes, some tors, some small flat-topped lateritic knolls and hills; narrow drainage-ways: chief soils on the hills and broad convex slopes are hard acidic yellow and yellow mottled soils (Dy3.41) and (Dy3.31) with (Dy2.41) and (Dy2.31). Associated are a wide range of soils including: (Dy3.11), (Dy5.41), (Dr2.41), and (Dr2.21); (Dy2.42) and (Db1.43) on the broad convex slopes; gravelly (Gn2.11) soils on some lateritic scarps and crests; (Uc2.12) soils on some crests; and (Ug5.16) along some of the narrow valleys. Minor soil occurrences include (Gn3.11) and (Gn2.24) on some slopes below lateritic scarps.
- Ub71:** Moderately hilly granitic country with short moderate to steep slopes covered with granitic boulders and tors; some scattered mesas: chief soils are hard neutral and acid yellow mottled soils (Dy3.42 and Dy3.41). Associated are (Dr2.42) soils on slopes; (Um4) soils on silcrete (billy) capped mesas; and (Uc2.12) and (Uc4.1) soils on crests. Minor areas of other (D) soils also occur.

410000

411000

Legend

-  survey on foot
-  roadside search from slow vehicle
-  drainage lines
-  roadways
-  Cinnabar State Forest boundary
-  vine forest (12.12.13)
-  sclerophyll woodland/forest (12.12.7;12.12.8;12.12.24;12.12.28x1)
-  hoop pine plantation
-  cleared



7113000

7113000

7112000

7112000

7111000

7111000

Cinnabar State Forest

~5-10m width

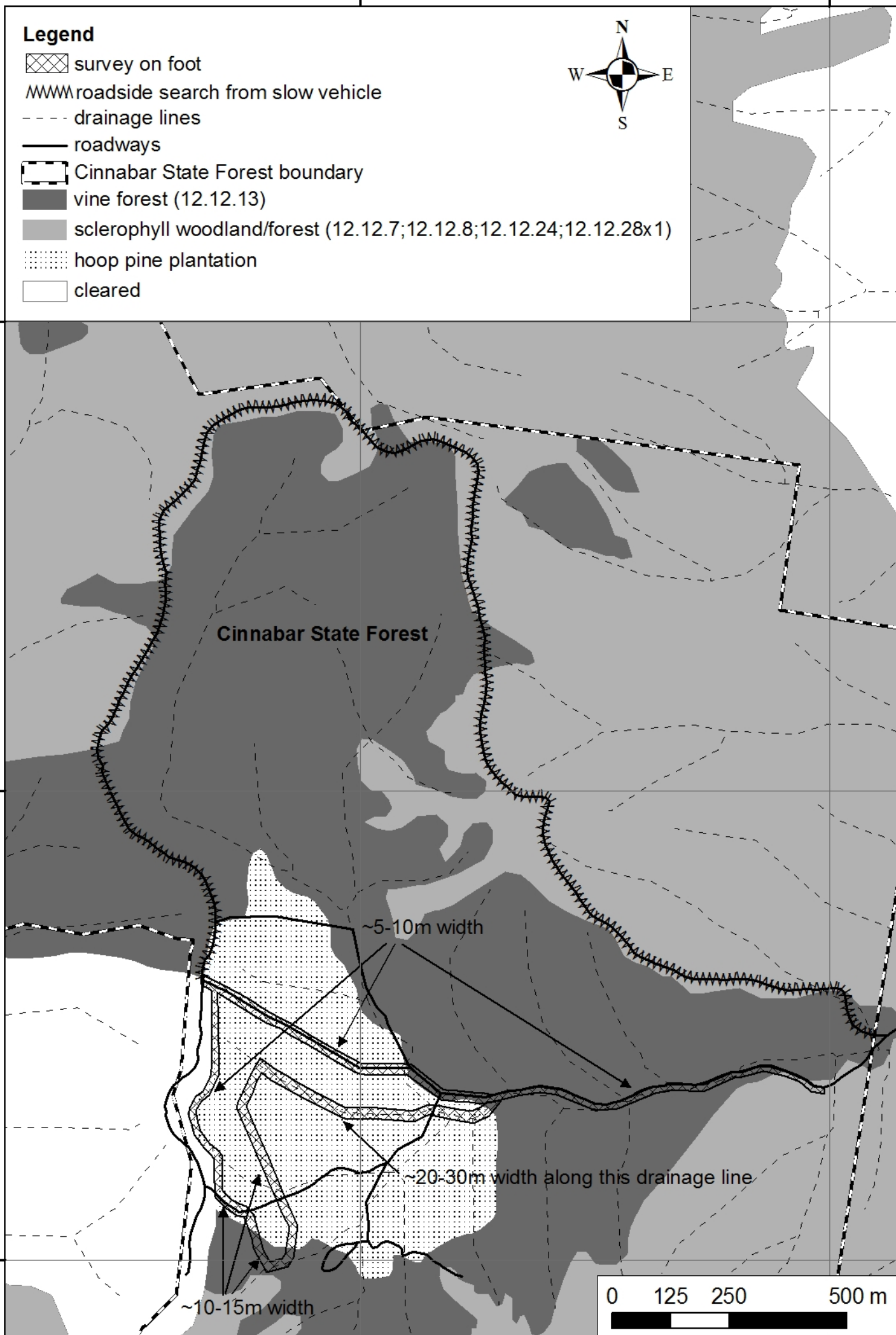
~20-30m width along this drainage line

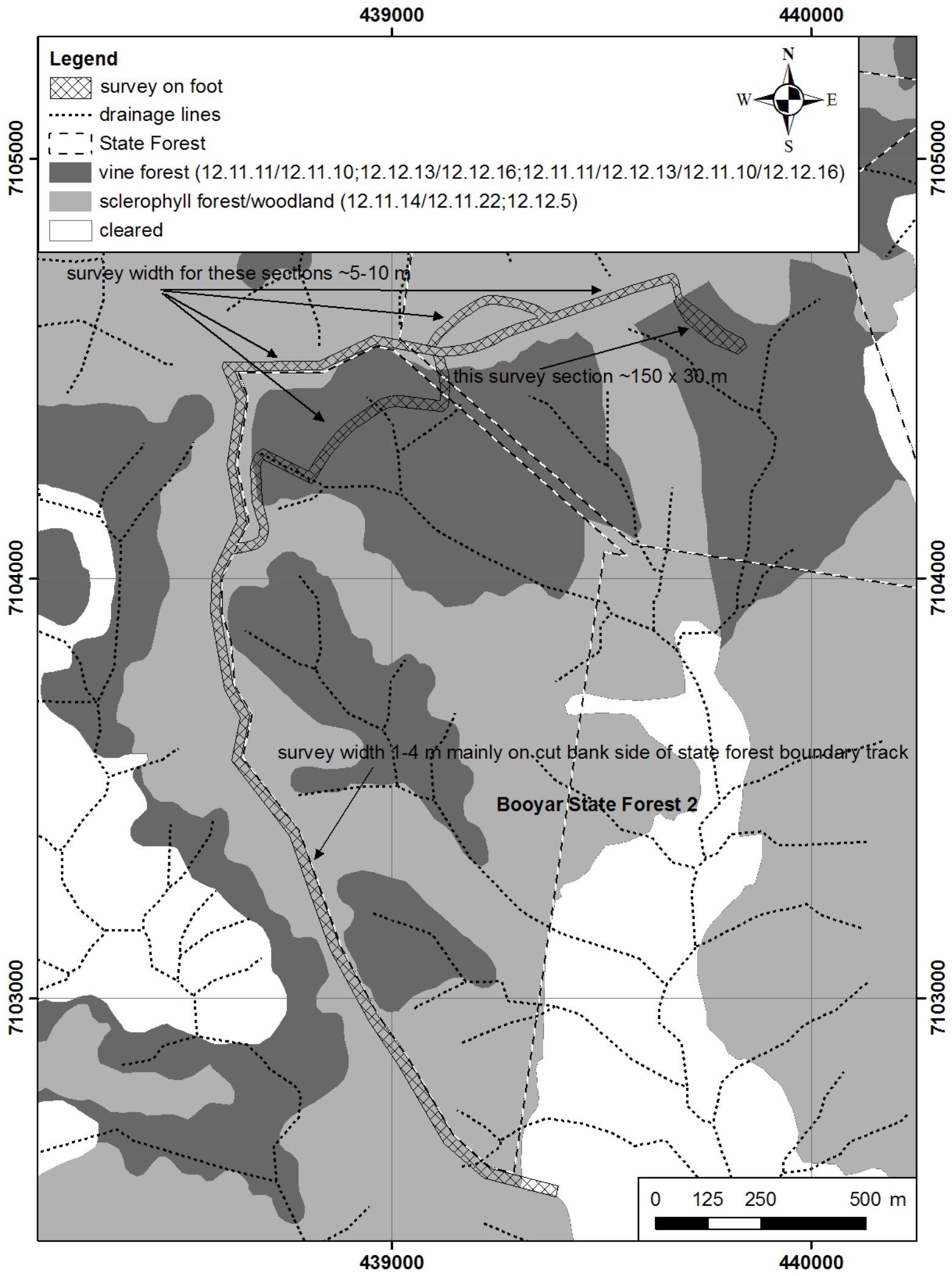
~10-15m width

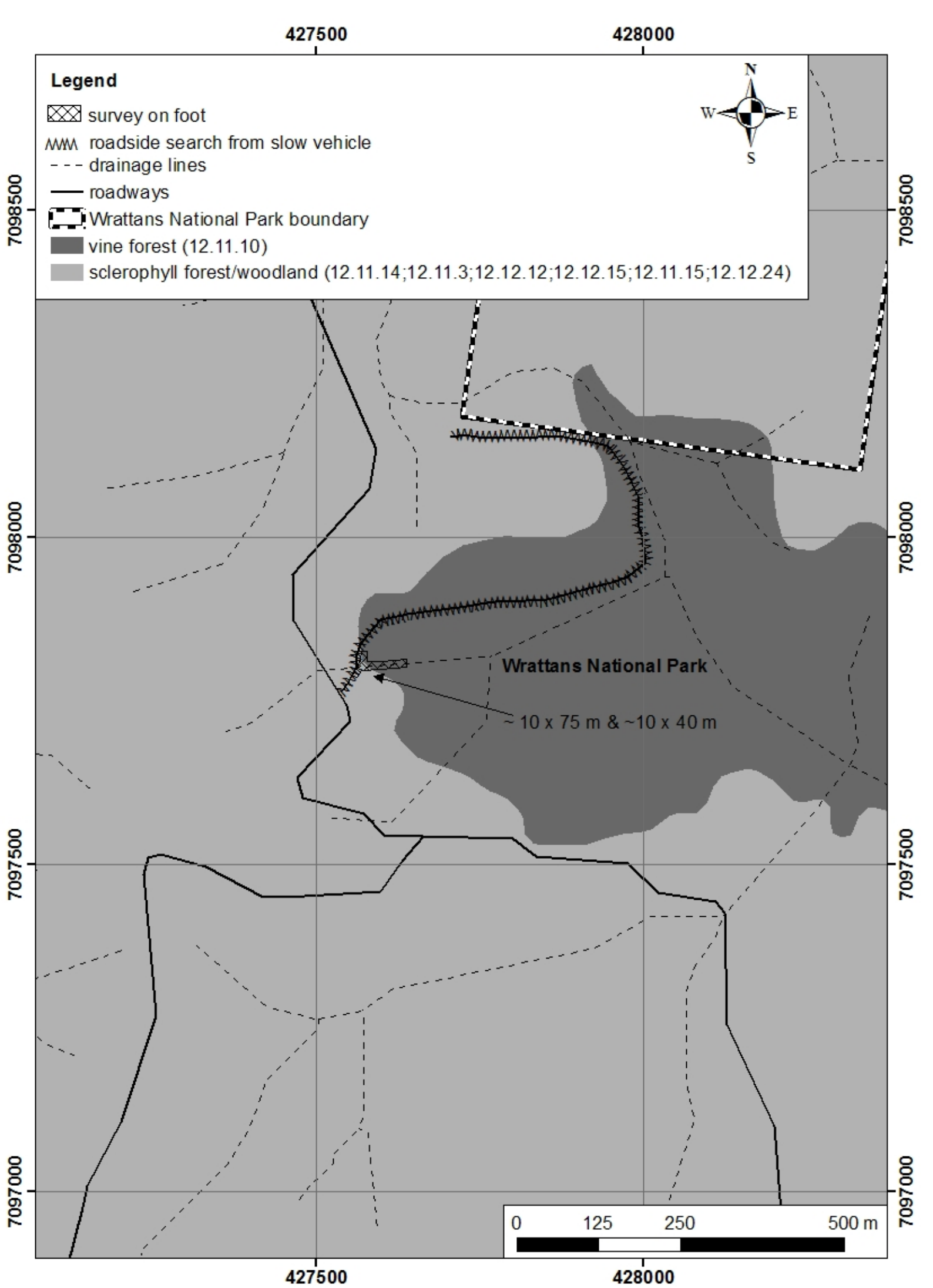
0 125 250 500 m

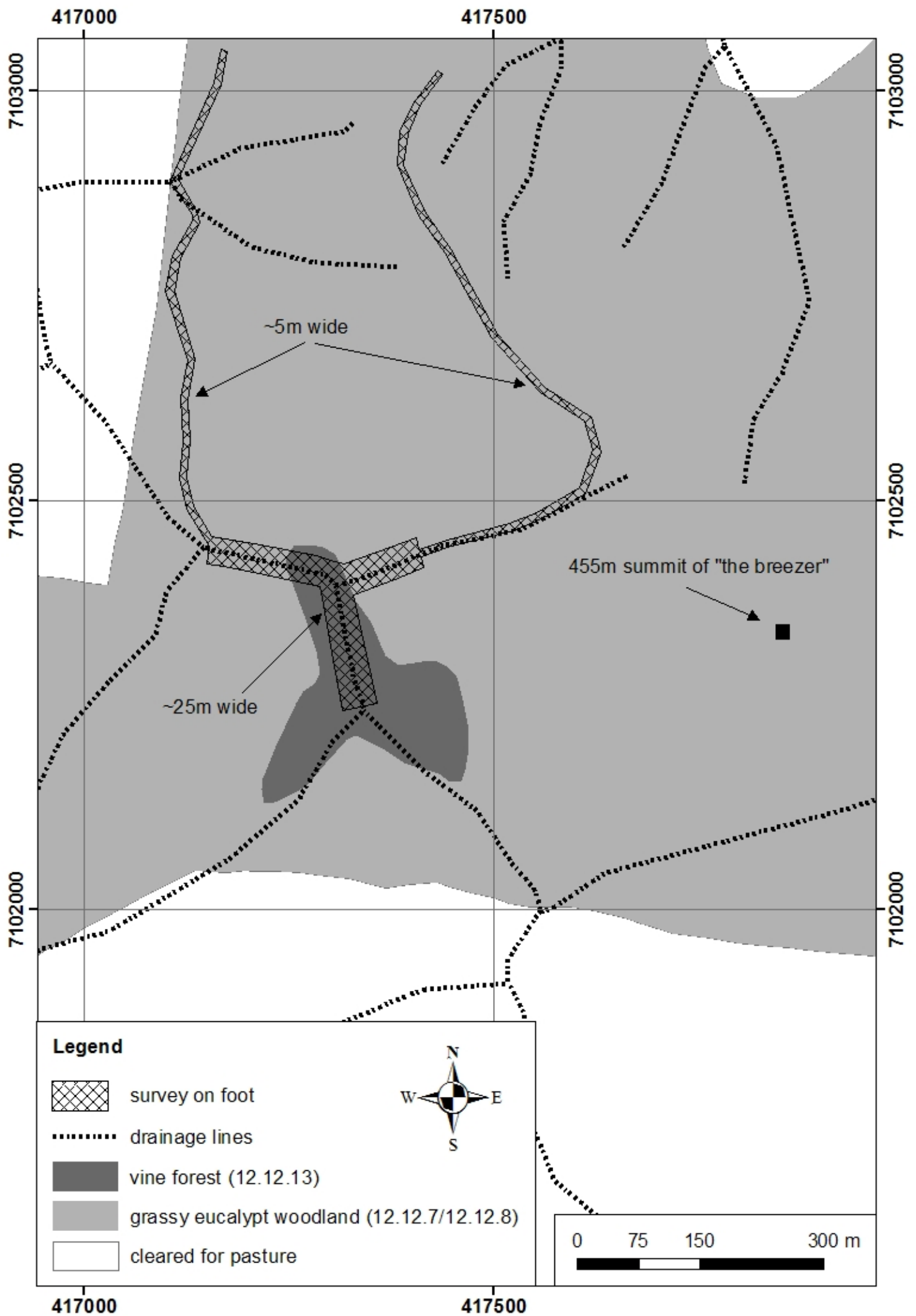
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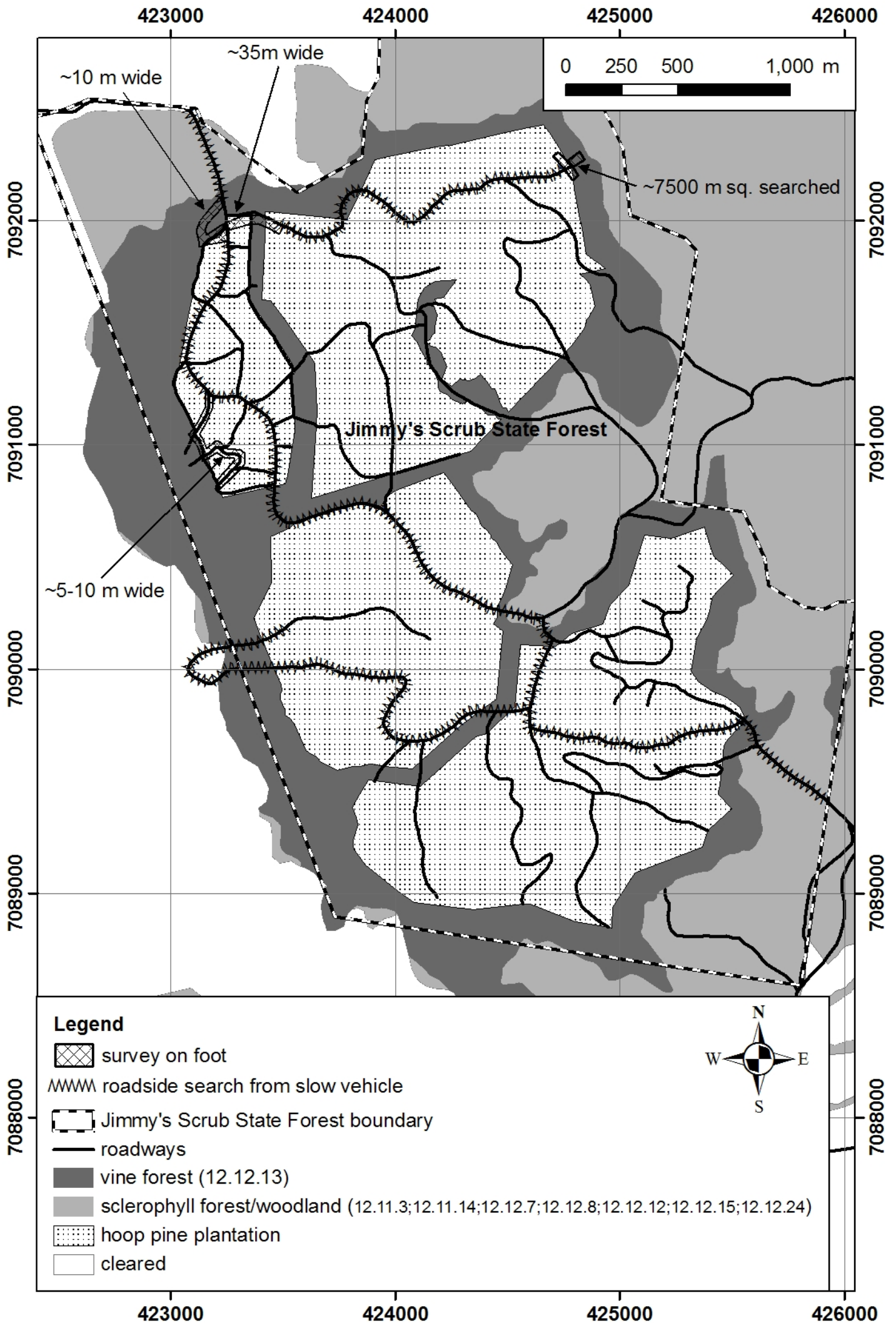
411000











423000

424000

425000

426000

~10 m wide

~35m wide

0 250 500 1,000 m

7092000

7092000

~7500 m sq. searched

7091000

7091000

Jimmy's Scrub State Forest

~5-10 m wide


7090000


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
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Legend


 survey on foot


 roadside search from slow vehicle


 Jimmy's Scrub State Forest boundary

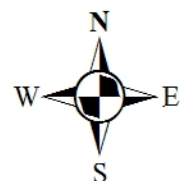
 roadways

 vine forest (12.12.13)

 sclerophyll forest/woodland (12.11.3;12.11.14;12.12.7;12.12.8;12.12.12;12.12.15;12.12.24)

 hoop pine plantation

 cleared



7088000

7088000

423000

424000

425000

426000

