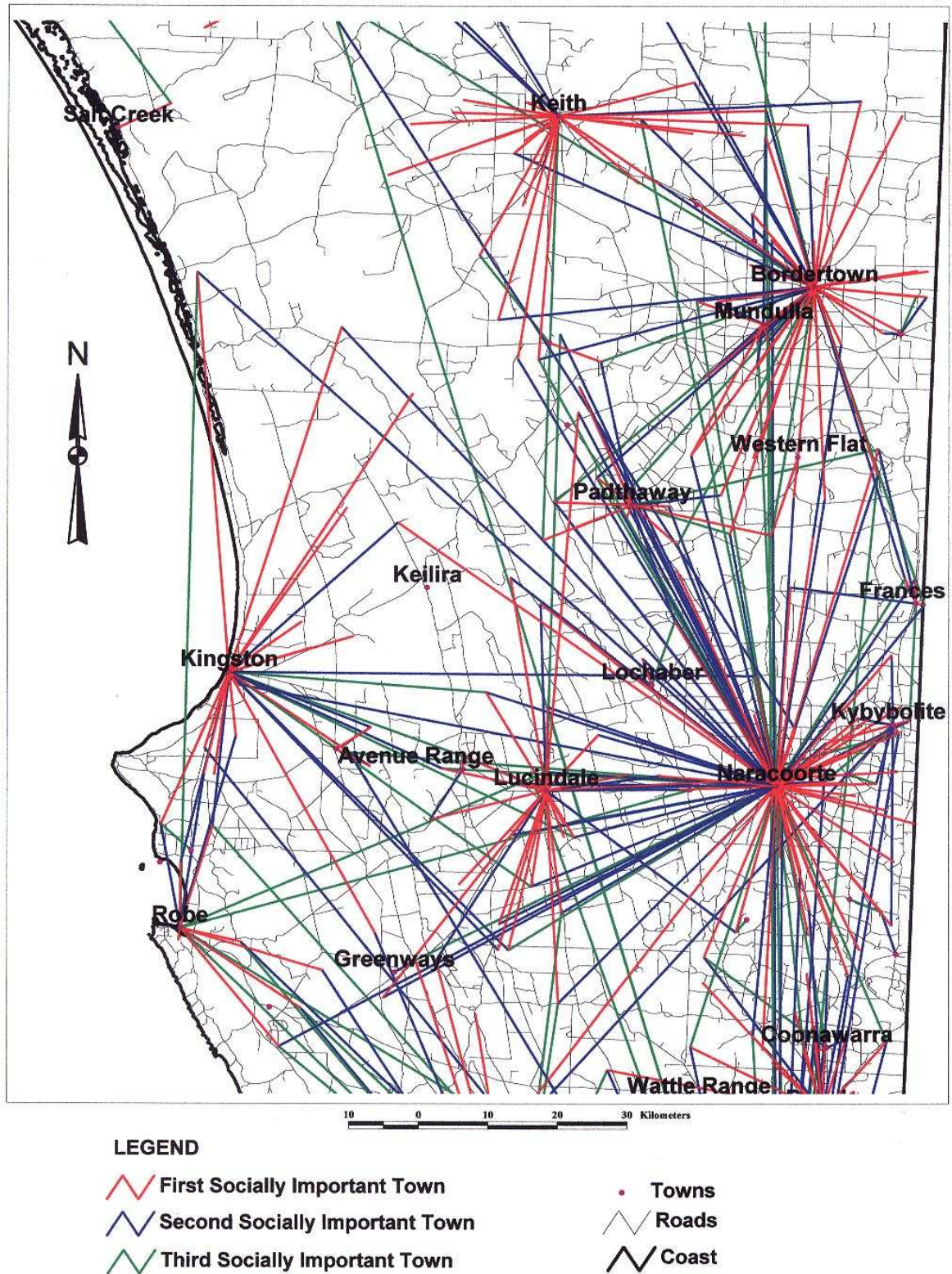


## SUMMARY OF PROCEDURE USED TO PRODUCE A FOUR-STAGE HIERARCHY OF APPROXIMATE SOCIAL CATCHMENT AREAS

1. Drawing on both the 1982/83 and 1992/93 postal surveys of rural households using GIS techniques all respondents' home locations were linked to their first, second and third most important centre for social activity to produce a linkage map (over page). All 309 places (many very small) which were nominated as the primary centre of social activity were located on the linkage map, but the database is too sparse to map all their social catchments. These are referred to as 'Stage 1' places.
2. In stage 2, account is taken of the second-ranking as well as the first-ranking places of social importance. A linkage tree (see p. 341) was constructed from the linkage map. On this basis places (mostly very small) named as social nodes by just one or two respondents were allocated to the centre named as socially next most important, leaving 134 Stage 2 spatial units. The social catchments of the Stage 2 places were mapped, using the postal questionnaire information, together with field knowledge and data from any existing studies. Account was also taken of the road pattern, ranges, salt lakes, and other natural barriers to movement, using the 1:250,000 (or in closely settled areas, 1:100,000) topographic maps. These 134 Stage 2 spatial units are the smallest that can be mapped from the available data.
3. Again using the linkage tree, in Stage 3 of the procedure, 35 of the 134 smallest Stage 2 social catchments were linked with their next-ranking social centre, to produce a map of the 99 smallest social catchments that can be approximated by ABS Census Collectors' District data. The goal was to define social areas as small and cohesive as possible, but which a) are based around a town large enough to be defined as a CCD in its own right (usually, a minimum of 200 population); and b) are capable of representation by whole or minimally split rural CCDs, using a *pro rata* allocation of population. Using GIS, the split was based wherever possible on the geocoded RAPID (Rural Area Property Identification Directory) database of inhabited households; where this was incomplete, the split was based on settlement distribution determined from topographic maps. The fractions used were either quarters or thirds of whole CDs; overlaps between social areas and CDs estimated to involve less than a quarter of the CD population were ignored.
4. While the Stage 3 areas quite suitable for analyses within South Australia, by national standards the State's rural communities are very small. Stage 4 undertakes one further reduction, to give a final total of 84 social areas of a scale roughly comparable with those of the eastern States. The 99 South Australian units retained in the analysis at Stage 3 include a number of small places able to be included because, quite fortuitously, the CD boundaries fit their social areas well; other places (in some cases substantially larger) miss out because of ill-fitting or non-fitting boundaries. Most of these 15 cases have strong links to a substantially larger neighbouring community, with which they can readily be combined. The remaining 84 Stage 4 communities cannot readily be further amalgamated. They are shown on p. 340 (reverse side).

A sample section of the State social linkage map.



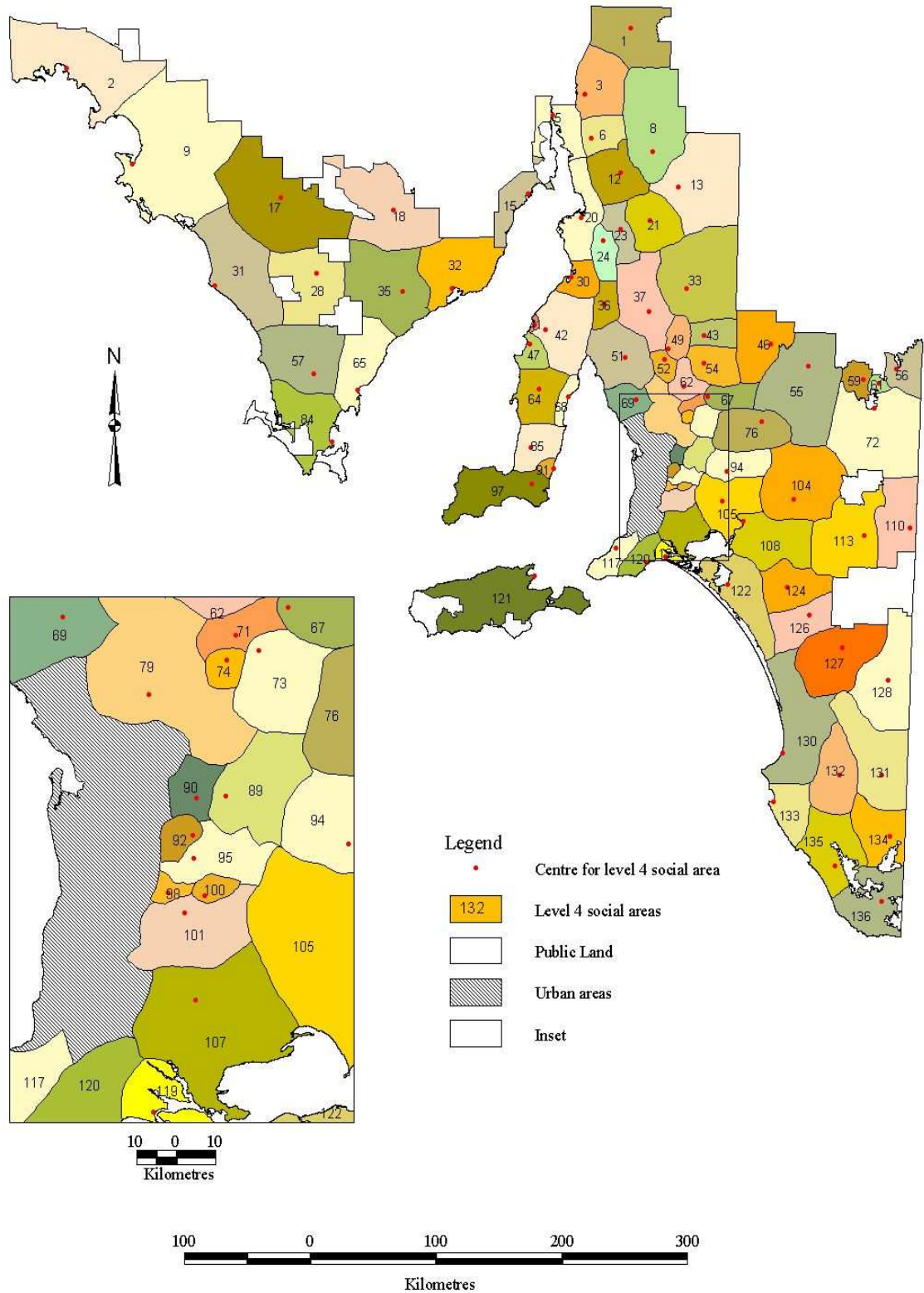
Source: Smailes et al. 2002,

Sample page of the Linkage Tree showing the four-stage amalgamation process.

Level 1 Places mentioned as a community centre STATE MAP 1	Level 2 Places for which social areas may be mapped STATE MAP 2	Level 3 Places with social areas able to fit Census CD data STATE MAP 3	Level 4 Places suitable for comparison with the Eastern States STATE MAP 4
Meningie Narrung Salt Creek	MENINGIE	MENINGIE	MENINGIE
Millicent Beachport Furner Hatherleigh Mount Burr Southend Tantanoola Wattle Range	MILLICENT	MILLICENT	MILLICENT
Minlaton Brentwood Port Julia	MINLATON	MINLATON	MINLATON
Curramulka	CURRAMULKA	CURRAMULKA	
Port Vincent	PORT VINCENT	PORT VINCENT	
Moonta	MOONTA	MOONTA	MOONTA
Morgan	MORGAN	MORGAN	MORGAN
Mount Barker Dawesley Kanmantoo Macclesfield	MOUNT BARKER	MOUNT BARKER	MOUNT BARKER
Echunga	ECHUNGA	ECHUNGA	
Meadows (part)	MEADOWS	MEADOWS	
Mount Gambier Allendale East Cape Banks Carpenter Rocks Glencoe Kongorong Mil Lel OB Flat Port MacDonnell Yahl	MOUNT GAMBIER	MOUNT GAMBIER	MOUNT GAMBIER
Murray Bridge Bow Hill Brinkley Callington Monarto Pompoota Rockleigh The Point / Woods Point	MURRAY BRIDGE	MURRAY BRIDGE	MURRAY BRIDGE
Mypolonga	MYPOLONGA		
Nairne Brukunga	NAIRNE	NAIRNE	NAIRNE
Naracoorte Frances Keilira Kybybolite Lochaber	NARACOORTE	NARACOORTE	NARACOORTE
Padthaway	PADTHAWAY		
Nuriootpa Ebenezer Greenock Light Pass	NURIOOTPA	NURIOOTPA	NURIOOTPA

Source: Smailes et al. 2002, 48

Level 4 mutually exclusive social catchment areas derived from the linkage tree. (84 areas, at the most detailed mapping level consistent with comparability with the Eastern States).



Source: Smailes et al. 2002, 21.