Life Course Centre

Mapping change over time in Australian children's developmental vulnerability using the Australian Early Development Census

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Research Summary

Why was the research done?

Identifying geographic areas where young Australian children's developmental vulnerability has significantly changed over time can inform future policy-relevant research and practice in several ways. For example, it can inform the choice of specific built environment indicators to monitor over time or inform the selection of key areas for examining length of exposure effects on early child health and development. Critical to this is unpacking whether spatial variation in early child development changes coincides with socio-economic disadvantage.

What were the key findings?

Developmental vulnerability, as measured by the Australian Early Development Census, was generally inconsistent across all states and territories over the 12-year period 2009-2021. Some Local Government Areas declined, improved or did not change (i.e., were stable either with consistently high, medium or low levels of developmental vulnerability). There was no observed relationship between changes in developmental vulnerability by socio-economic disadvantage as measured by the Socio-economic Indexes for Areas.

What does this mean for policy and practice?

Area-level changes in Australian children's developmental vulnerability can be used to identify built environment characteristics of areas shown to have reduced levels of developmental vulnerability or remain stable with consistently low levels of developmental vulnerability. Details of these Local Government Areas early years programs, services and child-specific policies can also be examined. The longer-term findings could be used to guide urban planning policy for child-friendly cities and potential place-based programs targeting early child development.

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Citation

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Background

Early childhood is a critical period for establishing the foundations for physical and mental health(1, 2). Positive early child development is also associated with outcomes across the life course such as social skills, educational attainment, economic self-sufficiency, all of which contribute to increased life success(2).

Australia is one of few countries to have established a comprehensive national progress measure of early child health and development. Known as the Australian Early Development Census (AEDC), data on early child development is collected every three years for all children in the year they commence full-time schooling. The AEDC began in 2009, with the most recent wave of data collected in 2021 and each census collection yields data on approximately 300,000 children representing at least 96% of the eligible population, depending on the census year. As part of AEDC data collection, children receive a score based on a teacher assessment and are assigned to one of three groupings based on this score; developmentally 'on track', 'developmentally at risk' or 'developmentally vulnerable'. Results from the 2021 AEDC report card shows that 22% of Australian children are developmentally vulnerable on one or more of the AEDC domains (physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication skills and general knowledge)(3). There is evidence that the AEDC predicts Australian children's educational and wellbeing outcomes(4-6) and internationally there is evidence of the impact of early child development programs on later adult health outcomes(7).

Socioeconomic disadvantage is widely accepted to have detrimental effects on early child health and development, with children from lower socio-economic backgrounds often experiencing significantly higher levels of developmental vulnerability than their higher socio-economic background peers(8, 9). Factors such as parent education level, parent employment or income and family structure influence child development through parental access to resources, social support, mental health(10), and family relationships(11). Beyond individual level measures, neighbourhood level disadvantage or deprivation has also been associated with early child development(13).

There are a number of features of the built environment that are thought to influence early child development, particularly housing density, access to services, and quality of green space(12, 13). While the extent to which neighbourhood disadvantage and aspects of the built environment

coincide is not well understood, it is clear more research is needed to unpack this further. For example, we have found evidence of the relationship between the built environment and child development to be mediated by socioeconomic status(14). Findings from a study by Collyer et al. demonstrated that associations between the built environment and early child development were as expected (i.e. in the hypothesised direction) in high socio-economic areas but mixed in lower socioeconomic areas. However, there is still relatively little research in this area that focuses on change over time (in both built environment and early child development), and a significant evidence gap still exists around the causal relationships between attributes of the built environment and the effect on healthy child development.

Formative research identifying geographical areas where early child development is or isn't changing over time can be used to guide further research in this area. For example, geographical areas with significant improvement or decline in child development over time can be studied further using in-depth methodologies to unpack the relative importance of causal influences on early child development. Identifying geographical areas for further research can also help inform the choice of built environmental indicators to link with early childhood development changes over time. Collectively, this research has the potential to inform policy interventions or place-based program opportunities that reduce early child development spatial inequalities.

The first aim of this paper was to spatially map changes over time in Australian children's developmental vulnerability using five waves of aggregate AEDC data (2009-2021) and identify geographic areas where developmental vulnerability has significantly changed over time. The second aim was for the subset of most disadvantaged areas, describe changes over time in the proportion of children developmentally vulnerable and consider whether changes over time in developmental vulnerability coincide with area-level socioeconomic disadvantage.

Methods

Australian Early Development Census

In Australia, population-level early child development is monitored using the Australian Early Development Census (AEDC). The AECD is a national census of early child development completed by teachers every three years for children in their first year of full-time schooling (i.e. at five years of age). Data are collected every three years since 2009, with the most recent wave collected in 2021 (i.e. five waves in total) and a participation rate of 96% nationally [2]. There is evidence that the AEDC predicts Australian children's educational outcomes [3] and internationally there is evidence of the impact of early child development programs on later adult health outcomes [4].

Defining developmental vulnerability

AEDC data collection involves teachers completing a 100-question assessment for every child in their class, providing information across five domains of early child development; physical health and wellbeing, social competence, emotional maturity, language and cognitive skills (school-based), and communication skills and general knowledge. A child's score is calculated for each domain and categorised into the standard reporting national indicators. Cutpoints for these categories were set utilising the first national AEDC in 2009 based on the distributions for each domain. For each of the five domains, the cutpoints were set around the 10th percentile to determine "developmentally vulnerable," with children scoring within the 10th-25th percentile considered "at risk," and those above the 25th percentile considered to be "on track." The proportion of children who are considered developmentally vulnerable in one or more of the five domains is a standard reporting measure used nationally to assess progress towards improving the development of Australian children (16).

Publicly available data on the proportion of children considered developmentally vulnerable in one or more domains for each local government area in Australia were accessed from the AEDC website for each available wave of the AEDC (2009, 2012, 2015, 2018, 2021). Details of the number of children participating in AEDC at each wave by State or Territory have been previously reported and available from the AEDC website.

Defining spatial areas

The spatial unit chosen for mapping changes was local government areas (herein referred to as 'areas') in Australia. This represents the whole geographical area of responsibility of an incorporated Local Government Council, an Aboriginal or Island Council in Queensland, or a Community Government Council in the Northern Territory(16).

The publicly available datasets made available by AEDC take particular care to maintain the confidentiality of all children and ensure data can be reliably and appropriately used. Therefore, data are publicly supressed for areas in which three or fewer children had been assessed and only made available for areas based according to the following criteria: 1) at least 15 children with valid AEDC data reside in the geographic area; 2) at least two teachers contribute to the data collection for the geographic area; 3) 80 per cent or more of the completed Australian version of the Early Development Instruments are valid; and 4) in order for a child's overall results to be valid, a maximum of one domain can be missing, and the child must be older than 3 years and not have special needs(16).

Geographic boundary files for local government areas were accessed from the Australian Bureau of Statistics website.

Classifying areas of socioeconomic disadvantage

Socio-economic Indexes for Areas data for 2016 was used to indicate areas of disadvantage using Index of Relative Socio-Economic Disadvantage quintiles. The index is derived from the Australian Census and reflects area-level socioeconomic disadvantage and assigns a score to areas based on indicators such as income, education and employment. Lower scores are associated with more disadvantaged areas(15). SEIFA 2016 was used as it aligned with that presented in the latest available AEDC data(16). Data were accessed from the Australian Bureau of Statistics website.

Assessing change in developmental vulnerability

The percentage point change in developmental vulnerability between each consecutive AEDC wave was calculated (i.e. change from 2009-2012; 2012-2015; 2015-2018 and 2018-2021) to derive four change points. These changes were determined to be 'significant' or 'not significant' changes using the critical difference methodology outlined by the AEDC(17). Briefly, a simulation

approach is used to derive power functions for each AEDC domain, which are then used to calculate the minimum level of change required for results to be statistically significant. This methodology accounts for population changes in local government areas as well as variability in teacher scores and calculates a threshold for which percentage point change in developmental vulnerability in one or more domains can be considered significant.

Seven categories of area-level developmental vulnerability change were created based on the direction and number of significant changes (out of the four possible changes between waves):

- 'Consistent improvement': areas with two or more significant changes in the same (positive) direction
- 'Some improvement': areas with one significant change
- 'Inconsistent change': areas with two or more significant changes in different directions (i.e. improvement and decline)
- 'No change': areas with no significant changes over time
- 'Some decline': areas with one significant change in the same (negative) direction
- 'Consistent decline': areas with two or more significant changes in the same (negative) direction
- 'No data': areas with insufficient data to calculate more than one change

Mapping and analysis

QGIS software (version 3.28) was used to represent areas on a choropleth map to convey the spatial distribution of the developmental vulnerability change categories. Shading was added to the map to indicate areas which were assigned the lowest Index of Relative Socio-Economic Disadvantage quintile (i.e. Quintile 1) within each state according to the Australian Bureau of Statistics.

The number and proportion of areas assigned to each developmental vulnerability change category was calculated and presented by Australian State or territory and then further described for the subset of most disadvantaged areas. We also calculated Pearson chi square statistics to assess the distribution of areas across Index of Relative Socio-Economic Disadvantage quintiles for each of the change categories (excluding 'no data').

Key Findings

Table 1 presents the number and proportion of areas in each developmental vulnerability change category for Australia and by State or territory. Table 2 includes the number and proportion of areas by developmental vulnerability change over time for the subset of most disadvantaged areas only. Table 3 summaries the number and proportion of assigned developmental vulnerability change over time categories for areas across all Index of Relative Socio-Economic Disadvantage quintiles.

Overall, change in children's developmental vulnerability in areas across Australia and each State or Territory were mostly inconsistent over the 12-year period (2009 to 2021). Notably there were ten areas considered to be among the most disadvantaged in Australia, where developmental vulnerability was found to be consistently improving over time. There were: Moree Plains (NSW); Hindmarsh (Vic); Derwent Valley (Tas); Salisbury (SA); Katanning (WA); Whyalla (SA); Loddon (Vic); Glen Innes Severn (NSW); Coolgardie (WA); and Central Darling (NSW).

The proportions of developmentally vulnerable children in the five AEDC waves by areas identified with developmental vulnerability change categories of 'stable' (Supplementary Table 1), 'improvement' (Supplementary Tables 2 and 3) and 'decline' (Supplementary Tables 4 and 5) over time are found in Appendices A-C.

The following sections present the maps of change for each Australian State or Territory and outline key findings.

Table 1: Number and proportion of all areas by assigned developmental vulnerability change over time^ category.

	Australia (N=548)	NSW (N=131)	ACT (N=1)	NT (N=19)	Qld (N=78)	Vic (N=80)	SA (N=71)	WA (N=139)	Tas (N=29)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Consistent improvement	78 (14.2)	17 (13.0)	0 (0.0)	1 (5.3)	21 (26.9)	16 (16.0)	5 (7.0)	15 (10.8)	3 (10.3)
Some improvement	81 (14.8)	20 (15.3)	0 (0.0)	1 (5.3)	11 (14.1)	14 (17.5)	12 (16.9)	18 (12.9)	5 (17.2)
Inconsistent change	251 (45.8)	79 (60.3)	0 (0.0)	10 (52.6)	25 (32.1)	36 (45.0)	40 (56.3)	44 (31.7)	17 (58.6)
No change	18 (3.3)	3 (2.3)	0 (0.0)	0 (0.0)	1 (1.3)	5 (6.3)	4 (5.6)	5 (3.6)	0 (0.0)
Some decline	22 (4.0)	7 (5.3)	0 (0.0)	1 (5.3)	0 (0.0)	7 (8.8)	0 (0.0)	6 (4.3)	1 (3.4)
Consistent decline	4 (0.7)	2 (1.5)	1 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (1.4)	0 (0.0)	0 (0.0)
No data	94 (17.2)	3 (2.3)	0 (0.0)	6 (31.6)	20 (25.6)	2 (2.5)	9 (12.7)	51 (36.7)	3 (10.3)

Notes: ^AEDC time period from 2009-2021.

Table 2: Number and proportion of most disadvantaged areas only by assigned developmental vulnerability change over time^ category.

	Australia (N=106)	NSW (N=26)	ACT (N=0)	NT (N=3)	Qld (N=15)	Vic (N=16)	SA (N=14)	WA (N=27)	Tas (N=5)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Consistent improvement	10 (9.4)	3 (11.5)	0 (0.0)	0 (0.0)	0 (0.0)	2 (12.5)	2 (14.3)	2 (7.4)	1 (20.0)
Some improvement	12 (11.3)	4 (15.4)	0 (0.0)	0 (0.00)	0 (0.0)	4 (25.0)	2 (14.3)	1 (3.7)	1 (20.0)
Inconsistent change	48 (45.3)	15 (57.7)	0 (0.0)	1 (33.3)	5 (33.3)	9 (56.3)	9 (64.3)	7 (25.9)	2 (40.0)
No change	2 (1.9)	1 (3.8)	0 (0.0)	0 (0.0)	0 (0.0)	1 (6.3)	0 (0.0)	0 (0.0)	0 (0.0)
Some decline	4 (3.8)	2 (7.7)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (3.7)	1 (20.0)
Consistent decline	1 (0.9)	1 (3.8)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
No data	29 (27.4)	0 (0.0)	0 (0.0)	2 (66.7)	10 (66.7)	0 (0.0)	1 (7.1)	16 (59.3)	0 (0.0)

Notes: ^AEDC time period from 2009-2021.

Table 3: Number and proportion of assigned developmental vulnerability change over time^ categories for areas across disadvantage quintiles.

	Total (N=449)	Q1 - most disadvantaged areas (N=77)	Q2 (N=90)	Q3 (N=95)	Q4 (N=91)	Q5 - least disadvantaged areas (N=96)
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Consistent improvement	78 (17.4)	10 (13.0)	12 (13.3)	16 (16.8)	21 (23.1)	19 (19.8)
Some improvement	79 (17.6)	12 (15.6)	17 (18.9)	18 (19.0)	18 (19.8)	14 (14.6)
Inconsistent change	249 (55.5)	48 (62.3)	56 (62.2)	52 (54.7)	46 (50.6)	47 (49.0)
No change	18 (4.0)	2 (2.6)	2 (2.2)	2 (2.1)	3 (3.3)	9 (9.4)
Some decline	22 (4.9)	4 (5.2)	2 (2.2)	6 (6.3)	3 (3.3)	7 (7.3)
Consistent decline	3 (0.7)	1 (1.3)	1 (1.1)	1 (1.1)	0 (0.0)	0 (0.0)

Notes: ^AEDC time period from 2009-2021. Areas categorised as 'no data' (n=94 areas) and areas with missing IRSD quintile data (n=5 areas) excluded from table. All chi square p values >0.05.

New South Wales & Australian Capital Territory

The maps of change in the proportion of children who were developmentally vulnerable from 2009-2021 by areas in NSW are presented in Figures 1a-1d.
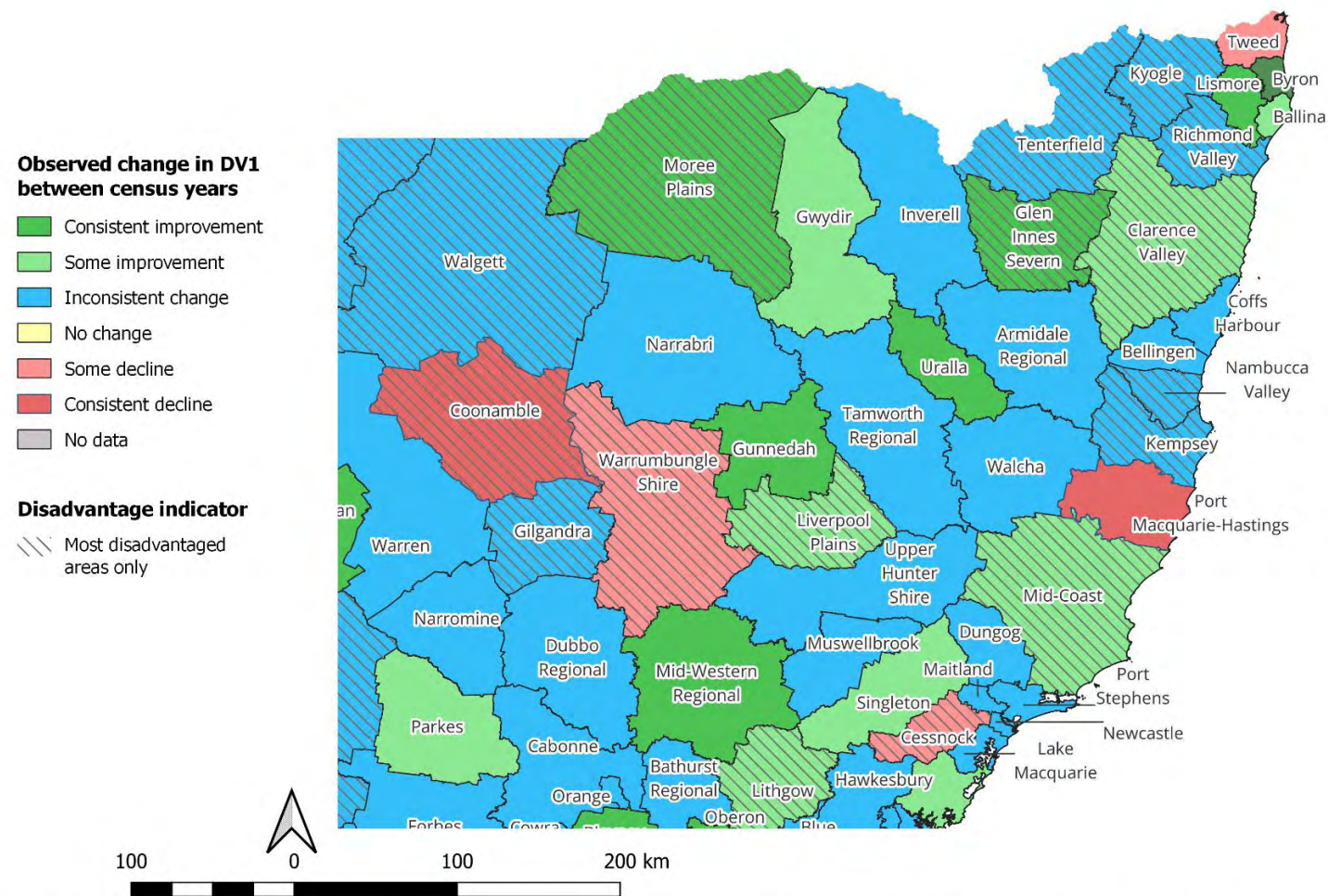
Of the 131 areas located in NSW, most were identified as having inconsistent developmental vulnerability change over time (79 areas; 60.3%). There were three areas with no change over time in the proportion of children who were developmentally vulnerable. These were Fairfield, which in 2021 had a higher than the national average proportion of children developmentally vulnerable (28.7%) and North Sydney and Waverley, which both had lower than the national average proportions of children developmentally vulnerable (14.9% and 16.9% respectively).

There were 17 areas with consistent improvement over time (13.0%) and two areas with consistent decline in children's developmental vulnerability over time.

Considering the 26 most disadvantaged areas in NSW only, seven of these were identified as having some improvement (Clarence Valley, Mid-Coast, Liverpool Plains, Lithgow) or consistent improvement (Moree Plains, Glen Innes Severn, Central Darling) in the proportion of children who were developmentally vulnerable. There were two disadvantaged areas with some (Warrumbungle, Cessnock) and consistent (Coonamble) decline in the proportion of children developmentally vulnerable from 2009 to 2021.

Figure 1d includes the one area located within the Australian Capital Territory. The proportion children developmentally vulnerable in this area was found to consistently decline between 2009 to 2021.

Observed change in DV1 between census years

- ◼ Consistent improvement
- ◼ Some improvement
- ◼ Inconsistent change
- ◻ No change
- ◼ Some decline
- ◼ Consistent decline
- ◻ No data

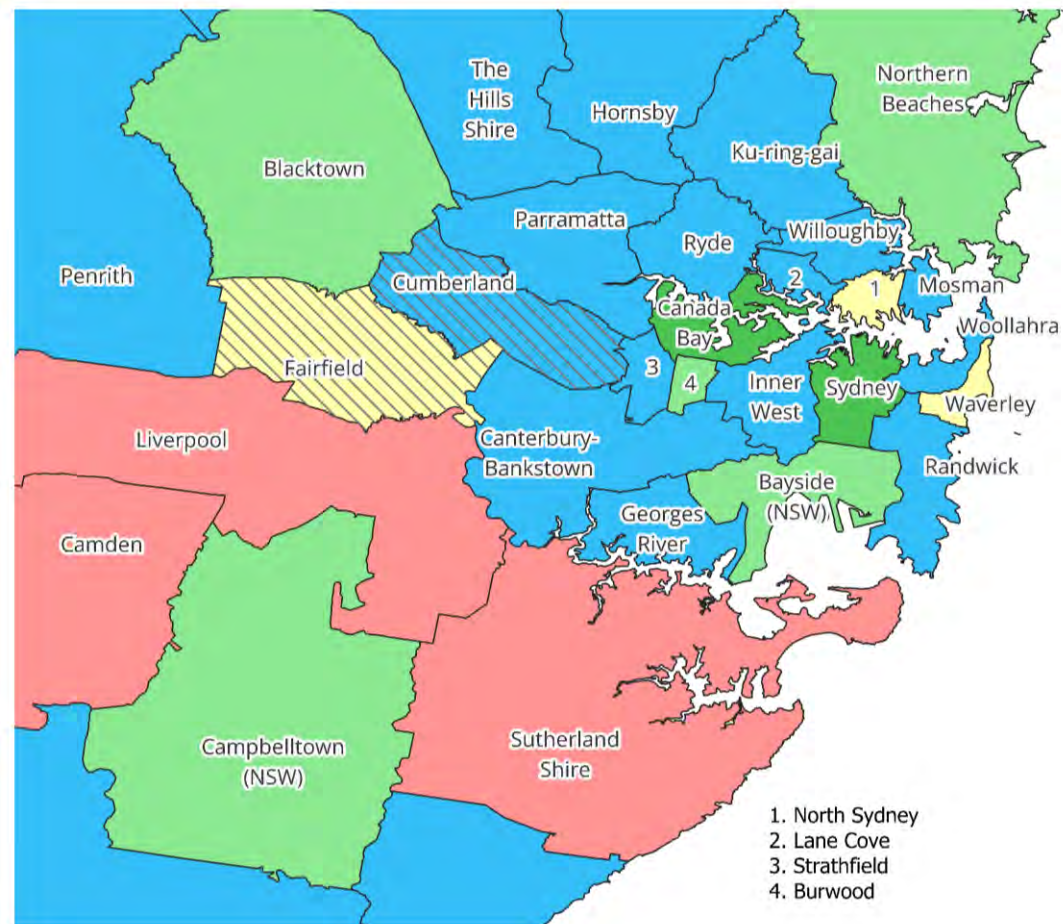**Disadvantage indicator**

⟋⟋ Most disadvantaged areas only

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Figure 1a: Map of change in the proportion of NSW children who were developmentally vulnerable from 2009-2021 by area.

Observed change in DV1 between census years

- Consistent improvement
- Some improvement
- Inconsistent change
- No change
- Some decline
- Consistent decline
- No data

Disadvantage indicator

Most disadvantaged areas only

1. North Sydney
2. Lane Cove
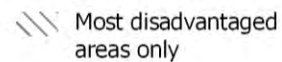3. Strathfield
4. Burwood

10 0 10 20 km

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Figure 1b: Map of change in the proportion of NSW children who were developmentally vulnerable from 2009-2021 by area.

Figure 1c: Map of change in the proportion of NSW children who were developmentally vulnerable from 2009-2021 by area.

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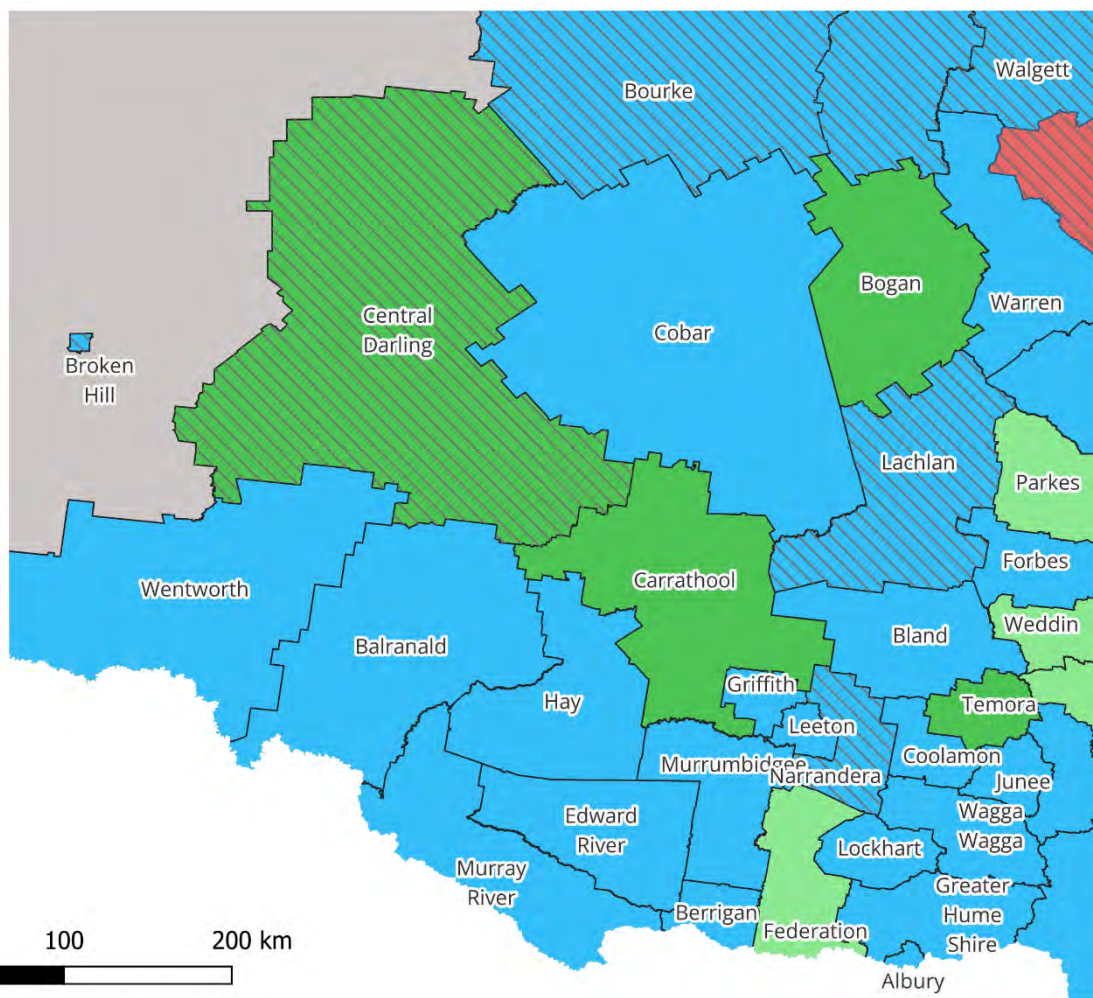
Observed change in DV1 between census years

- ■ Consistent improvement
- ■ Some improvement
- ■ Inconsistent change
- □ No change
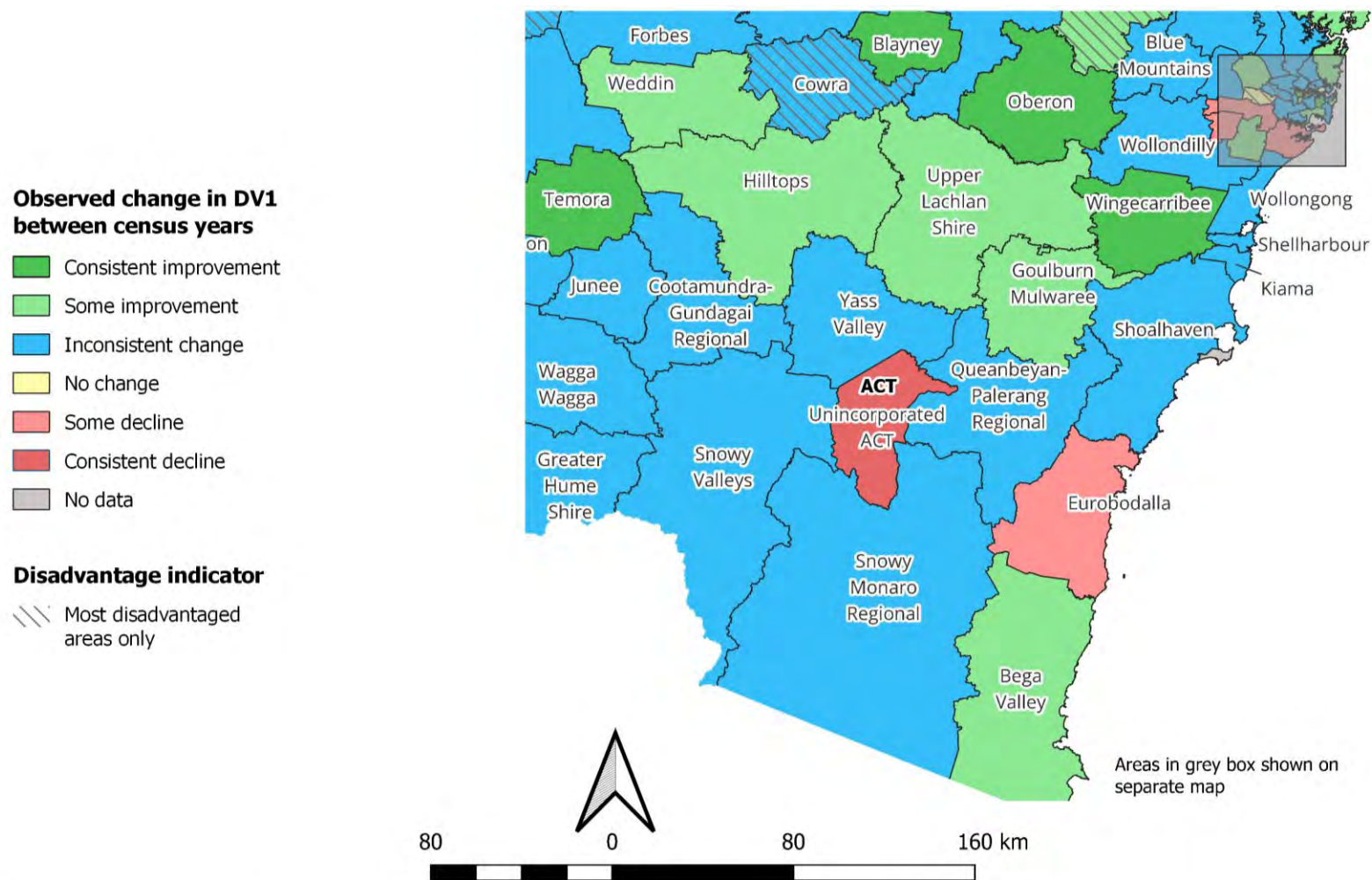- ■ Some decline
- ■ Consistent decline
- □ No data

Disadvantage indicator

- ⧄ Most disadvantaged areas only

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Figure 1d: Map of change in the proportion of NSW/ACT children who were developmentally vulnerable from 2009-2021 by area.
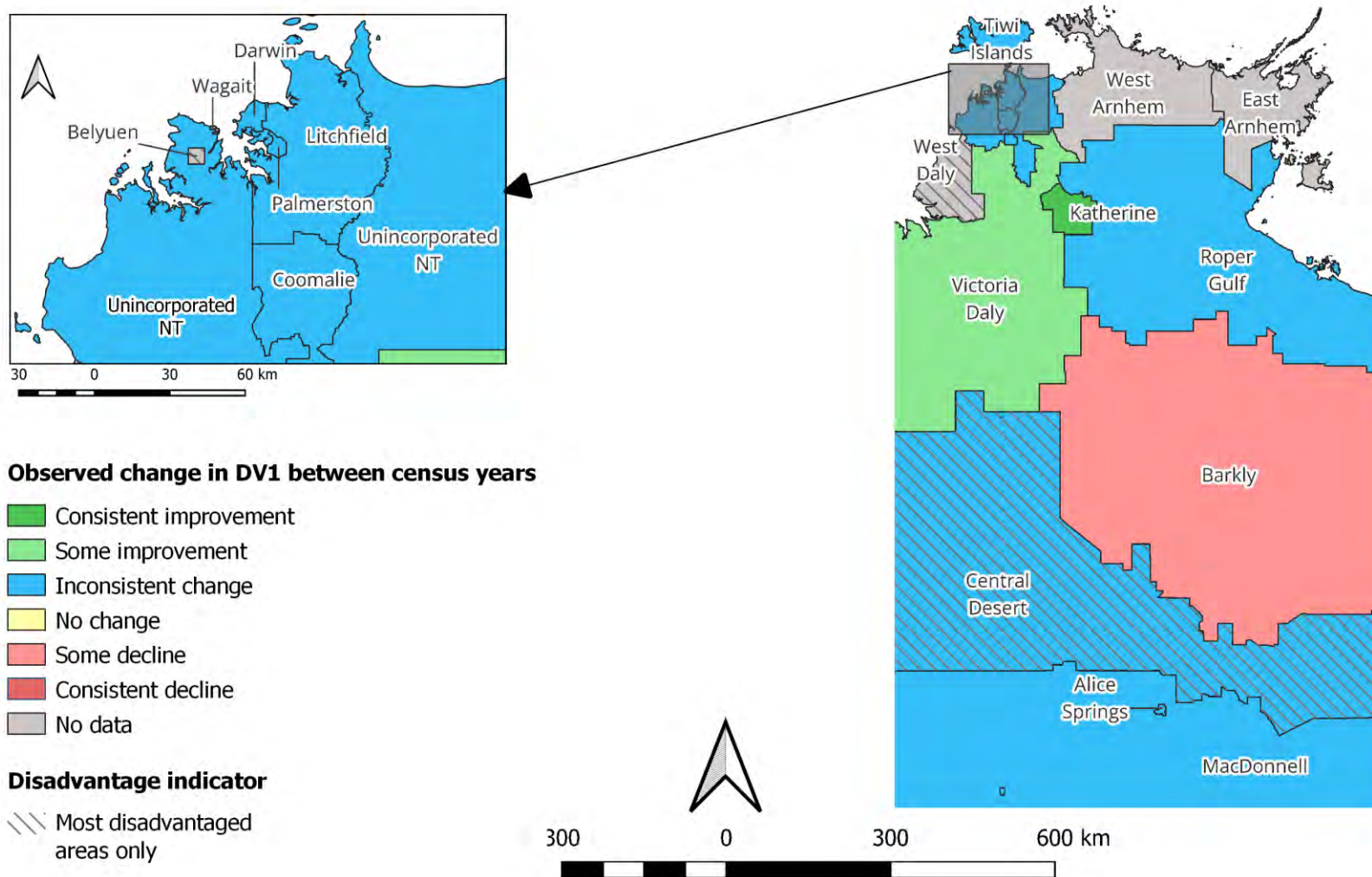
Northern Territory

The map of change in the proportion of NT children who were developmentally vulnerable from 2009-2021 by area is presented in Figure 2.

Just over half of areas in the NT (10 areas; 52.6%) were categorised as having inconsistent levels of change in the proportion of children developmentally vulnerable over time. Nearly a third of areas had no data (6 areas; 31.6%) while none were identified as having no change over time.

There were two areas that had improvements in the proportion of children developmentally vulnerable – Katherine and Victoria Daly. One area, Barkly, showed some decline in developmental vulnerability over time. The most disadvantaged areas in the NT showed inconsistent change (Central Desert) or had no data (Belyuen, West Daly).

Figure 2: Map of change in the proportion of NT children who were developmentally vulnerable from 2009-2021 by area.

Queensland

The maps of change in the proportion of Queensland children who were developmentally vulnerable from 2009-2021 by areas are presented in Figures 3a-3c.

Of the 78 areas located in Queensland, most were identified as having inconsistent change over time (25 areas; 32.1%). This was closely followed by 21 areas with consistent improvement (26.9%) and 20 areas with no data (25.6%). There was one area (Mackay) with no change over time in the proportion of children who were developmentally vulnerable. In 2021, 25.8% children in Mackay were developmentally vulnerable, which was higher than the national average.

There were no areas with any decline in children's developmental vulnerability over time.

Considering the 15 most disadvantaged areas in Queensland only, five of these were identified as having inconsistent change in the proportion of children who were developmentally vulnerable, and the remaining 10 had no data available.

Observed change in DV1 between census years

- ■ Consistent improvement
- ■ Some improvement
- ■ Inconsistent change
- ■ No change
- ■ Some decline
- ■ Consistent decline
- ■ No data

Disadvantage indicator

- ＼＼ Most disadvantaged areas only

100   0   100   200 km

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Figure 3a: Map of change in the proportion of Queensland children who were developmentally from 2009-2021 by area.

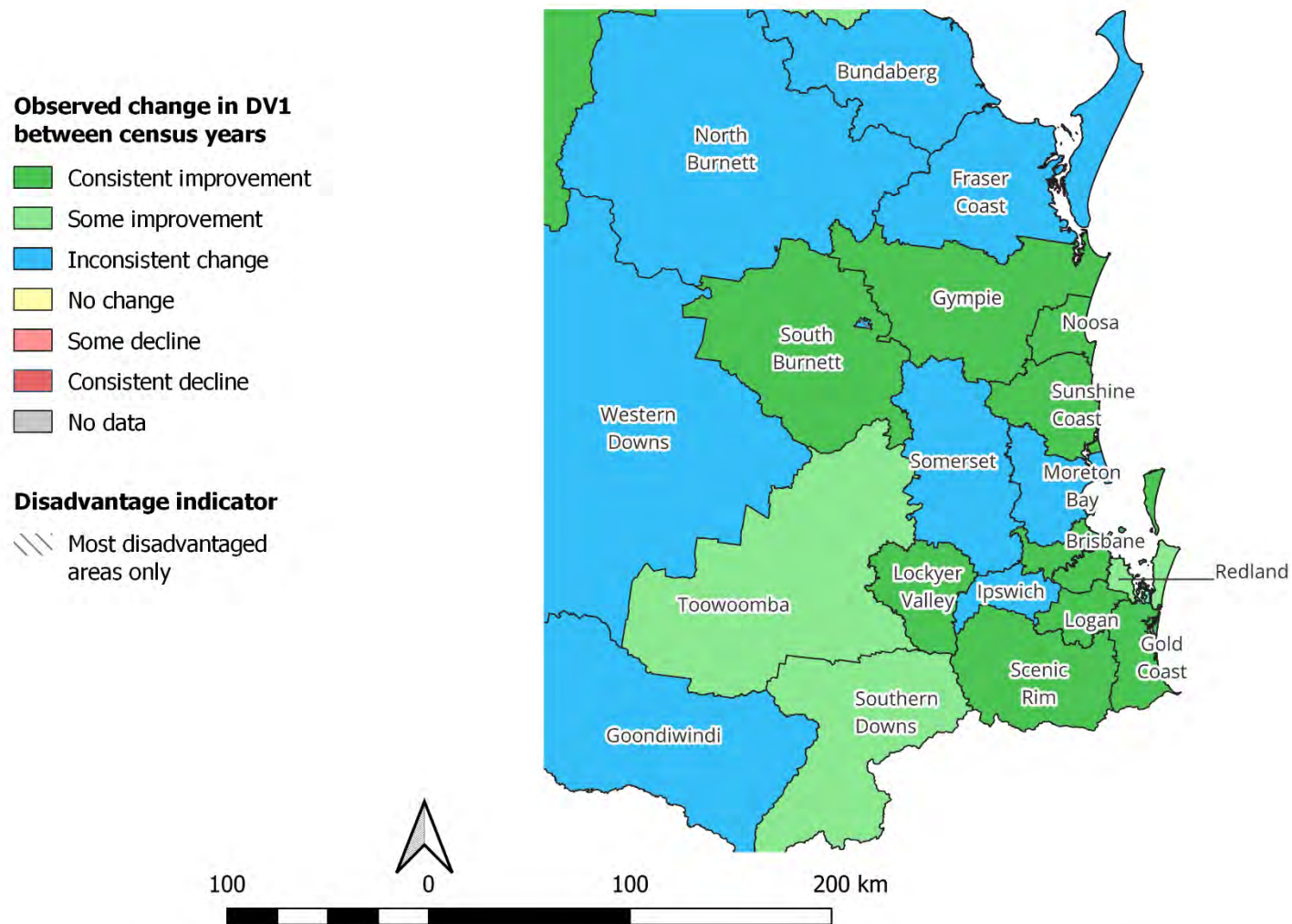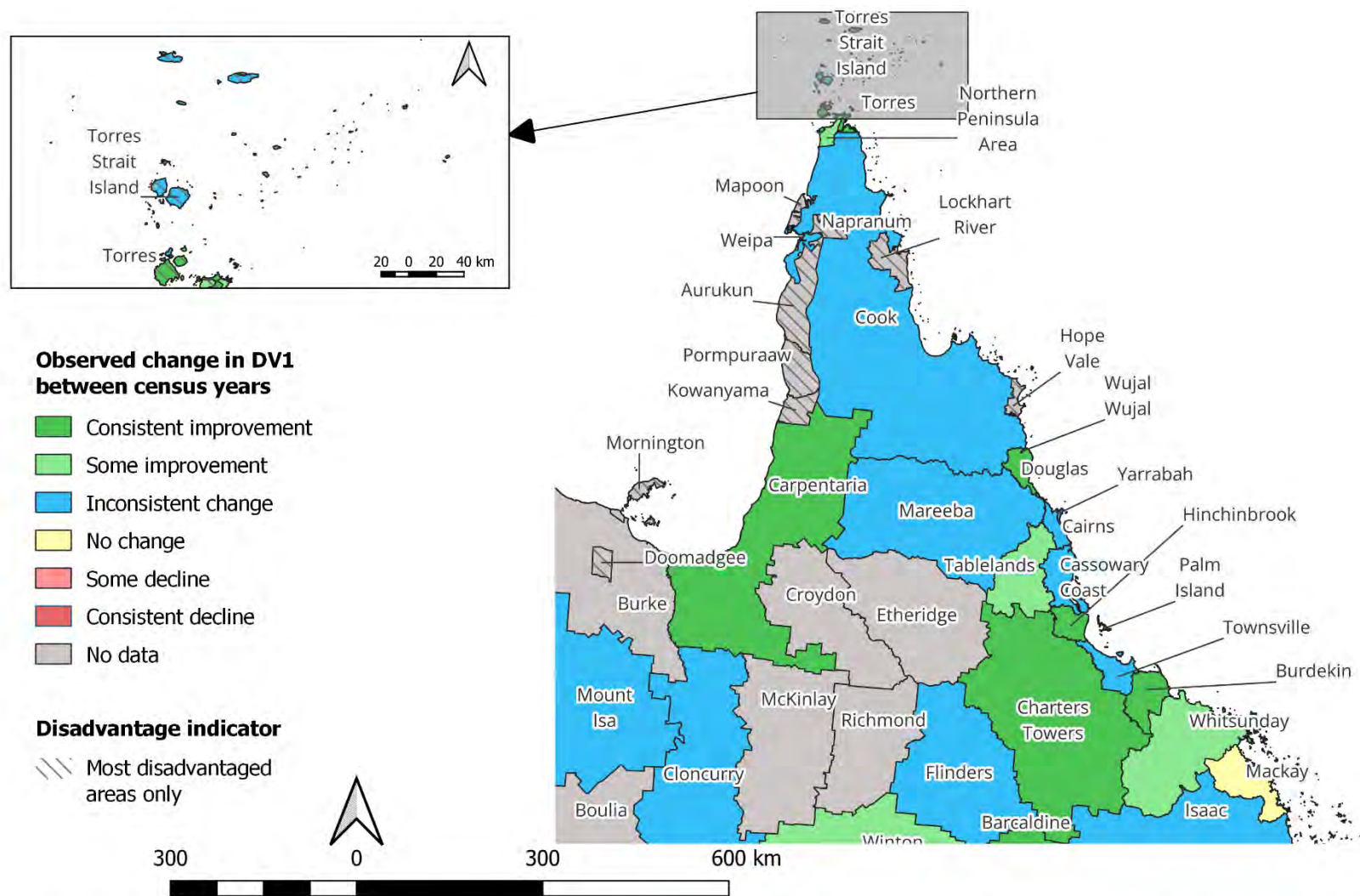*Figure 3b: Map of change in the proportion of Queensland children who were developmentally vulnerable from 2009-2021 by area.*
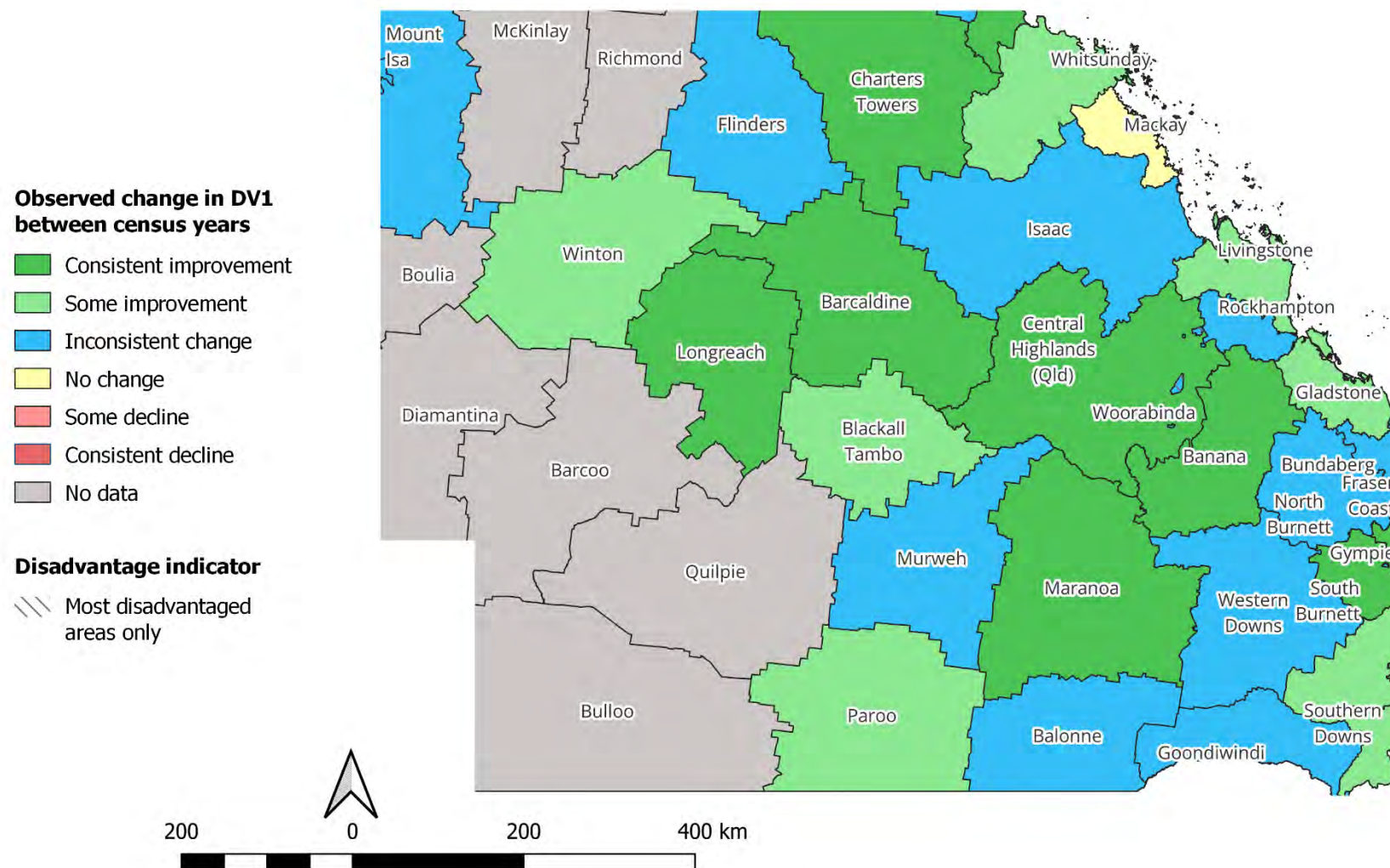
Figure 3c: Map of change in the proportion of Queensland children who were developmentally vulnerable from 2009-2021 by area.

Victoria

Two maps describe the change in proportion of Victorian children who were developmentally vulnerable from 2009 to 2021 (see Figures 4a and 4b).

Of the 80 areas located in Victoria, most were identified as having inconsistent change over time (36 areas; 45.0%). There were five areas with no change over time in the proportion of children who were developmentally vulnerable. These were Corangamite, Horsham, Knox, Mildura, and Port Phillip. In 2021, the mean proportion of children developmentally vulnerable in these areas was lower than the national average.

There were 16 areas with consistent improvement over time, 14 areas with a single improvement over time, and none with a consistent decline over time.

Considering the 16 most disadvantaged areas in Victoria only, four of these were identified as having some improvement (Latrobe, Ararat, Yarriambiak, Central Goldfields) or consistent improvement (Hindmarsh, Loddon) in the proportion of children who were developmentally vulnerable.

Figure 4a: Map of change in the proportion of Victorian children who were developmentally vulnerable from 2009-2021 by area.
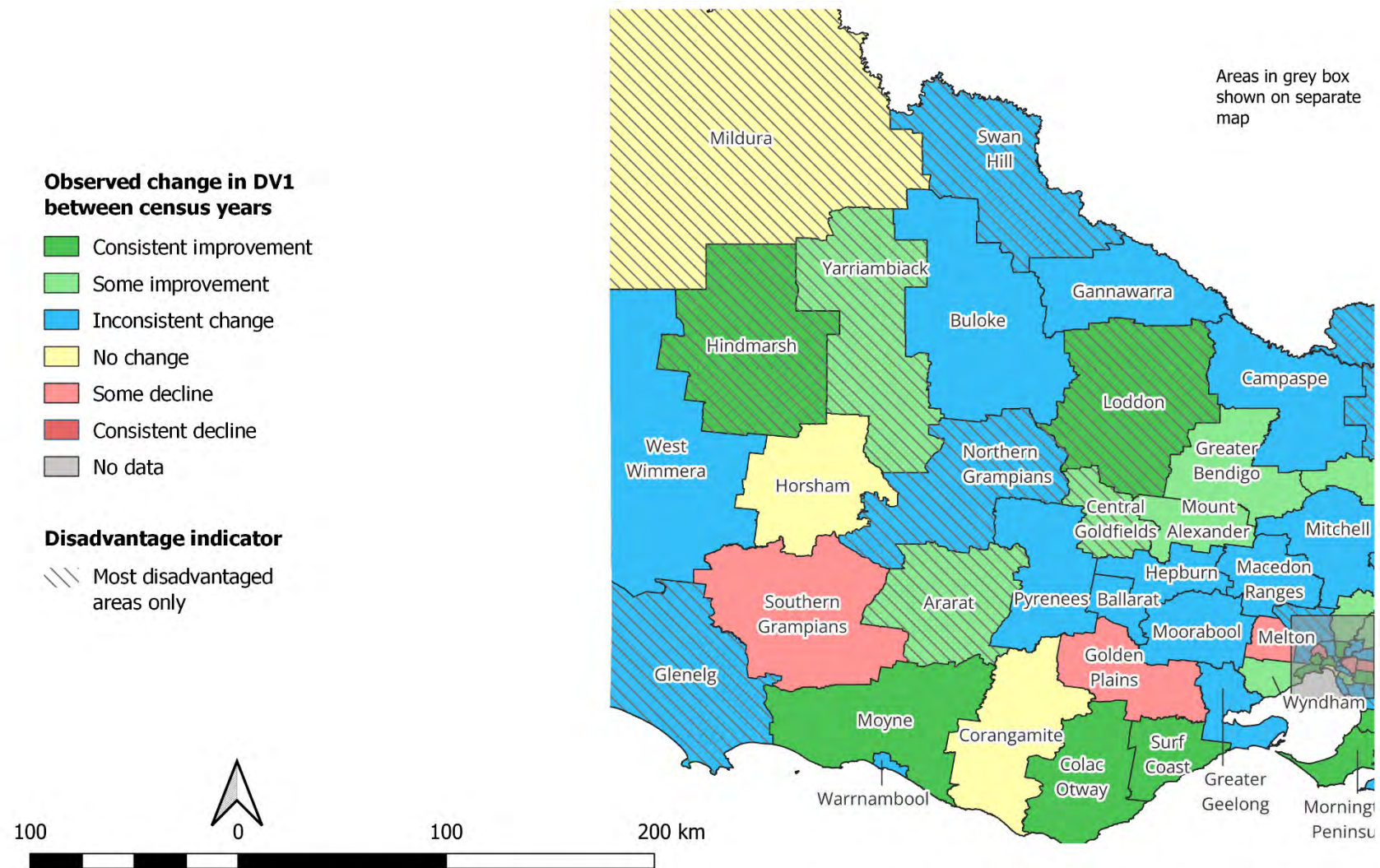
Figure 4b: Map of change in the proportion of Victorian children who were developmentally vulnerable from 2009-2021 by area.
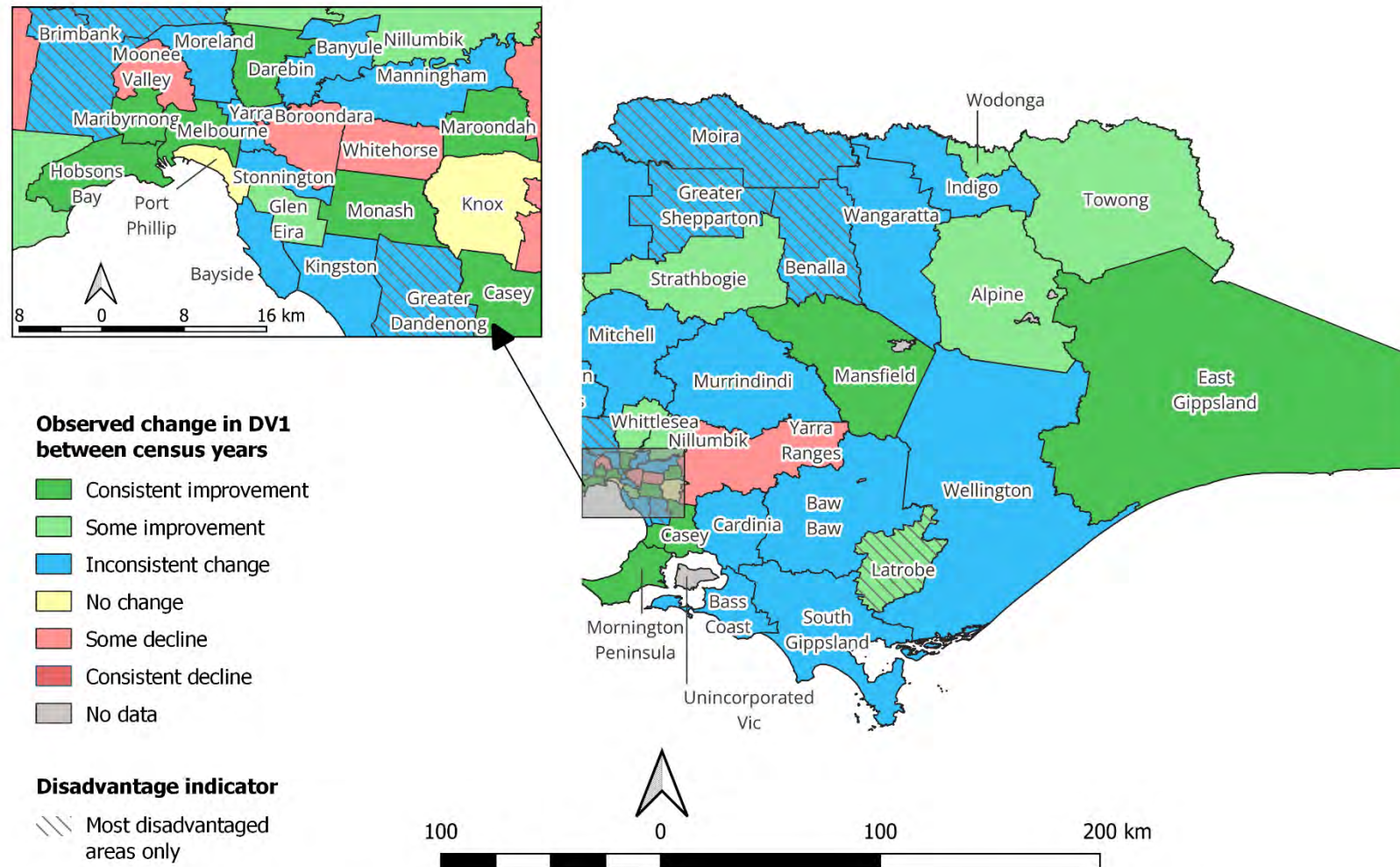
South Australia

Three maps describe the change in proportion of South Australian children who were developmentally vulnerable from 2009 to 2021 (see Figures 5a-5c).

Of the 71 areas in South Australia, most were identified as having inconsistent change over time (40 areas; 56.3%). There were four areas with no change over time in the proportion of children who were developmentally vulnerable. These included Grant and Naracoorte Lucindale, which in 2021 had proportions of children developmentally vulnerable which were higher than the national average (23.0% and 28.7% respectively). While Mitcham and Unley areas also showed no change over time, but in 2021 16.0% and 16.3% of children were developmentally vulnerable (i.e., lower than the national average).

There were 5 areas with a consistent improvement over time and one with consistent decline over time (Goyder) in the proportion of children who were developmentally vulnerable.

Considering the 14 most disadvantaged areas in South Australia only four of these were identified as having some improvement (Anangu Pitjantjatjara Yunkunyt, Renmark Paringa) or consistent improvement (Salisbury, Whyalla) in the proportion of children who were developmentally vulnerable.

Figure 5a: Map of change in the proportion of SA children who were developmentally vulnerable from 2009-2021 by area.
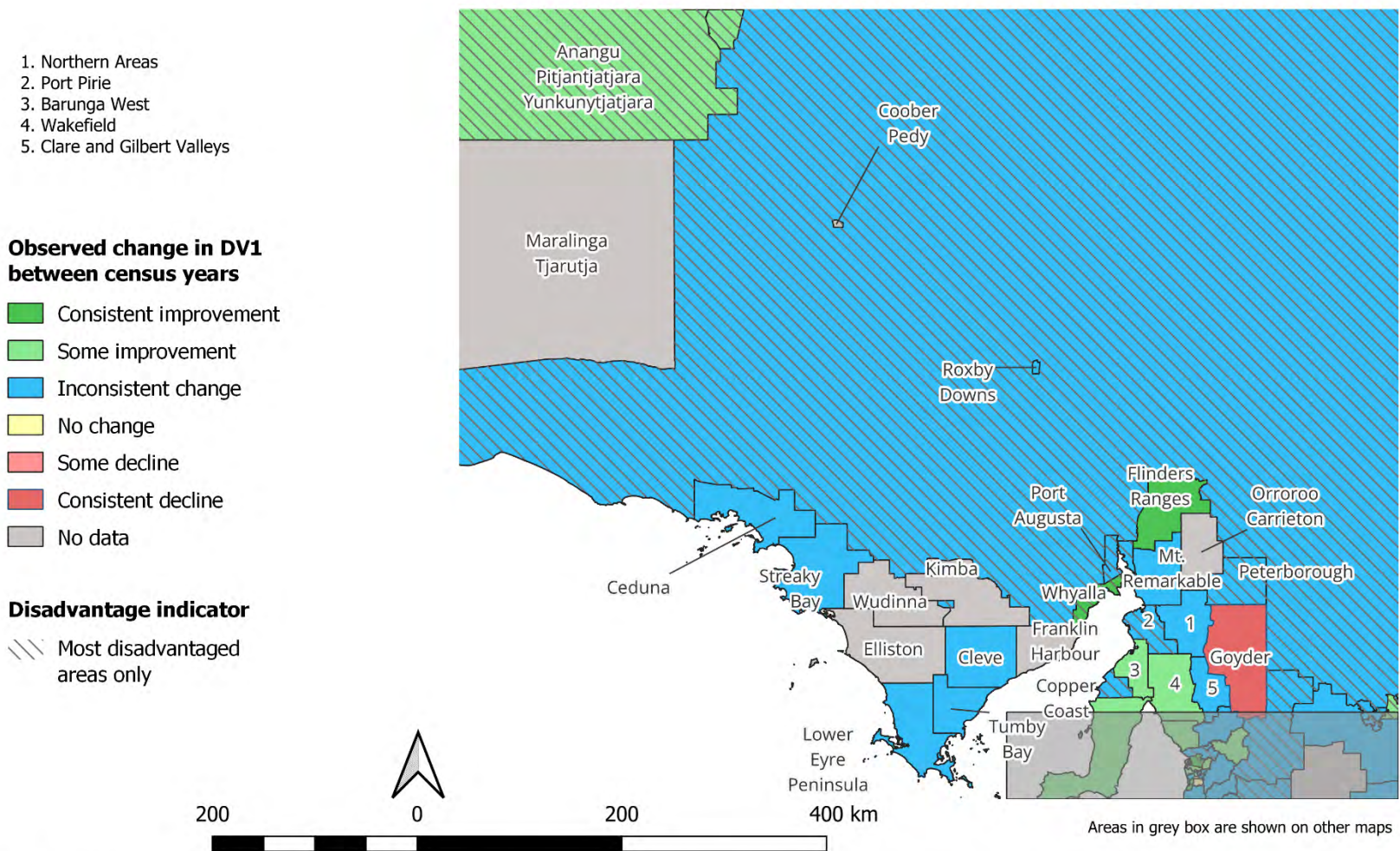
Figure 5b: Map of change in the proportion of SA children who were developmentally vulnerable from 2009-2021 by area.

Observed change in DV1 between census years

- Consistent improvement
- Some improvement
- Inconsistent change
- No change
- Some decline
- Consistent decline
- No data

Disadvantage indicator

- Most disadvantaged areas only

Areas in grey box are shown on other maps

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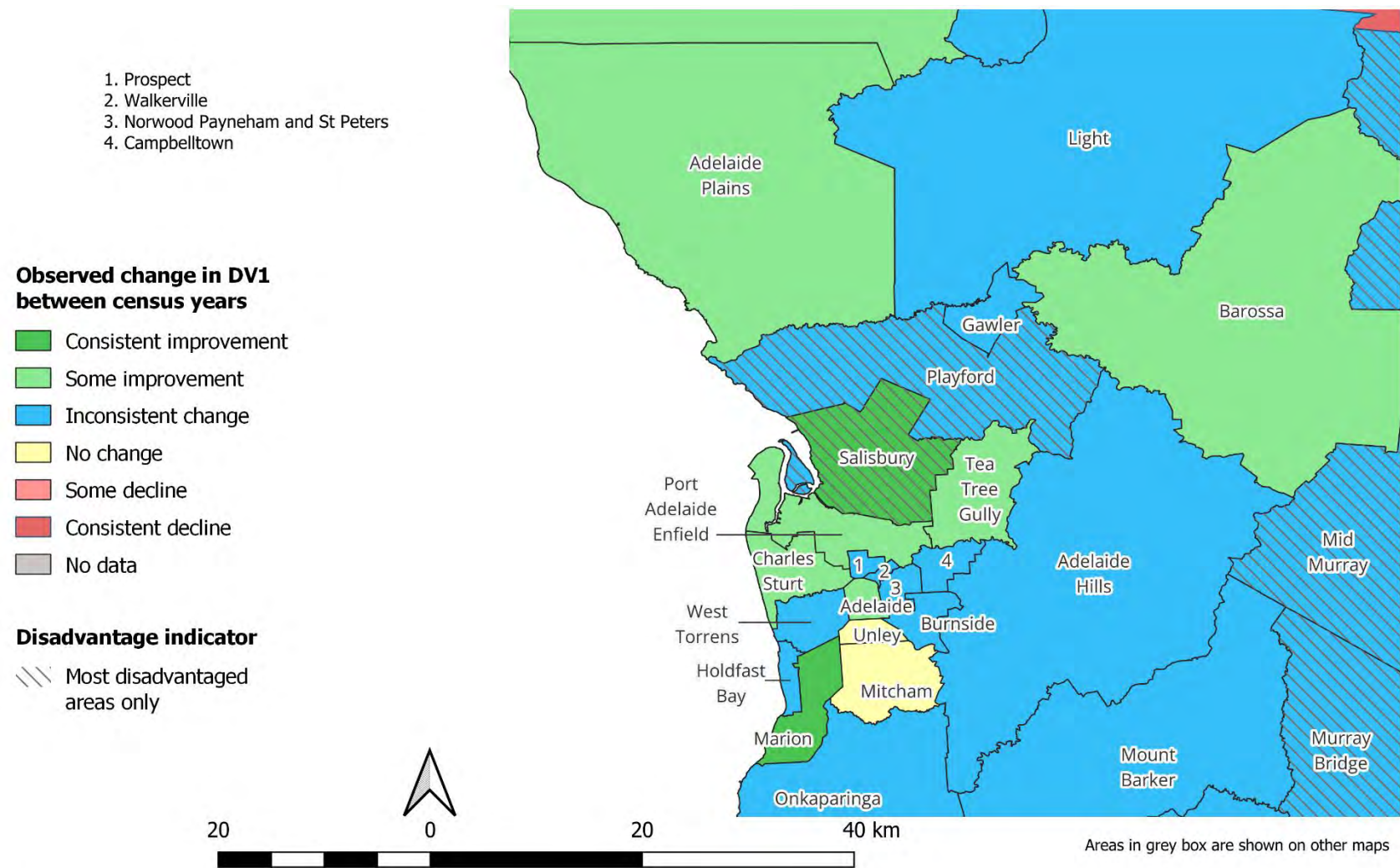*Figure 5c: Map of change in the proportion of SA children who were developmentally vulnerable from 2009-2021 by area.*

Western Australia

The maps of change in the proportion of children who were developmentally vulnerable from 2009-2021 by areas in Western Australia are presented in Figures 6a-6d.

Of the 139 areas located in Western Australia, most were identified as having no data (51 areas; 36.7%) followed by areas with inconsistent change over time (44 areas; 31.7%). There were five areas with no change over time in the proportion of children who were developmentally vulnerable. These included Boyup Brook, which in 2021 had a higher than the national average proportion of children developmentally vulnerable (30.0%), as well as Claremont, Fremantle, Lake Grace, and Nedlands, which all had proportions of children who were developmentally vulnerable lower than the 2021 national average (12.6%, 15.2%, 10.5%, 10.8% respectively).

There were 15 areas with consistent improvement over time and none with consistent decline in children's developmental vulnerability over time.

Considering the 27 most disadvantaged areas in Western Australia only, three of these were identified as having some improvement (Ngaanyajarraku) or consistent improvement (Coolgardie, Katanning) in the proportion of children who were developmentally vulnerable. Halls Creek was the only disadvantaged area with some decline in the proportion of children who were developmentally vulnerable from 2009 to 2021.

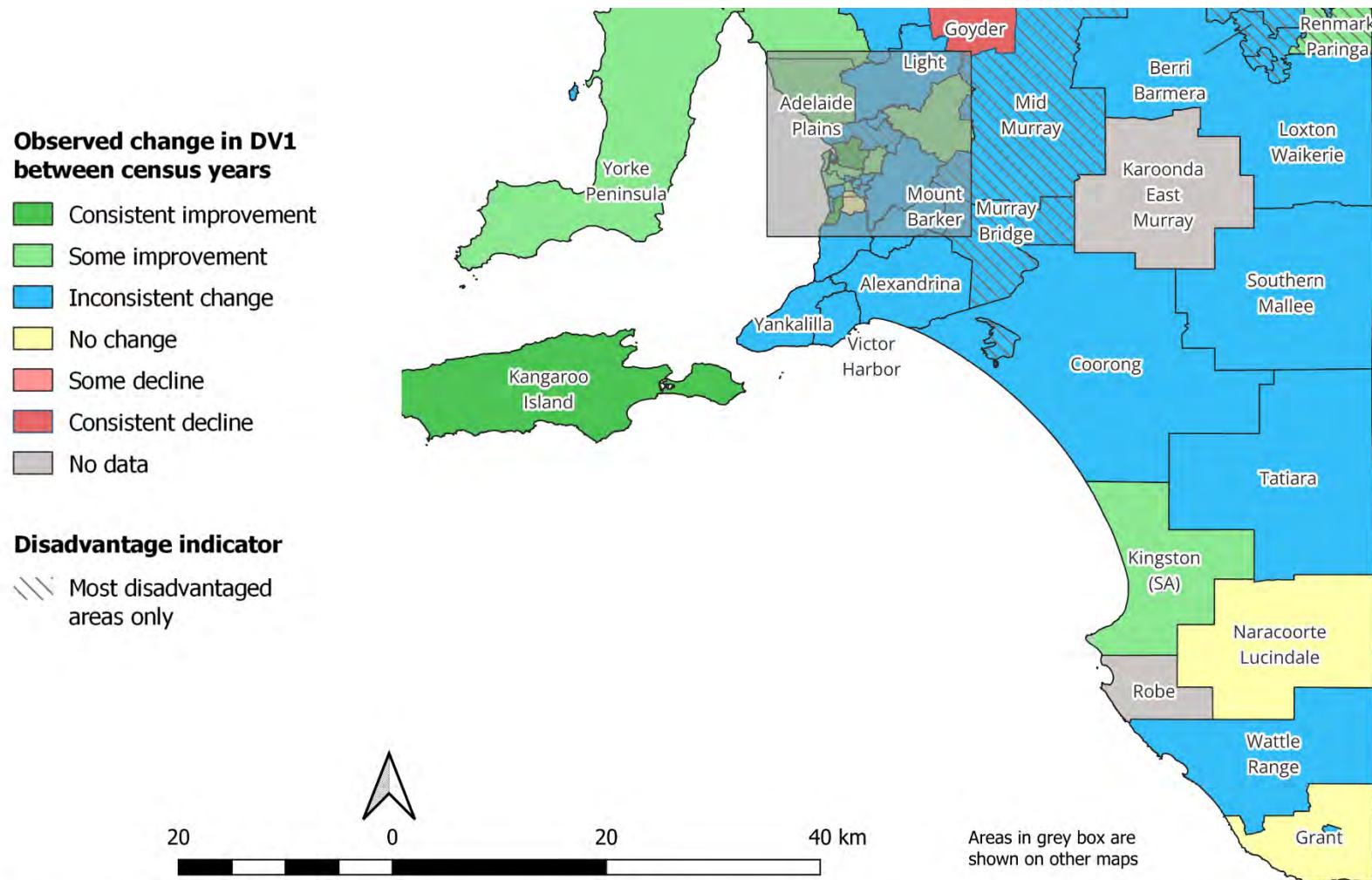*Figure 6a: Map of change in the proportion of WA children who were developmentally vulnerable from 2009-2021 by area.*
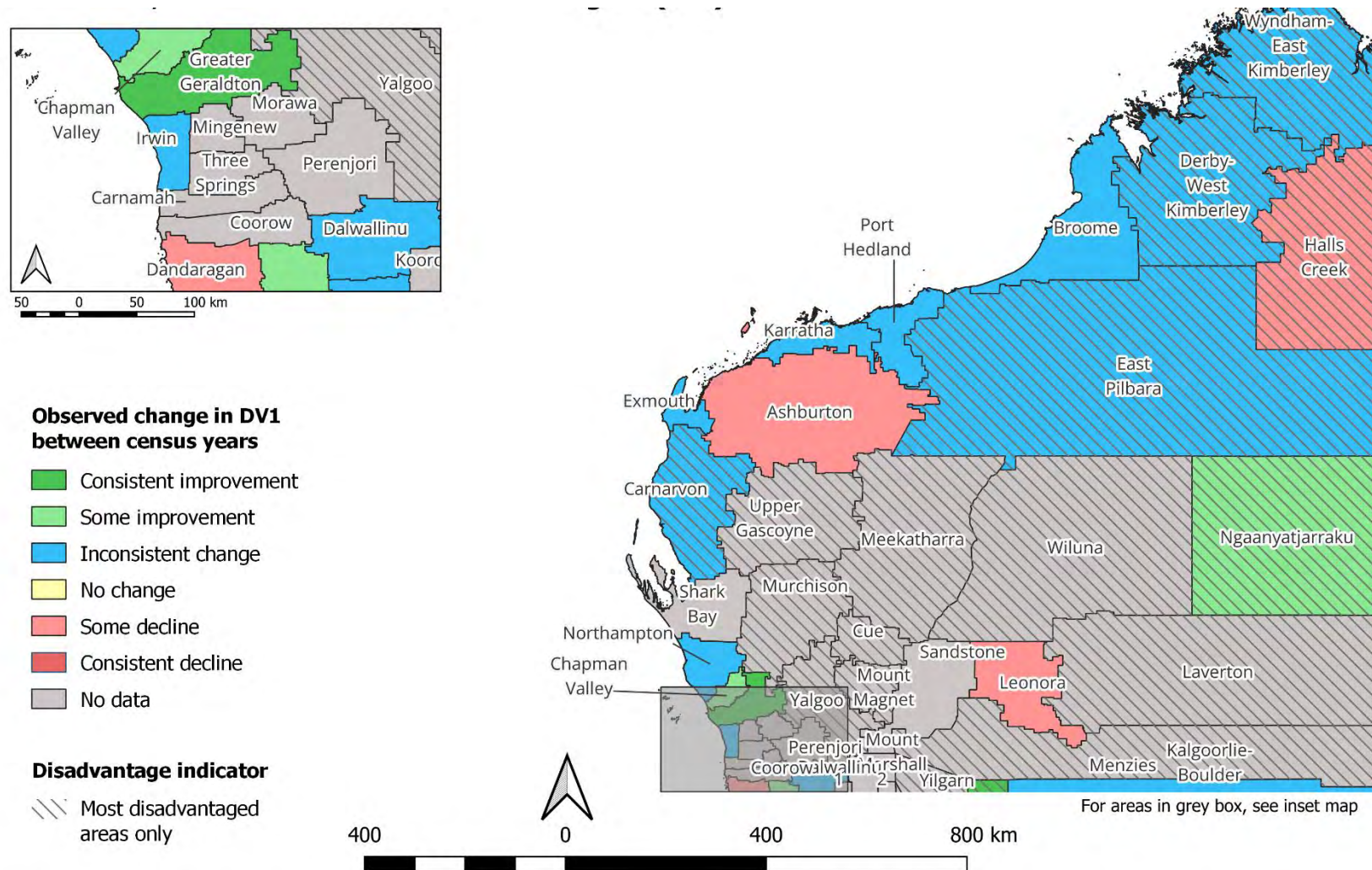
Figure 6b: Map of change in the proportion of WA children who were developmentally from 2009-2021 by area.
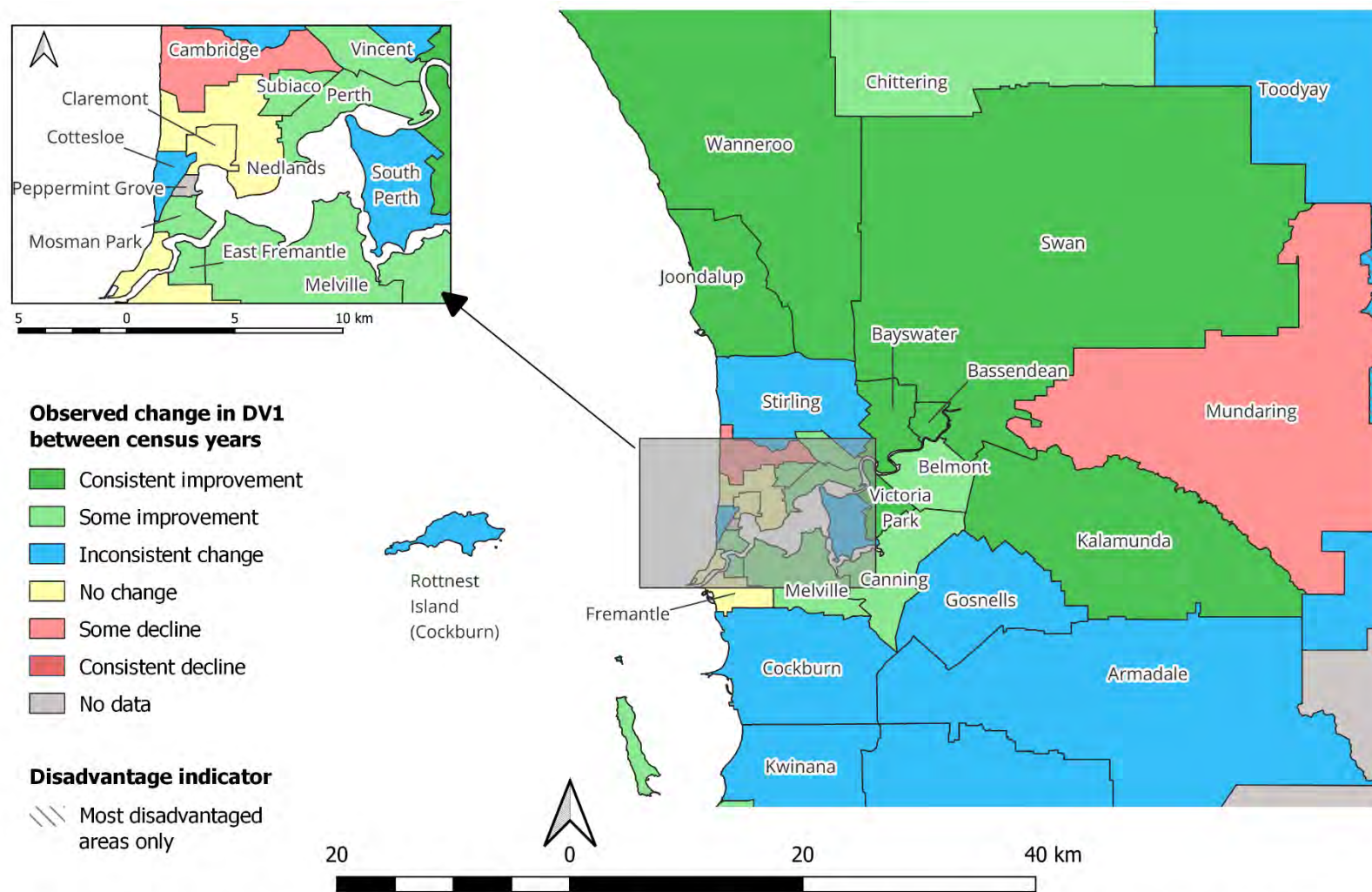
This map uses publicly available AEDC data which is covered under the Creative Commons Attribution 3.0 Australia license. For more information, visit www.AEDC.gov.au

Figure 6c: Map of change in the proportion of WA children who were developmentally vulnerable from 2009-2021 by area.

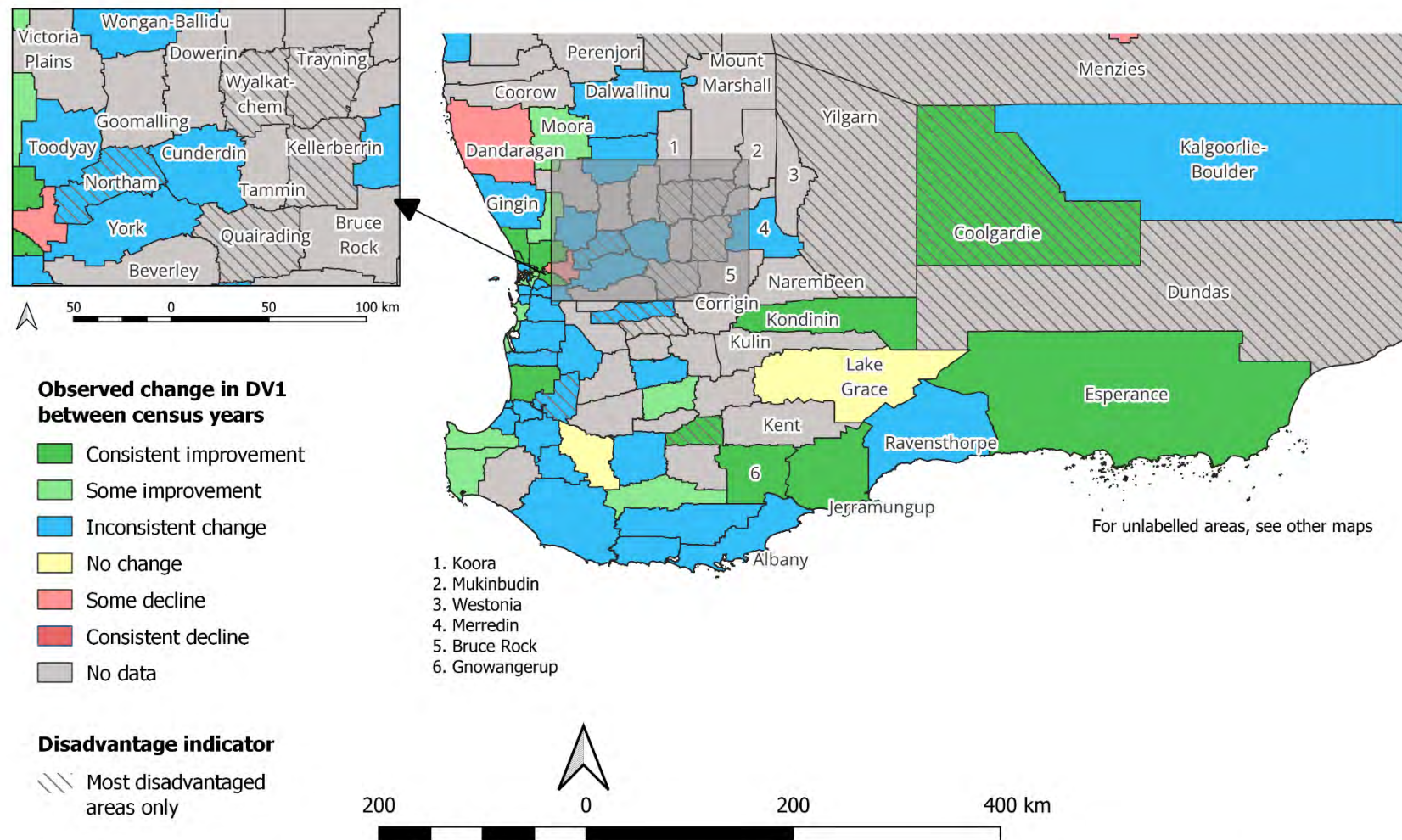*Figure 6d: Map of change in the proportion of WA children who were developmentally vulnerable from 2009-2021 by area.*

Tasmania

The map of the change in the proportion of Tasmanian children who were developmentally vulnerable from 2009-2021 by area is presented in Figure 7.

Over half of areas in Tasmania (17 areas; 58.6%) were categorised as having inconsistent levels of change in the proportion of children considered developmentally vulnerable. There were no areas identified as having no change in developmental vulnerability from 2009 to 2021.

There were eight areas which improved in the proportion of developmentally children over time, of which two were considered the most disadvantaged areas in Tasmania – Derwent Valley and George Town. While one area – West Coast (also one the most disadvantaged areas in Tasmania) showed some decline in developmental vulnerability over time.
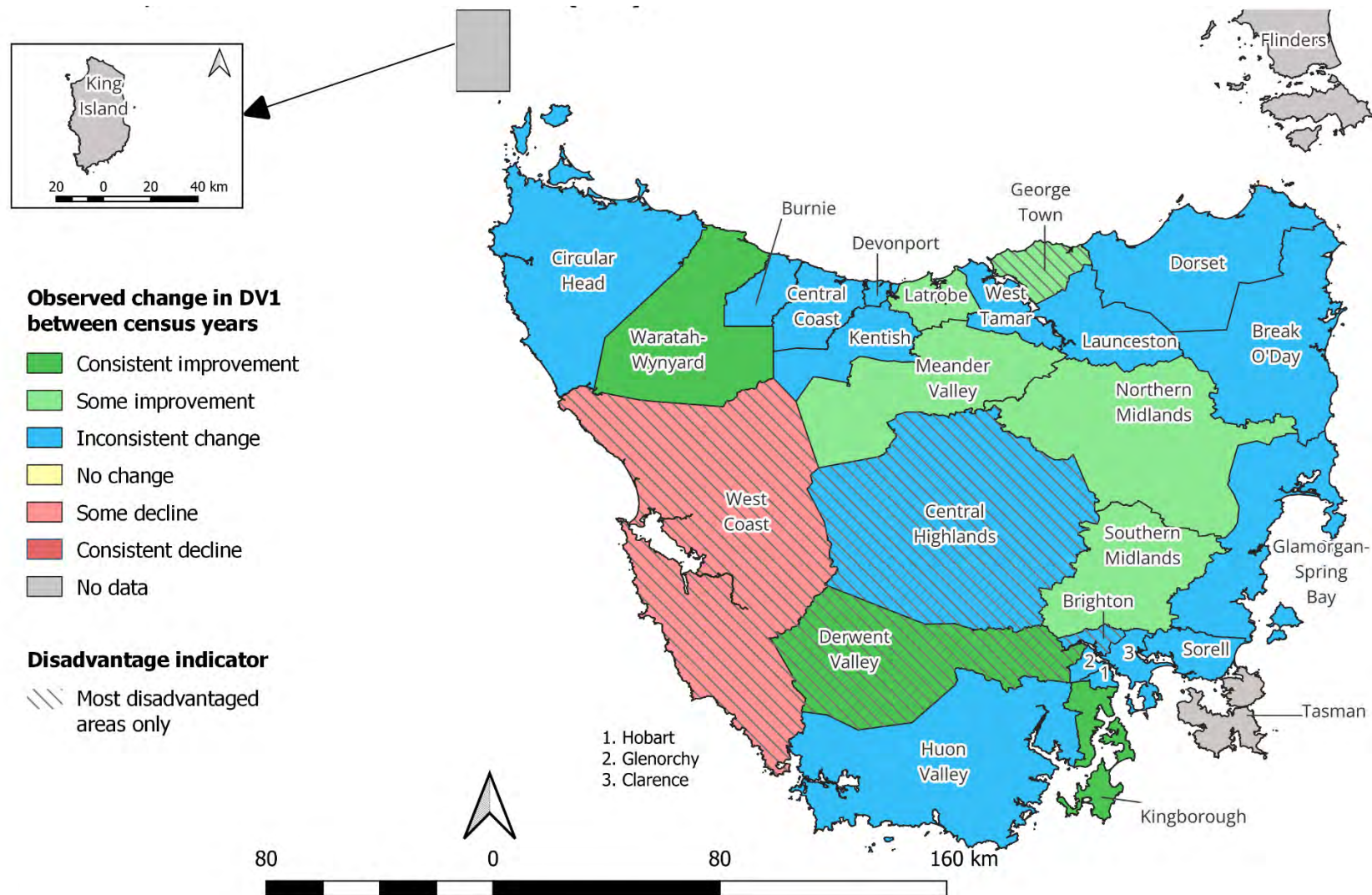
Figure 7: Map of change in the proportion of Tasmanian children who were developmentally vulnerable from 2009-2021 by area.

Conclusions

In conclusion, nearly half of local government areas in Australia had inconsistent directions of change in children's developmental vulnerability over a 12-year period (45.8% of local government areas). The geographical areas identified as having significant change over time were mostly found to have a reduction in the proportion of children who were developmentally vulnerable (29.0% of local government areas) rather than an increase (4.7% of local government areas), with local government areas of improvement over time located in every Australian State. Queensland notably had the most local government areas where the proportion of children's developmental vulnerability decreased over time and no local government areas where the proportion of children developmentally vulnerable increased over time. A handful of Australian geographical areas were identified as remaining stable in the proportion of developmentally vulnerable children, with no clear pattern emerging for those areas consistently above or below the average proportion of Australian children.

There was no observed relationship between changes in developmental vulnerability by area-level socio-economic disadvantage. However, the most disadvantaged areas had a greater proportion of areas classified as having insufficient data to assess changes over time. This is representative of the fact that these local government areas tend to be remote and/or have low populations of children. Importantly, 10 disadvantaged local government areas across Australia showed consistent improvement over time. Further research is required to unpack what may be occurring in these 10 disadvantaged communities to determine what strategies have been effective in improving young children's developmental outcomes.

This work has enabled identification of areas that warrant further study. Research following on from this could examine common characteristics of consistently improving or 'stable' areas, particularly in relation to their geography, built environment, demographics, community services, and policies relevant to child development. For example, the geographical areas identified as significantly improving or declining in children's developmental vulnerability over time warrant further study to examine similarities or differences in built environment attributes of these areas, and whether length of exposure to any of these attributes relate to early childhood development changes over time. Specific mapping of community services and early years programs could also be highly beneficial to explore associations with changes in early child developmental domains and identify common themes among consistently improving areas. Improving understanding in

this would help generate more knowledge in an under-researched area and provide evidence to guide interventions or policy that focuses on the developmental outcomes of young children.

Overall, it will be critical for future research to be guided by the causality-informed conceptual framework of how neighbourhood built environments shape early child development in order to inform policy interventions or place-based program opportunities with the goal of reducing the spatial inequalities in Australian children's developmental vulnerability.

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Appendix A

Supplementary Table 1: Prevalence (%) of developmentally vulnerable children (and number of children with valid scores) in all five AEDC waves for areas identified as 'no change' over time.

	2009	2012	2015	2018	2021
Boyup Brook (WA)	20% (15)	17.2% (29)	18.2% (22)	22.7% (22)	20% (15)
Fairfield (NSW)*	28.7% (2456)	27.8% (2494)	27.3% (2582)	28.1% (2635)	28.7% (2456)
Naracoorte Lucindale (SA)	20.0% (90)	20.0% (130)	20.2% (109)	25.0% (96)	20.0% (90)
Mackay (Qld)	24.2% (1410)	23.3% (1625)	23.7% (1658)	25% (1562)	24.2% (1410)
Corangamite (Vic)	18.6% (194)	23.6% (216)	21.9% (178)	21.2% (203)	18.6% (194)
Mildura (Vic)*	24.9% (583)	23.6% (755)	22.3% (700)	23.3% (678)	24.9% (583)
Grant (SA)	11.5% (61)	19.5% (87)	18.4% (98)	19.6% (97)	11.5% (61)
Horsham (Vic)	18.4% (223)	23.1% (247)	25.2% (254)	23.2% (241)	18.4% (223)
Knox (Vic)	16.7% (1517)	15.6% (1594)	15.8% (1714)	16.3% (1579)	16.7% (1517)
Waverley (NSW)	13.5% (563)	12.4% (653)	12.8% (657)	15.2% (710)	13.5% (563)
Unley (SA)	14.2% (358)	14.2% (365)	14.1% (411)	13.1% (404)	14.2% (358)
Mitcham (SA)	16.5% (570)	16% (748)	18.2% (729)	17.1% (707)	16.5% (570)
Port Phillip (Vic)	12.3% (528)	11.8% (689)	14.1% (696)	13.4% (756)	12.3% (528)
Fremantle (WA)	16.4% (262)	17.9% (329)	17.5% (252)	16.4% (304)	16.4% (262)
North Sydney (NSW)	10.6% (379)	11.5% (454)	12.4% (525)	14.1% (582)	10.6% (379)
Claremont (WA)	7.8% (90)	12.4% (97)	11.4% (105)	10.3% (116)	7.8% (90)
Nedlands (WA)	11% (228)	11% (281)	10.1% (277)	10.5% (275)	11% (228)
Lake Grace (WA)	16.7% (24)	28.6% (21)	n/a	7.7% (26)	16.7% (24)

Notes: *Most disadvantaged area. n/a: no data available. Number in brackets denotes total number of children surveyed with valid scores in each wave.

Appendix B

Supplementary Table 2: Prevalence (%) of developmentally vulnerable children (and number of children with valid scores) in all five AEDC waves for areas identified as 'consistent improvement' over time.

	2009	2012	2015	2018	2021
Carpentaria (Qld)	54.5% (33)	65.4% (26)	57.6% (33)	37.5% (32)	52.6% (19)
Katherine (NT)	55.8% (163)	46.2% (158)	34.8% (158)	40.2% (169)	35.6% (146)
Torres (Qld)	48.1% (52)	38.1% (63)	46.0% (87)	35.3% (68)	34.4% (61)
Moree Plains (NSW)*	36.3% (193)	39.5% (200)	33.9% (165)	36.5% (192)	33.8% (154)
Hindmarsh (Vic)*	29.4% (68)	18.8% (48)	14.6% (48)	23.4% (64)	33.3% (45)
Derwent Valley (Tas)*	35.8% (151)	30.2% (139)	27.6% (145)	30.4% (138)	33.0% (112)
Salisbury (SA)*	30.8% (1359)	29.1% (1549)	29.5% (1739)	27.6% (1848)	29.2% (1826)
Logan (Qld)	37.3% (3802)	32.3% (4316)	31.7% (4754)	31% (4882)	29% (4821)
South Burnett (Qld)	38.4% (393)	32.8% (463)	29.4% (412)	26.3% (388)	28.9% (336)
Weipa (Qld)	39.0% (59)	25.9% (58)	17.1% (70)	20.6% (68)	28.9% (83)
Douglas (Qld)	33.1% (145)	30.1% (123)	32.1% (131)	28.7% (129)	28.1% (121)
Katanning (WA)*	52.3% (86)	38.6% (70)	36.8% (76)	19.1% (47)	28.0% (50)
Burdekin (Qld)	32.9% (213)	37.1% (221)	31.6% (231)	27.1% (188)	27.6% (174)
Gympie (Qld)	31.6% (580)	34.1% (572)	30.3% (584)	26.5% (550)	26.7% (529)
Charters Towers (Qld)	44.3% (192)	30.2% (189)	29.6% (199)	29.5% (149)	25.4% (126)
Whyalla (SA)*	36.5% (288)	25.4% (311)	29.7% (239)	30.3% (254)	25.0% (264)
East Gippsland (Vic)	28.0% (382)	23.3% (468)	21.2% (513)	22.4% (477)	24.1% (406)
Longreach (Qld)	24.6% (69)	18.8% (64)	18.8% (64)	28.3% (46)	23.8% (42)
Central Highlands (Qld)	27.8% (503)	25% (524)	24.1% (490)	21.0% (442)	23.8% (475)
Lismore (NSW)	30.5% (514)	26.4% (511)	21.7% (498)	20.6% (433)	22.9% (375)
Lockyer Valley (Qld)	36.4% (450)	38.7% (463)	31.3% (501)	27.5% (491)	22.5% (472)
Greater Geraldton (WA)	33.3% (501)	29.4% (540)	27.2% (551)	27.3% (531)	22.1% (533)
Kangaroo Island (SA)	32.6% (43)	27.0% (37)	29.3% (58)	20.3% (64)	22.0% (41)
Loddon (Vic)*	26.9% (78)	18.7% (75)	26.9% (67)	23.9% (67)	22.0% (59)
Blayney (NSW)	26.9% (108)	20.2% (94)	13.8% (116)	17.1% (105)	21.8% (78)
Hinchinbrook (Qld)	32.9% (143)	25.3% (95)	24.4% (119)	25.4% (130)	21.6% (102)
Swan (WA)	26.1% (1469)	23.1% (1577)	24% (1844)	21.1% (1958)	20.9% (2258)
Brisbane (Qld)	26.7% (11712)	23.9% (12566)	22.6% (13771)	22.5% (13890)	20.7% (14217)
Scenic Rim (Qld)	29.5% (431)	25.0% (509)	26.3% (501)	22.3% (484)	20.6% (418)
Gold Coast (Qld)	25.7% (5438)	23.0% (5936)	22.9% (6323)	22.0% (6819)	20.6% (6741)
Melbourne (Vic)	27.7% (274)	25.7% (377)	22.7% (444)	20.8% (590)	20.6% (620)
Maranoa (Qld)	28.1% (167)	32.0% (200)	27.5% (204)	31.5% (213)	20.3% (187)
Colac Otway (Vic)	23.7% (241)	22.4% (259)	26.7% (255)	23.3% (253)	20.2% (243)
Kalamunda (WA)	27.1% (579)	23.6% (685)	23.1% (740)	19.5% (722)	20.2% (749)
Barcaldine (Qld)	21.6% (37)	31.4% (35)	30.8% (39)	27.3% (33)	20.0% (35)
Wanneroo (WA)	24.9% (2188)	23.7% (2573)	21.2% (2850)	18.8% (3009)	20% (3134)
Frankston (Vic)	25.1% (1397)	23.3% (1598)	20.9% (1640)	18.6% (1637)	19.8% (1621)
Wingecarribee (NSW)	23.1% (524)	18.8% (474)	21.2% (495)	16.5% (504)	19.7% (457)

Casey (Vic)	25.9% (3469)	22.0% (4023)	22.5% (4367)	20.4% (4989)	19.7% (5315)
Mid-Western Regional (NSW)	26.4% (273)	24.2% (327)	18.4% (316)	16.5% (285)	19.2% (354)
Noosa (Qld)	24.2% (487)	21.7% (516)	19.2% (546)	18.2% (499)	18.9% (513)
Carrathool (NSW)	28.9% (45)	30.0% (40)	20.5% (39)	13.6% (44)	18.9% (37)
Marion (SA)	21.5% (646)	18.0% (795)	19.6% (857)	20.3% (982)	18.7% (963)
Sunshine Coast (Qld)	25.1% (2952)	24.0% (3129)	21.6% (3452)	22.0% (3470)	18.6% (3661)
Harvey (WA)	29.9% (291)	23.7% (396)	23.8% (408)	21.4% (378)	18.4% (397)
Banana (Qld)	34.4% (227)	29.8% (255)	23.8% (231)	23.8% (189)	18.2% (198)
Bayswater (WA)	25.7% (583)	25.9% (748)	20.7% (721)	16.9% (688)	18.2% (718)
Glen Innes Severn (NSW)*	23.1% (117)	19.3% (114)	24.3% (111)	30.9% (81)	18.0% (89)
Sydney (NSW)	27.5% (633)	20.9% (760)	16.9% (757)	17.4% (930)	18.0% (954)
Oberon (NSW)	26.8% (56)	27.5% (69)	22.6% (53)	15.9% (44)	16.9% (59)
Moyne (Vic)	17.4% (213)	13.5% (251)	10.7% (233)	13.7% (190)	16.9% (207)
Hobsons Bay (Vic)	21.1% (891)	18.9% (960)	21.1% (1051)	19.5% (1115)	16.4% (1008)
Victoria Park (WA)	23.0% (230)	17.7% (334)	19.7% (360)	17.0% (400)	16.3% (404)
Darebin (Vic)	20.2% (1331)	15.4% (1514)	15.9% (1568)	17.4% (1554)	15.8% (1199)
Uralla (NSW)	22.0% (59)	24.4% (78)	13.6% (59)	21.9% (64)	15.6% (45)
Maribyrnong (Vic)	25.2% (667)	18.6% (790)	18.9% (923)	16.5% (929)	15.4% (820)
Maroondah (Vic)	19.2% (1107)	14.9% (1198)	16.2% (1271)	17.8% (1261)	15.3% (1221)
Monash (Vic)	19.4% (1585)	17.5% (1551)	15.1% (1862)	15.9% (2001)	15.2% (1700)
Canada Bay (NSW)	17.8% (751)	15.1% (854)	16.1% (927)	14.1% (964)	15.2% (824)
Mornington Peninsula (Vic)	23.3% (1645)	18.1% (1757)	18.8% (1792)	18.2% (1754)	14.9% (1542)
Gunnedah (NSW)	30.2% (139)	17.6% (142)	20.7% (193)	19.3% (218)	13.6% (191)
Temora (NSW)	31.1% (74)	16.9% (71)	24.4% (78)	22.2% (81)	13.6% (59)
Esperance (WA)	23.7% (190)	17.5% (212)	14.1% (206)	14.2% (190)	13.3% (165)
Waratah-Wynyard (Tas)	16.6% (157)	19.9% (141)	15.5% (148)	20.9% (153)	13.2% (144)
Coolgardie (WA)*	38.9% (54)	47.1% (70)	26.9% (78)	34.7% (49)	13.2% (38)
Kingborough (Tas)	16.6% (433)	17.7% (508)	14.5% (455)	17.6% (467)	13.1% (426)
Byron (NSW)	24.5% (330)	20.6% (355)	17.1% (327)	13.7% (343)	12.0% (325)
Gnowangerup (WA)	41.4% (29)	7.1% (28)	n/a	36.8% (19)	11.8% (17)
Joondalup (WA)	19.0% (1834)	16.6% (1961)	14.7% (2128)	12.9% (1901)	11.7% (1959)
Surf Coast (Vic)	14.0% (335)	13.6% (389)	15.8% (425)	12.4% (421)	10.2% (440)
Bogan (NSW)	17.5% (40)	27.7% (47)	17.8% (45)	14.6% (41)	9.4% (32)
Bassendean (WA)	27.9% (147)	22.0% (200)	18.4% (206)	18.7% (198)	9.4% (171)
Mansfield (Vic)	3.8% (53)	12.6% (87)	14.7% (95)	9.8% (82)	6.7% (75)
Jerramungup (WA)	22.2% (18)	9.5% (21)	4.8% (21)	10.5% (19)	6.3% (16)
Hunters Hill (NSW)	11.4% (149)	14.1% (191)	8.3% (181)	9.8% (184)	6.2% (145)
Central Darling (NSW)*	61.1% (18)	55.6% (18)	50.0% (22)	45.5% (22)	n/a
Flinders Ranges (SA)	25.0% (16)	18.2% (22)	26.7% (15)	11.8% (17)	n/a
Kondinin (WA)	n/a	33.3% (15)	26.7% (15)	20.0% (15)	n/a

Notes: *Most disadvantaged area. n/a: no data available. Number in brackets denotes total number of children surveyed with valid scores in each wave.

Supplementary Table 3: Prevalence (%) of developmentally vulnerable children (and number of children with valid scores) in all five AEDC waves for areas identified as 'some improvement' over time.

	2009	2012	2015	2018	2021
Victoria Daly (NT)	51.5% (33)	61.0% (41)	49.1% (57)	55.1% (49)	53.8% (39)
Paroo (Qld)	33.3% (24)	46.9% (32)	50% (34)	57.7% (26)	47.6% (21)
Northern Peninsula Area (Qld)	76.3% (59)	36.4% (55)	40.3% (72)	46.8% (62)	43.8% (48)
Barunga West (SA)	30.8% (26)	16.7% (24)	27.6% (29)	25.0% (28)	37.5% (24)
Central Goldfields (Vic)*	35.7% (112)	33.6% (134)	28.1% (128)	33.3% (123)	34.2% (117)
Blackall Tambo (Qld)	22.2% (18)	11.8% (34)	14.3% (21)	21.4% (28)	33.3% (15)
Southern Downs (Qld)	33.7% (427)	32.6% (494)	27.9% (459)	29.1% (430)	31.2% (410)
Tablelands (Qld)	32.5% (295)	33% (351)	34.9% (327)	34.6% (283)	31.1% (280)
Southern Midlands (Tas)	24.7% (85)	17.5% (97)	18.8% (85)	21.2% (85)	29.2% (72)
Moora (WA)	46.4% (28)	24.3% (37)	25.8% (31)	26.2% (42)	28.6% (21)
Gwydir (NSW)	18.4% (76)	26.6% (64)	27.9% (68)	24.2% (66)	28.1% (57)
Renmark Paringa (SA)*	27.5% (109)	28.3% (113)	20.9% (110)	26.8% (97)	28.0% (100)
Parkes (NSW)	35.1% (208)	22.4% (223)	20.4% (206)	23% (209)	27.3% (161)
Ararat (Vic)*	20.3% (118)	17.8% (129)	23.6% (110)	29.7% (118)	27.1% (118)
Wakefield (SA)	36.7% (60)	35.1% (77)	35.5% (76)	22.4% (98)	27% (74)
Toowoomba (Qld)	31.6% (1863)	27.1% (2072)	27.1% (2186)	27.3% (2264)	26.7% (2025)
Adelaide (SA)	25.9% (54)	34.1% (82)	23.3% (73)	26.8% (97)	26.5% (83)
Adelaide Plains (SA)	20.4% (98)	27% (89)	20.4% (103)	24.7% (93)	26.4% (106)
Lithgow (NSW)*	19.7% (228)	17.5% (246)	22.3% (197)	22.9% (214)	26.3% (217)
Gladstone (Qld)	27.5% (841)	22.3% (893)	23.4% (960)	24.7% (912)	26.2% (903)
Latrobe (Vic)*	26.1% (853)	27.1% (764)	29.4% (773)	28.2% (909)	26% (809)
Campbelltown (NSW)	26.5% (2017)	23.7% (2179)	24.3% (2184)	25.4% (2359)	25.5% (2428)
Whitsunday (Qld)	28.5% (319)	22.1% (389)	22.2% (468)	24.6% (403)	25.3% (435)
Livingstone (Qld)	29.3% (341)	22.4% (410)	23.1% (446)	22.7% (428)	24.1% (440)
George Town (Tas)	36.5% (85)	34.7% (95)	35.2% (91)	18.5% (65)	23.9% (71)
Greater Bendigo (Vic)	23.1% (1066)	19.2% (1294)	20.8% (1348)	22.5% (1498)	23.8% (1272)
Port Adelaide Enfield (SA)	29.9% (988)	28.5% (1204)	24.5% (1239)	24.7% (1355)	23.4% (1342)
Blacktown (NSW)	27% (4316)	23.8% (4936)	22.8% (5097)	23.2% (5550)	23.3% (5816)
Towong (Vic)	27.7% (65)	17.5% (57)	25.0% (60)	24.1% (58)	23.3% (43)
Redland (Qld)	24.8% (1781)	23% (1742)	22.9% (1805)	22.7% (1674)	23.2% (1731)
Mid-Coast (NSW)*	27.3% (854)	27.3% (913)	23.8% (917)	23.7% (864)	22.8% (821)
Belmont (WA)	32.3% (356)	20.7% (397)	22.5% (396)	22% (428)	22.5% (445)
Goulburn Mulwaree (NSW)	21.9% (310)	25.4% (323)	26.8% (340)	20.7% (367)	22.4% (357)
Singleton (NSW)	25.0% (336)	20.6% (325)	20.9% (340)	19.0% (284)	22.4% (295)
Wyndham (Vic)	23.9% (1949)	25.0% (2561)	26.0% (3441)	22.8% (4376)	21.8% (4671)
Burwood (NSW)	19.6% (331)	21.7% (318)	21.2% (330)	24.7% (332)	21.7% (299)
Yorke Peninsula (SA)	27.4% (73)	25.0% (84)	27.8% (97)	17.5% (103)	21.7% (83)
Mandurah (WA)	26.6% (730)	27.0% (940)	20.2% (1035)	22.1% (1029)	21.5% (1060)
Wodonga (Vic)	24.2% (434)	22.9% (480)	21.7% (521)	23.1% (584)	21.4% (557)

Tea Tree Gully (SA)	18.4% (1025)	16.8% (1057)	18.1% (1078)	19.5% (1119)	21.3% (1047)
Strathbogie (Vic)	22.6% (84)	15.1% (93)	15.8% (101)	15.5% (84)	21.3% (108)
Rockingham (WA)	25.0% (1339)	25.9% (1754)	20.1% (1916)	19.8% (1991)	21.2% (1922)
Canning (WA)	25.8% (817)	25.8% (966)	24.7% (1078)	20.7% (1095)	20.8% (1075)
Central Coast (NSW)	21.4% (3683)	19.7% (3926)	19.8% (3871)	20.6% (3977)	20.5% (3859)
Yarriambiack (Vic)*	29.0% (69)	27.3% (77)	29.6% (81)	29.1% (55)	20.3% (59)
Clarence Valley (NSW)*	22.4% (523)	18.8% (579)	18.7% (568)	18.8% (511)	20.1% (478)
Whittlesea (Vic)	23.2% (1644)	21.8% (2073)	21.4% (2518)	20.4% (2853)	19.9% (2968)
Bega Valley (NSW)	26.5% (336)	19.4% (350)	20.9% (335)	20.3% (320)	19.6% (316)
Chittering (WA)	35.0% (40)	12.3% (65)	12.1% (66)	18.5% (65)	19.4% (62)
Mount Alexander (Vic)	18.8% (181)	21.5% (181)	25.6% (156)	28.5% (151)	19.3% (166)
Latrobe (Tas)	26.1% (92)	15.2% (112)	15.2% (151)	16% (125)	19.3% (109)
Charles Sturt (SA)	23.3% (806)	23% (1040)	21.6% (1090)	22.6% (1061)	19.1% (1221)
Augusta Margaret River (WA)	16.0% (156)	21.1% (166)	20.5% (234)	15.2% (210)	18.9% (259)
Perth (WA)	22.4% (49)	26.0% (50)	24.8% (101)	19.8% (91)	18.3% (175)
Bayside (NSW)	21.1% (1557)	22.8% (1515)	22.5% (1616)	22.1% (1576)	18.1% (1550)
Northern Midlands (Tas)	22.1% (154)	14.5% (138)	14.4% (132)	16.4% (140)	18% (133)
Barossa (SA)	14.9% (235)	15.9% (264)	18.4% (245)	21.5% (237)	17.6% (255)
Hilltops (NSW)	22.7% (233)	22.4% (237)	23.1% (238)	14.2% (225)	17.4% (172)
Liverpool Plains (NSW)*	22.2% (108)	19.8% (96)	22.1% (86)	22.1% (86)	17.0% (47)
Ballina (NSW)	24.8% (467)	17.0% (330)	15.4% (434)	18.1% (465)	16.9% (402)
Subiaco (WA)	14.5% (152)	14.7% (150)	16.9% (177)	14% (172)	16.5% (182)
Meander Valley (Tas)	17.6% (165)	14% (236)	15.7% (198)	15.8% (202)	15.9% (207)
Weddin (NSW)	27.9% (43)	32.0% (50)	11.1% (36)	9.4% (32)	15.4% (39)
Glen Eira (Vic)	14.4% (1283)	12.7% (1389)	14.1% (1504)	13.6% (1423)	15.3% (1369)
Melville (WA)	16.1% (992)	16.9% (1079)	15.3% (1108)	14.1% (1144)	15.2% (1185)
Busselton (WA)	19.7% (335)	20.3% (474)	17.6% (552)	16.5% (515)	15.1% (457)
Chapman Valley (WA)	n/a	n/a	12.5% (16)	4.5% (22)	15.0% (20)
Northern Beaches (NSW)	14.5% (3085)	13% (3385)	13.2% (3513)	13.3% (3234)	14.4% (2830)
Federation (NSW)	16.2% (154)	13.9% (151)	18.6% (177)	23.3% (120)	14.4% (111)
Winton (Qld)	26.1% (23)	30.0% (20)	31.3% (16)	34.8% (23)	13.3% (15)
Upper Lachlan Shire (NSW)	17.4% (69)	11.9% (84)	10.7% (84)	14.1% (85)	13.0% (92)
Kingston (SA)	n/a	18.8% (16)	33.3% (24)	4.0% (25)	13.0% (23)
Nillumbik (Vic)	12.1% (793)	10.3% (805)	11.7% (753)	10.9% (704)	12.7% (566)
Mosman Park (WA)	11.8% (102)	10.1% (79)	12.5% (96)	6.9% (102)	12.0% (92)
Vincent (WA)	15.3% (255)	13.7% (313)	16.4% (365)	17.8% (338)	11.8% (347)
Alpine (Vic)	14.5% (124)	15.7% (121)	17.1% (129)	21.6% (125)	8.8% (114)
East Fremantle (WA)	14.4% (90)	12.1% (91)	7.1% (85)	5.1% (79)	7.5% (93)
Ngaanyatjarraku (WA)*	n/a	82.8% (29)	86.7% (15)	76.5% (17)	n/a
Cranbrook (WA)	27.8% (18)	25.0% (20)	6.7% (15)	23.5% (17)	n/a
Wagin (WA)	26.9% (26)	29.3% (41)	26.1% (23)	14.3% (28)	n/a
Anangu Pitjantjatjara Yunkunyt (SA)*	75.7% (37)	80.0% (45)	76.3% (38)	n/a	n/a

Notes: *Most disadvantaged area. n/a: no data available. Number in brackets denotes total number of children surveyed with valid scores in each wave.

Appendix C

Supplementary Table 4: Prevalence (%) of developmentally vulnerable children (and number of children with valid scores) in all five AEDC waves for areas identified as 'consistent decline' over time.

	2009	2012	2015	2018	2021
Coonamble (NSW)*	27.2% (81)	27.2% (61)	27.2% (56)	27.2% (54)	27.2% (57)
Goyder (SA)	9.3% (43)	9.3% (47)	9.3% (35)	9.3% (40)	9.3% (22)
Australian Capital Territory (ACT)	22.2% (4180)	22.2% (4594)	22.2% (5157)	22.2% (5482)	22.2% (5521)
Port Macquarie-Hastings (NSW)	17.6% (749)	17.6% (837)	17.6% (815)	17.6% (894)	17.6% (841)

Notes: *Most disadvantaged area. n/a: no data available. Number in brackets denotes total number of children surveyed with valid scores in each wave.

Supplementary Table 5: Prevalence (%) of developmentally vulnerable children (and number of children with valid scores) in all five AEDC waves for areas identified as 'some decline' over time.

	2009	2012	2015	2018	2021
Barkly (NT)	55.9% (136)	60.9% (128)	63.6% (110)	64.9% (94)	77.8% (99)
Halls Creek (WA)*	56.9% (65)	68.4% (57)	69.4% (72)	70.3% (64)	75.7% (70)
West Coast (Tas)*	29.3% (58)	27.1% (59)	30.6% (72)	33.3% (57)	51.1% (47)
Dandaragan (WA)	16.2% (37)	19.5% (41)	19.0% (42)	20.0% (40)	31.6% (38)
Leonora (WA)	30.8% (26)	47.6% (21)	47.8% (23)	n/a	31.6% (19)
Eurobodalla (NSW)	22.0% (369)	21.2% (416)	19.7% (396)	23.2% (358)	28.6% (322)
Cessnock (NSW)*	22.1% (598)	21.4% (735)	23% (714)	23.4% (796)	28.5% (801)
Liverpool (NSW)	21.5% (2712)	22.4% (2857)	23.1% (2886)	23.9% (3181)	25.9% (3135)
Warrumbungle Shire (NSW)*	13.5% (126)	15.2% (145)	24.3% (103)	25.5% (106)	26.8% (97)
Melton (Vic)	20.3% (1352)	20.9% (1641)	21.0% (2094)	20.5% (2380)	23.8% (2691)
Golden Plains (Vic)	14.5% (275)	15.9% (283)	14.2% (332)	17.6% (301)	22.4% (344)
Southern Grampians (Vic)	15.4% (188)	13.5% (171)	13.2% (197)	22.8% (167)	22.3% (166)
Ashburton (WA)	9.2% (131)	11.8% (136)	18.1% (127)	23.1% (134)	21.4% (140)
Tweed (NSW)	19.8% (925)	19.2% (1075)	18.9% (1035)	18.0% (979)	21.2% (986)
Yarra Ranges (Vic)	18.1% (1589)	17% (1852)	17.1% (1767)	19.5% (1731)	19.7% (1580)
Camden (NSW)	13.7% (817)	14.5% (930)	14.9% (1070)	14.6% (1334)	18.6% (1869)
Mundaring (WA)	17.9% (441)	17.6% (465)	21.4% (402)	19.5% (394)	17.8% (399)
Whitehorse (Vic)	13.5% (1558)	12.7% (1719)	13.4% (1610)	13.0% (1711)	15.6% (1553)
Sutherland Shire (NSW)	14.2% (2627)	13.1% (2719)	13.1% (2750)	14.5% (2678)	15.2% (2604)
Moonee Valley (Vic)	10.5% (1111)	16.2% (1145)	15.9% (1091)	14.9% (1251)	13.4% (1110)
Boroondara (Vic)	10.9% (1768)	9.5% (1667)	11.8% (1752)	12.7% (1648)	13.0% (1292)
Cambridge (WA)	12.2% (320)	10.7% (383)	8.9% (371)	7.3% (399)	12.0% (351)

Notes: *Most disadvantaged area. n/a: no data available. Number in brackets denotes total number of children surveyed with valid scores in each wave.