INDIGENOUS HOUSE UTILISATION AND CROWDING

Data from the NATSISS 2008

and an analysis of its assumptions

The University of Queensland
Aboriginal Environments Research Centre
School of Architecture
&
Institute for Social Science Research
April 2011

Paul Memmott[*], Kelly Greenop[*], Carroll Go-Sam[*], Andrew Clarke[#],
Christina Birdsall-Jones[^], Vanessa Corunna[^], Mark Western[#]

* The University of Queensland, Aboriginal Environments Research Centre
# The University of Queensland Institute for Social Science Research
^ Curtin University Centre for Public Policy Research

Overview

1. Data from the NATSISS 2008 relating to Indigenous household crowding
2. Methodological issues in the NATSISS
3. An international perspective on cross-cultural crowding
4. Case studies illustrating the problems with NATSISS
5. Recommendations

The NATSISS Sample of 2008

- NATSISS samples approximately 13 300 Indigenous persons from 6 858 households.

- Includes only those who are **'usually resident'** in a private dwelling within Australia:
  - anyone who usually lives in a given dwelling or regards it as their primary residence;
  - excludes visitors;
  - "refers to the place where a person lives or intends to live for six months or more"

NATSISS 2008, Glossary. Cat. no. 4714.0

The NATSISS Sample of 2008

- **Community Sample:**
  - Discrete Indigenous communities (remote QLD, WA, SA and NT); random selection of:
    - Communities
    - Dwellings
    - Indigenous usual residents
- **Non-Community Sample:**
  - Multi-stage area sample; random selection of:
    - Collection Districts (CDs)
    - Mesh Block
    - Indigenous Household
    - Indigenous usual residents

NATSISS 2008, Glossary. Cat. no.4714.0

NATSISS Sampling Weights

- **Probability Weights**
  - Scale-up observations by the inverse probability of each person/household being selected.

- **Adjustment to Population Benchmarks**
  - Calibrated to
    - State
    - Part of state
    - Age
    - Sex
    - Community/non-community

Indigenous Household Definition in NATSISS

- Definition of an ‘Indigenous Household’ includes households with only one Indigenous resident (see data which bears out how different these two categories are).

Indigenous Housing Utilisation, 2008

By Remoteness and Non-remoteness

Whether has Bedrooms Needed/Spare		ASGC Remoteness Area Code		Total
		Non-remote	Remote	
Bedrooms Needed	*No.*	594	325	919
	%	10.52	28.31	13.53
No bedrooms required/spare	*No.*	1,664	334	1,998
	%	29.48	29.09	29.41
Bedrooms spare	*No.*	3,387	489	3,876
	%	60.00	42.60	57.06
Total	*No.*	5,645	1,148	6,793
	%	100.00	100.00	100.00

Pearson chi2(2) = 273.8028 Pr < 0.001

Source: Authors from ABS, NATSISS 2008

Indigenous Housing Utilisation, 2008

By Household Composition

Whether has Bedrooms Needed/Spare		Household Composition		Total
		All Persons Indigenous	Not all Persons Indigenous	
Whether has Bedrooms Needed	*No.*	602	316	918
	%	18.02	9.15	13.51
No bedrooms required/spare	*No.*	1,042	957	1,999
	%	31.19	27.72	29.43
Has bedrooms spare	*No.*	1,697	2,179	3,876
	%	50.79	63.12	57.06
Total	*No.*	3,341	3,452	6,793
	%	100.00	100.00	100.00

Pearson chi2(2) = 150.8823 Pr < 0.001

Source: Authors from ABS NATSISS data 2008

NAHA information based on NATSISS

Crowded houses by bedrooms within the house, by state

Table: Percentage Breakdown by number of bedrooms and State and Territory, of the 25,940 Indigenous households living in 'overcrowded' conditions out of a total of 193,421 Indigenous households in Australia during 2008.

Number of bedrooms	*Unit*	*NSW*	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
0-2 bedrooms	%	12.3	7.2	12.9	16.9	4.1	7.6	10.4	27.4	13.0
3 bedrooms	%	10.9	8.3	18.0	16.3	11.6	7.4	4.6	37.0	15.3
4 or more bedrooms	%	7.1	5.8	11.3	12.9	13.2	2.2	2.1	34.1	10.3
Total	**%**	**10.2**	**7.4**	**14.8**	**15.1**	**10.4**	**6.2**	**4.7**	**34.0**	**13.4**

(a) Overcrowded conditions are defined using the Canadian National Occupancy Standard for 'needing 1, 2, 3, 4 and > 4 bedrooms'.
(b) Includes where overcrowded conditions are 'Not Known', which account for approximately 0.8 percent of all Indigenous private dwellings.

Source: Adapted from ABS (unpublished) National Aboriginal and Torres Strait Islander Social Survey 2008, Table NAHA (National Affordable Housing Agreement) 7.3.

Tabular Analysis of NATSISS data

Indigenous housing utilisation (CNOS) by household composition

Whether has Bedrooms Needed/Spare		Household Composition		Total
		All Persons Indigenous	Not all Persons Indigenous	
Whether has Bedrooms Needed/Spare	*No.*	602	316	918
	%	18.02	9.15	13.51
No bedrooms required/spare	*No.*	1,042	957	1,999
	%	31.19	27.72	29.43
Has bedrooms spare	*No.*	1,697	2,179	3,876
	%	50.79	63.12	57.06
Total	*No.*	3,341	3,452	6,793
	%	100.00	100.00	100.00

Pearson chi2(2) = 150.8823 Pr < 0.001

Data analysed from ABS (unpublished) National Aboriginal and Torres Strait Islander Social Survey 2008

Logistic Regression Analysis of Crowding with

remoteness, household composition, single family and multiple families

Variable	*Odds Ratio*	*Standard Error*	*P-value*
ARIAC: ASGC Remoteness of Area Code *Reference category: non-remote*	2.69	0.22	<0.001
COMPHOLD_1: Household Composition – all persons Indigenous *Reference category: not all persons Indigenous*	3.04	0.28	<0.001
HHTYPE_1: Household type – greater than one family *Reference category: one family household*	11.78	1.09	<0.001
HHTYPE_3: Household type – group household *Reference category: one family household*	1.05	0.36	0.895
Model Fit: n = 5932	χ^2 (4) = 1760	p-value < 0.001	Pseudo R^2 = 0.27

Data analysed from ABS (unpublished) National Aboriginal and Torres Strait Islander Social Survey 2008

Interpretation of Regression Analysis

- **Remote** households have **2.69 times** the odds of overcrowding of non-remote households.
- Households that are **all Indigenous** residents have **3.04 times the odds of overcrowding** of households that are not all Indigenous.
- Households with **more than one 'family'** in the house have **11.78 times the odds of** a **one 'family'** household of experiencing crowding.

Methodological Issues in NATSISS

The Canadian National Occupancy Model

The Canadian National Occupancy Standard (CNOS) is used in Australia by ABS for Census, NATSISS.

Canadian National Occupancy Standard Criteria	Bedroom requirements
General	No more than two people per bedroom.
Gender & Age	Children aged under 5, of the **same** or **different genders**, can share a bedroom. Children aged over 5 and under 18, of the **same gender**, can share a bedroom. Children aged over five, of **different genders**, should not share a bedroom.
Relationship Status & Age	**Couples** and their **children** should not share a bedroom. A household of one **unattached** individual may occupy a bed-sit. **Single** household members, aged over 18, should have their own bedroom.

Source: Canadian Mortgage and Housing Corporation, National Occupancy Standard (NOS) 1991

Methodological Issues in NATSISS

The Canadian National Occupancy Model

- Use of Canadian National Occupancy Standard (CNOS) as a measure of **'crowding'** is problematic.
- It has embedded culturally specific assumptions such as preferable sleeping arrangements of particular genders, relationships etc.
- These are not necessarily applicable to Indigenous Australians, but few alternatives have been proposed despite critiques of CNOS.
- An important exception is Wigley's (2009, restricted access) SIHIP crowding analysis.

Methodological Issues in NATSISS

Definition of the 'family'

- When asking the question(s) to differentiate whether one is part of a resident family or not, how does the interviewer interpret between Aboriginal and non-Aboriginal kinship concepts in responses?
- Enumeration of **'family'** in NATSISS does not include classificatory kin categories, but an Aboriginal interviewee may assume such kin are included as family.
- In Aboriginal kinship, classificatory relations may be included as family, but may not be close relatives by blood descent or by direct marriage.

Methodological Issues in NATSISS Definition of 'community' vs 'Non-community'

- In our view, the terms **'discrete settlement'** and '**dispersed housing settlement'** (for a rural town) are preferable terms for analysis of Indigenous settlement types.
- **'communities**' (as social networks) may occur in both types of settlements, but as social units they are not necessarily congruent with settlement units.
- The term a **'non-community sample'** is misleading. Most Aboriginal people belong to some sort of Aboriginal community, and perhaps several, but some may not (e.g. the 'Stolen Generation').

Methodological Issues in NATSISS Non-enumeration of visitors and non-'usual residents'

- As visitors are not included, it is misleading to interpret **'spare'** bedrooms as being unoccupied bedrooms. They may well be occupied by visitors.
- **'Bedrooms needed'** is therefore an underestimate in our view.
- This non-enumeration masks both crowding of those residences, and secondary homeless people who are **'visiting'** and not enumerated.

A Perspective on the Accuracy of NATSISS Data

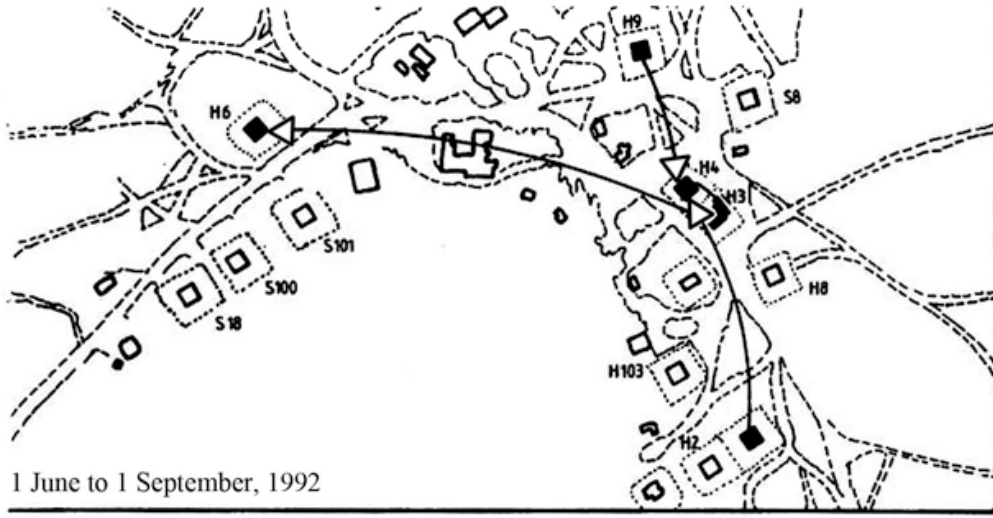
An Aboriginal researcher's comment:

"I can't think of any relative of mine who has a spare bedroom". (Nyungar/Palyku woman)

Challenge of Indigenous Enumeration in a remote discrete settlement

- In a community with 300 people and 50 houses, it could be assumed that an average of six people live in each house. However only 25 of the 50 houses have functioning bathrooms and toilets, so residents of the non-working houses use the houses in which bathrooms and toilets work, which means the average house population would be 12.

  If a sports carnival is held, or death occurs or during the annual wet season, the population could double or treble and the working house's population could increase to 24-36 people.



FaHCSIA (2007) National Indigenous Housing Guide, Improving the Living Environment for Safety, Health and Sustainability, p.137)

A cross-cultural model of crowding from the social sciences

- Gifford (2007) provides a model of crowding which is experiential, based on stress rather than density
- Gifford, R. 2007 *Environmental Psychology: Principles and Practice*, Optimal Books, Colville WA.
- Gifford's authoritative chapter on crowding: 40 pages and based on 288 references, most post 1990, but some as early as 1903.

An international perspective on cross-cultural definitions of crowding

- Gifford (2007) provides a model of crowding which is experiential, based on stress rather than density.
- "Density is a measure of the number of individuals per unit area." (p.191)
- "Crowding…refers to the person's experience of the number of other people around. Rather than a physical ratio, crowding is a personally defined, subjective feeling that too many others are around." (p.192)
- "Crowding is a function of many personal, situational, and cultural factors." (p.192)
- "Crowding and density are not always strongly correlated with one another." (p.194)

Gifford, R. 2007 Environmental Psychology: Principles and Practice, Optimal Books, Colville WA.

Gifford's model of crowding

- The general result of experienced crowding is personal or group stress.
- Gifford writes: "High indoor density usually leads to physiological and psychological stress, at least for those who prefer larger interpersonal distances or are socially isolated." (2007:213.)

Gifford's integrative theory of crowding, combining the dominant paradigms in the literature.

"Certain personal, social, and physical antecedents lead to the experience of crowding. Among these are a variety of individual differences, resource shortages (behavior-setting theory), the number of other people nearby (density-intensity and social physics theories), who those others are, and what they are doing.

Sensory overload and a lack of personal control are psychological processes central to the experience of crowding. The consequences of crowding include physiological, behavioural, and cognitive effects, including health problems, learned helplessness, and reactance."

Gifford, R. 2007 Environmental Psychology: Principles and Practice, Optimal Books, Colville WA. p 217.

Gifford's integrative model of crowding

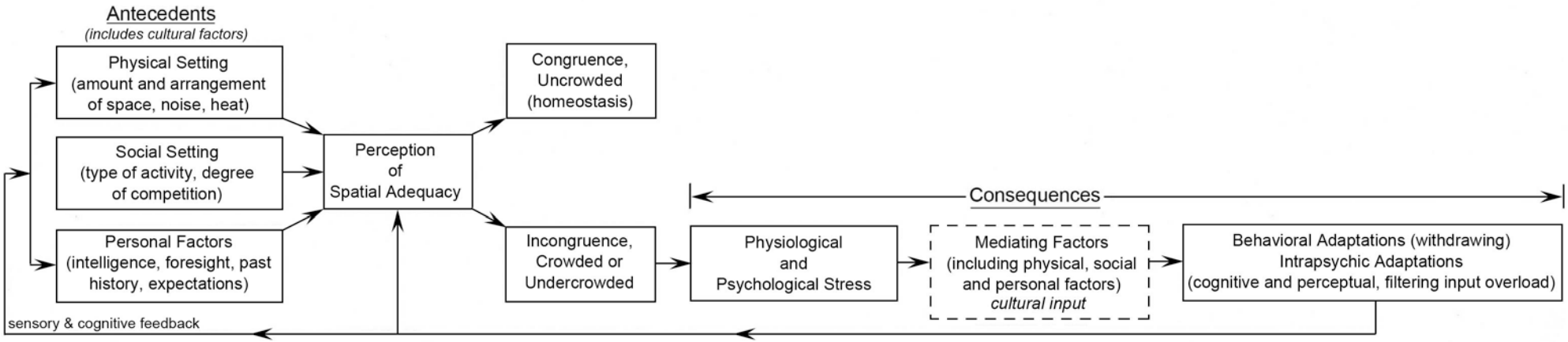


Figure 1: An integrative model of crowding.
(Source: adapted from Gifford 2007: 195, 214, Fig. 7.12.)

Gifford's use of 'culture' in crowding

Gifford incorporates culture into his crowding model in two places.

1. Cultural factors are implicit as part of the **antecedent factors** (e.g. physical and social settings character, past personal and group history).
2. Cultural factors are also implicit as part of the **mediating factors** shaping response to stress.

Gifford's use of 'culture' in crowding

- "Culture as a Moderator – The consequences of crowding and high density depend in part on cultural background. Culture acts as a moderating influence on high density, sometimes providing its members with a shield against the negative effects of high density and sometimes failing to equip them with effective means of coping with high density." (2007:21.)
- How does this theory translate to Australian Indigenous context?

Three ongoing questions for AHURI Research

1. What are relevant Australian Indigenous norms and situational factors of household life?
2. How do these norms or situational factors get compromised by density changes to result in stress and a perceived state equivalent to crowding?
3. What are Australian Indigenous coping mechanisms for crowding?

Musharbash's Yuendumu *Jilimi* example

Average numbers of adults and children sleeping in the jilimi per night as sampled over 221 nights during 1998-2001.

	Average	Highest*	Lowest
Adults	12	19	6
Children	5	11	1
Total	17	30	9**

*Note that this table does not include individuals from *sorry mobs*, in which case these numbers would be substantially higher.
** This is the lowest number of actual residents present at any one time, not the sum of lowest number of adults and children together.

Source: Adapted from Musharbash, 2008 *Yuendumu Everyday*, Aboriginal Studies Press, Canberra. , Table 1, p. 62

Musharbash's Yuendumu *Jilimi* example

- Illustrates mobility and the desire to be close to kin and associates.

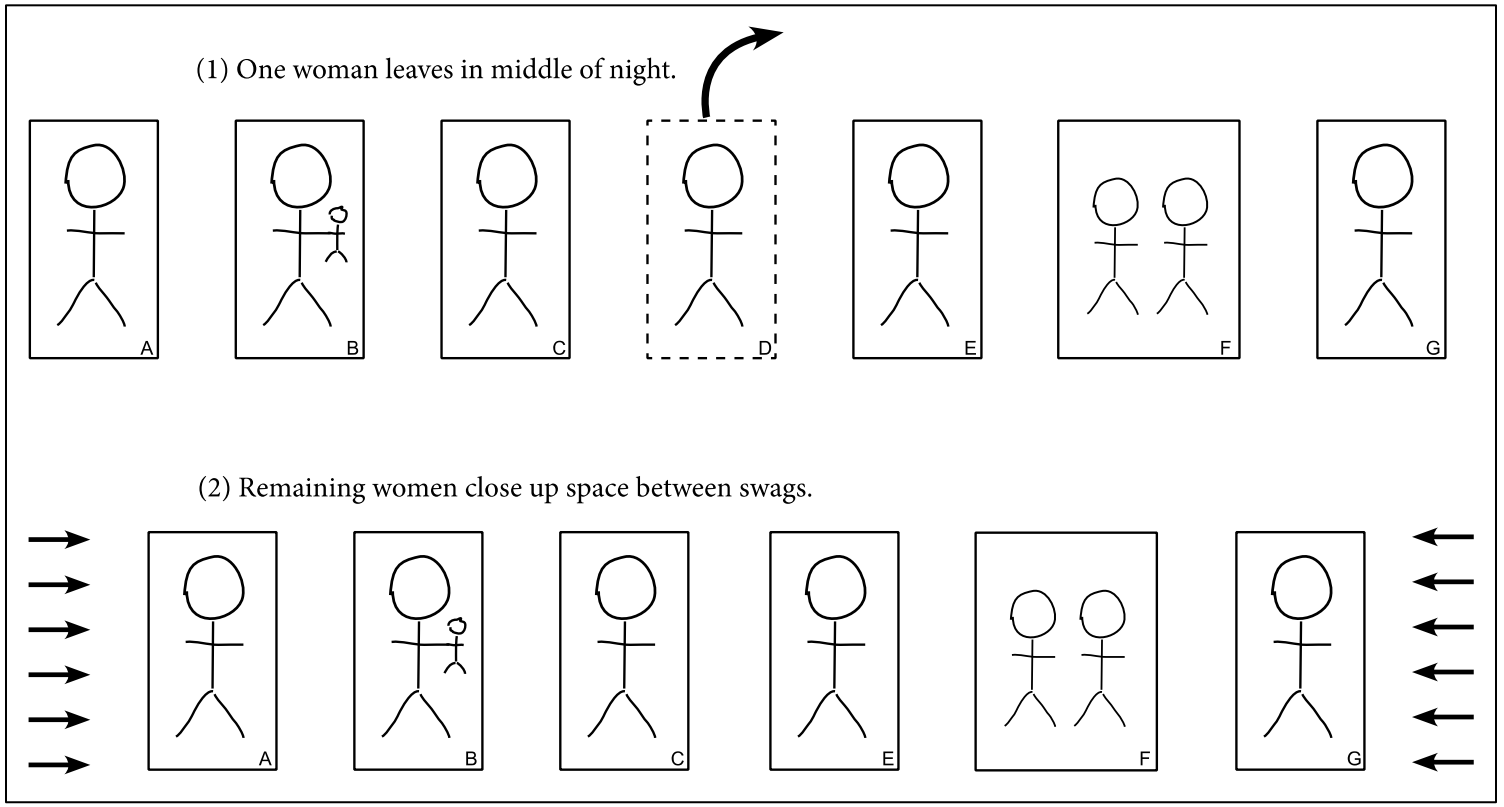
Table: Types of residents in jilimi over the 221 nights

	Number of individuals	Number of nights
Core residents	11	100+
Regular residents	12	44 to 76
On-and-off residents	36	8 to 36
Sporadic residents	48	1 to 6

Source: Adapted from Musharbash, 2008, *Yuendumu Everyday*, Aboriginal Studies Press, Canberra. Table 2 p. 64

Musharbash's examples of Intimacy: another cultural effect on 'crowding' perspectives

"Yapa [Aboriginal people] strive for 'gap-free' yunta [sleeping configurations]" …. "Sleeping alone is an impossibility"

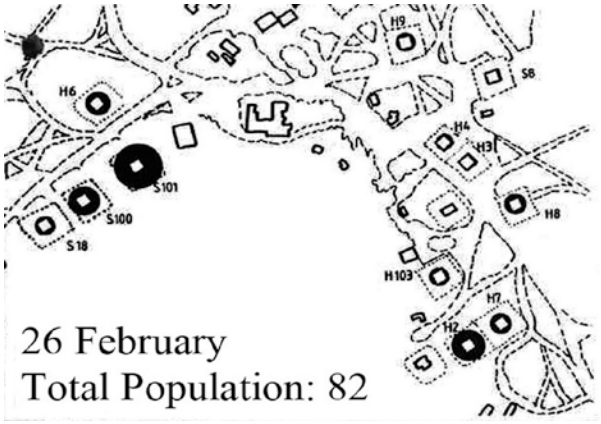


Quote: Musharbash, 2008 *Yuendumu Everyday*, Aboriginal Studies Press, Canberra. p 44.
Illustration: by author.

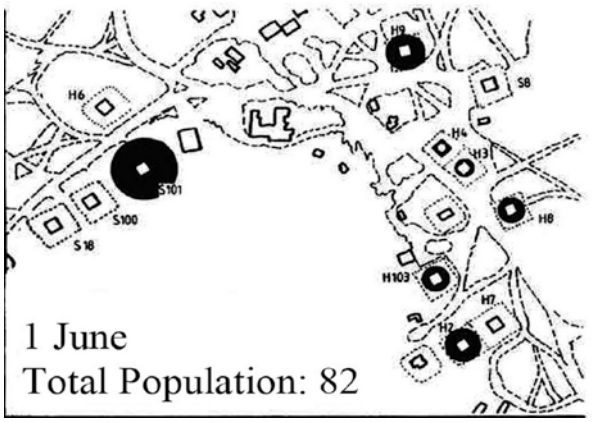
Pholeros et al. (1993) Pipalyatjara example

- Mobility within a very remote discrete settlement was documented by Pholeros et al (1993).
- Variation in household numbers is shown graphically.

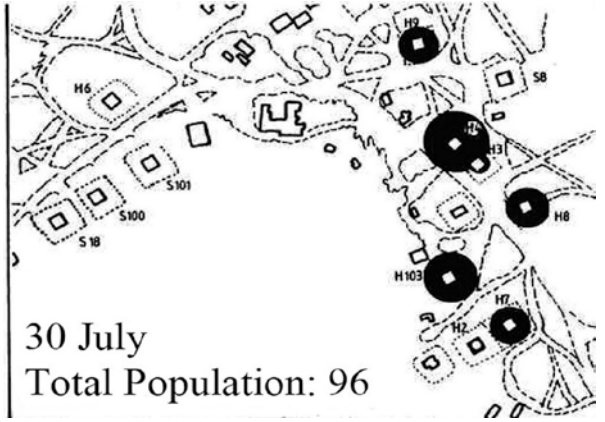
Pholeros et al (1993) Pipalyatjara example:



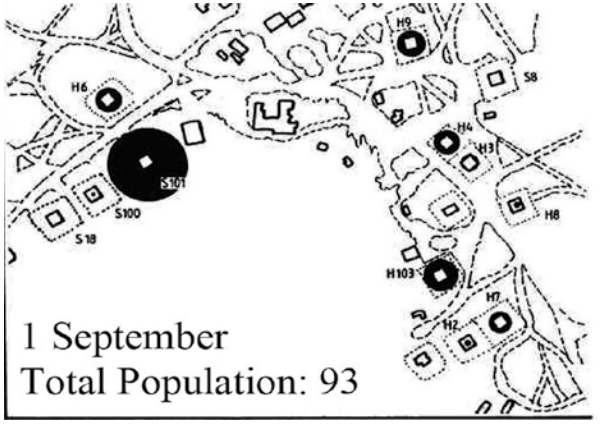
26 February
Total Population: 82



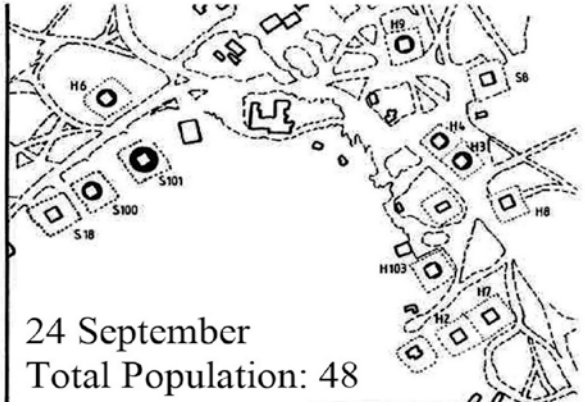
1 June
Total Population: 82



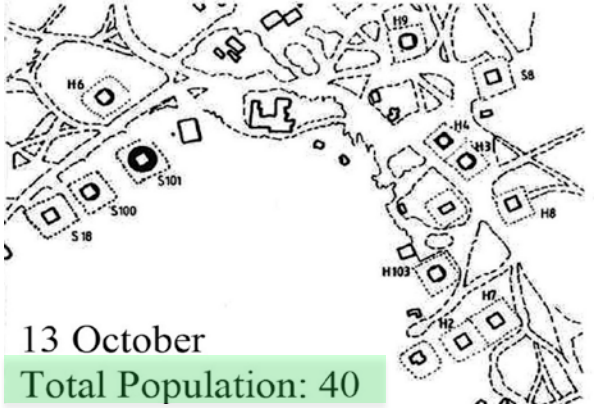
30 July
Total Population: 96



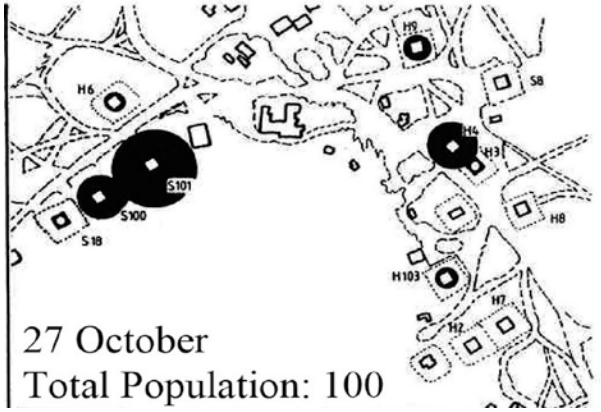
1 September
Total Population: 93



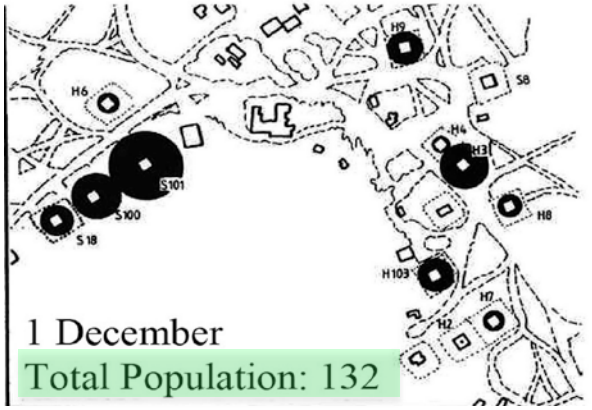
24 September
Total Population: 48



13 October
Total Population: 40



27 October
Total Population: 100

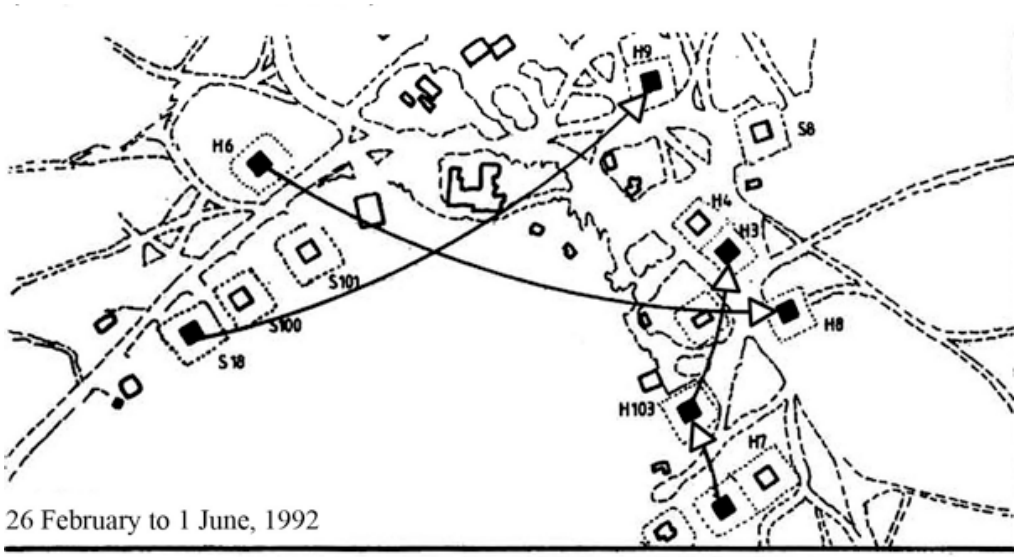


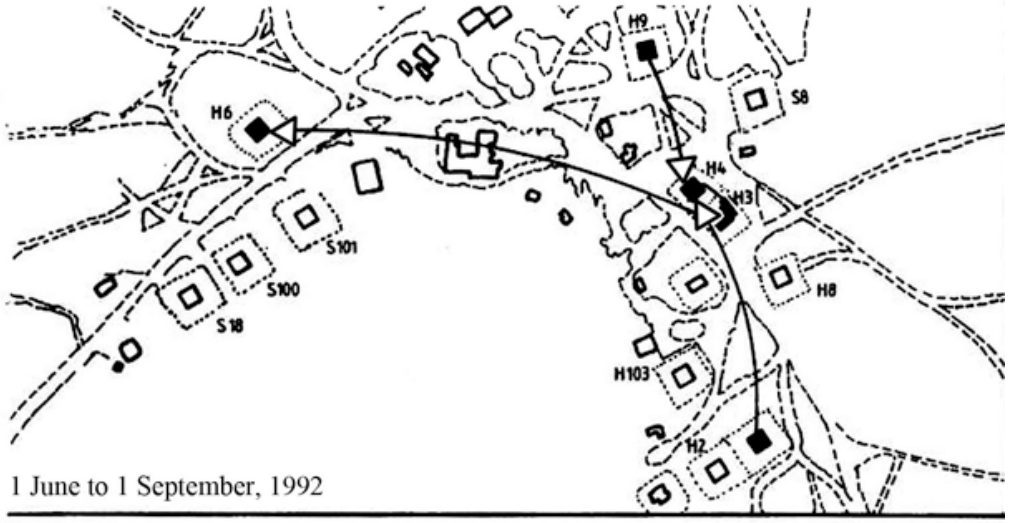
1 December
Total Population: 132

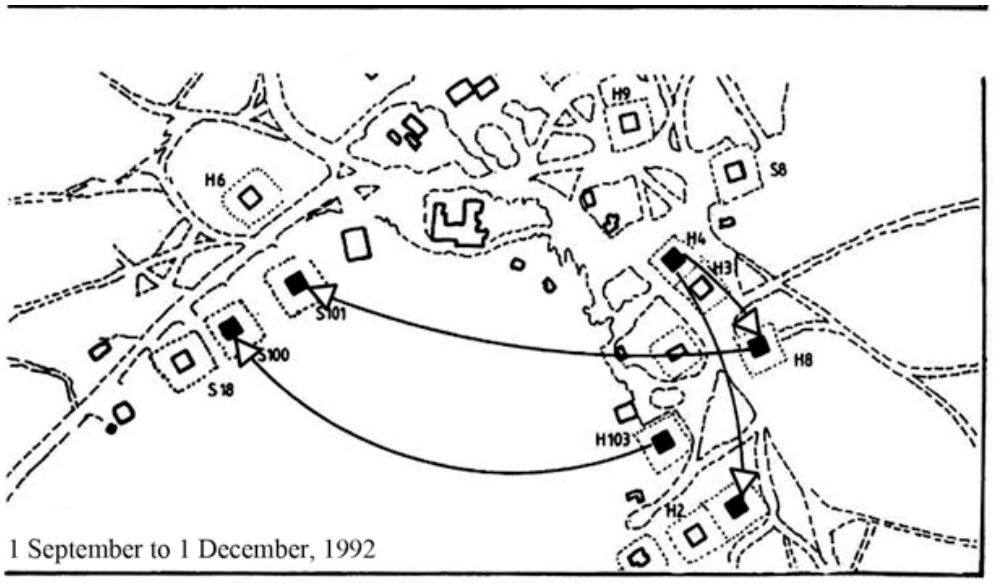
Population distribution within Pipalyatjara at 8 survey occasions in 1992.

Size of circle indicates relative size of household which range from 40 to 132 persons.

Pholeros et al (1993) Pipalyatjara

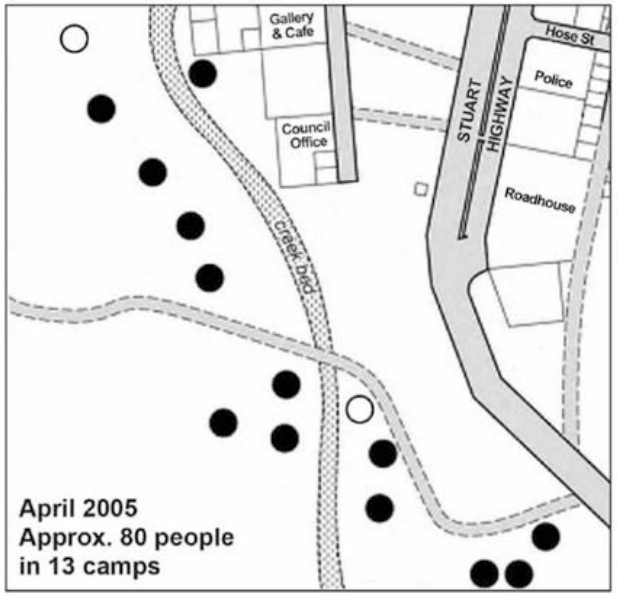


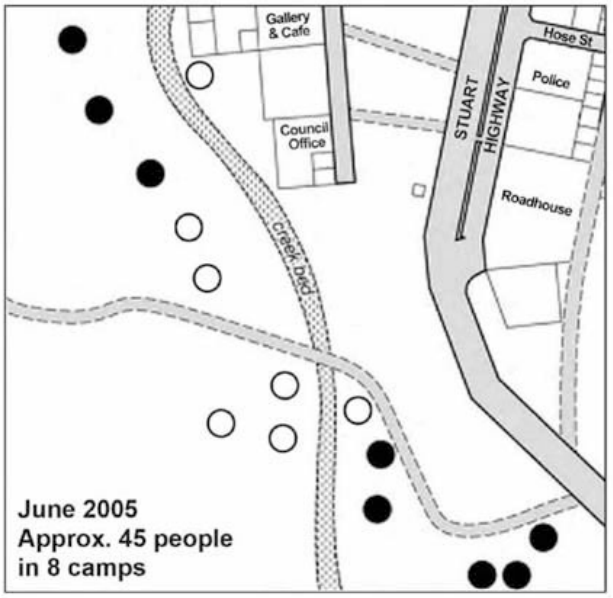


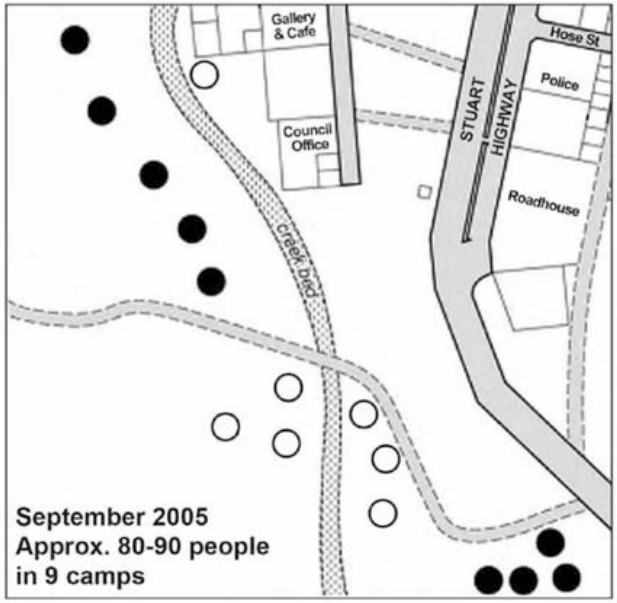


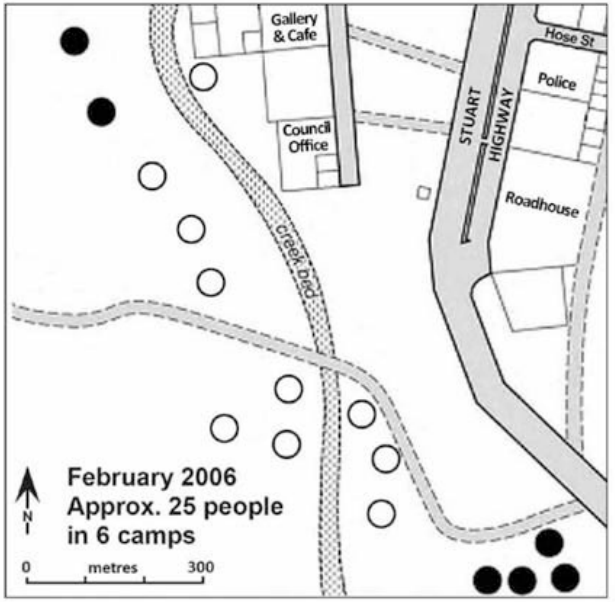
FAMILY GROUP MOBILITY AT PIPALYATJARA BASED ON THREE CENSUS TIMES IN 1992

Source: Pholeros et al 1993:28







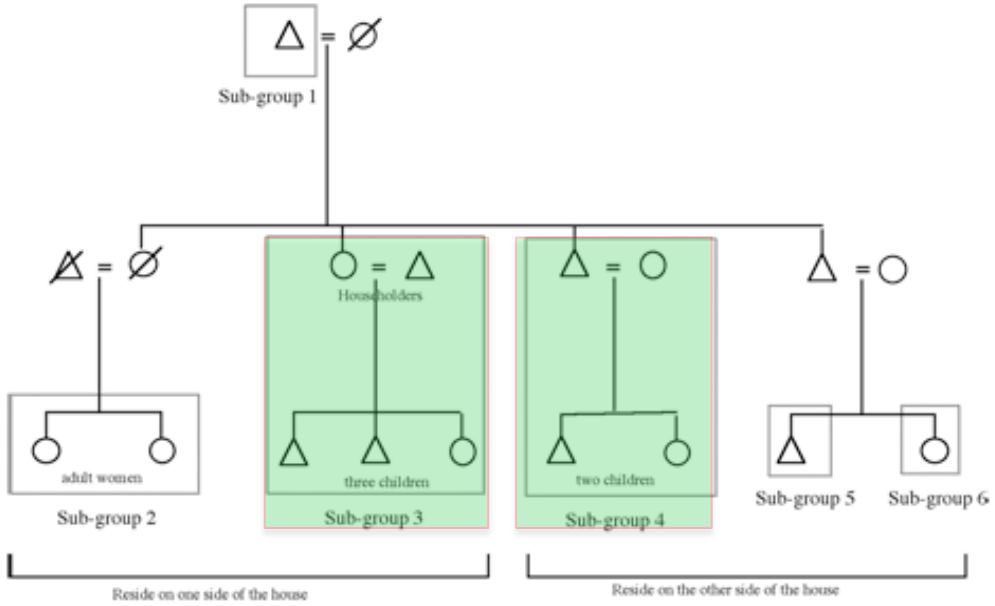


Sanders and Holcombe's Settlement plan of south-west side of Ti Tree Township, N.T., showing Aboriginal campsites occupied (black circles) and unoccupied (white circles) during 2005-6.

Note the changing population and occupation of different campsites.

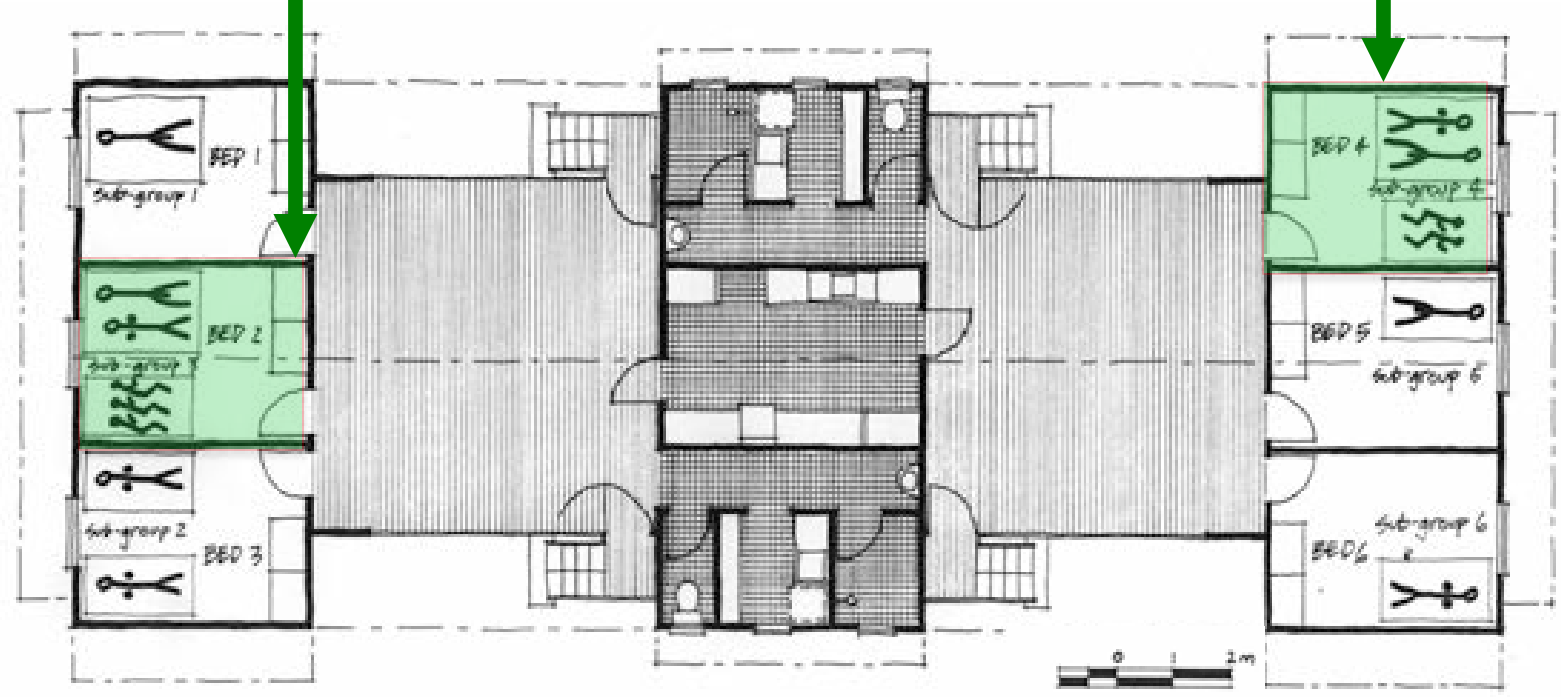
Illustrations :adapted from Sanders and Holcombe 2006

Coping Mechanism: A House Built at Ngukurr (Roper River, NT) 1998-99



Memmott, P. (2003) Customary Aboriginal Behaviour Patterns and Housing Design, in Take 2 Housing Design in Indigenous Australia Memmott & Chambers (eds)

NOTE: ROOM OCCUPATION BY SUB-GROUPS 3 & 4 THE TOTAL POPULATION OF THIS HOUSE WAS 14.



Crowding and homelessness

Categories of homelessness employed by Australian Bureau of Statistics

Conceptual category	Operational definition
Primary homelessness	Improvised home, tent, sleepers out ('rough sleepers')
Secondary homelessness	In temporary shelter:- (1) Hostels for the homeless, night shelter, refuge (2) Visitors to private dwellings with 'no usual address'
Tertiary homelessness	Boarding house/private hotel (unserviced room)

(Source: adapted from Chamberlain and Mackenzie 2008:3,10.)

Crowding and homelessness:
ABS perspectives

- "If visitors were taken into account in the measure of overcrowding [sic] for Census night 2006, the proportion of people living in overcrowded conditions would increase from 27% to 31% for Indigenous people"
- "It is not possible 5 years on from the 2006 Census to readily establish the culturally motivated visitors from those people that may have been seeking accommodation because they were experiencing homelessness according to a western context"
- Additionally Morphy (2007) notes that many people would not consider themselves homeless if they are in their home country.

Quotes source: ABS discussion paper, 2011 "Methodological Review of Counting the Homeless, 2006" Cat. No. 2050.0.55.001, p55.

Crowding and homelessness:
definition of 'no usual address'

- If usual address is defined as being the place at which people will stay or intend to stay for six months, then how is no usual address defined?
- Visitors may have several homes in which they are welcome and between which they alternate for accommodation, none of which are their usual address.
- This situation could be masking one of homelessness, in which a person desires but cannot obtain a permanent home of their own.
- Alternatively visitors may have their own home to which they may, or may not, eventually return.
- Reporting of no usual address is uncommon in the Aboriginal population. (ABS 2011, Morphy 2007))

Assessment of NATSSS 2006

NATSISS is a snapshot, probably a blurred one due to under-reporting of visitors – does not capture flows in and out of households and other social processes.

Recommendations on NATSISS in relation to crowding assessment

Premise: Scaling up or extrapolating NATSISS survey results may mask local contextual factors.

Caution is counselled concerning the use of NATSISS findings to direct government program expenditure. In our view NATSISS findings are better used as a first step to decision-making only, to be followed with more in-depth community surveys or consultation prior to expenditure decisions.

Recommendations on NATSISS

- Include in NATSISS, a count of 'place of enumeration' (place of residence on the night) as well as 'place of usual residence'. [This was possibly not done because the NATSISS survey may be carried out over more than one night.]

- Can a statistical algorithm technique be developed to incorporate a 'visitor factor' and/or a 'household mobility factor' into the NATSISS weighting process?

Recommendations on NATSISS

Additional desirable complementary research to NATSISS

Develop combined quantitative and qualitative methods to better contextualize and model crowding and spatial needs in Aboriginal households.

More longitudinal case studies to be undertaken so as to understand household dynamics; separate studies to NATSISS, but to complement the NATSISS findings.

Capture flows of people in and out of households, which will require the development of new techniques or the use of longitudinal research.

Establish the nature of the relationships between core and temporary householders.

- Is 'visitor' an appropriate term?
- What does it mean to Aboriginal people who are serial or repeated dwellers in a home?
- Do they identify with such a term?

The term "visitor" needs to be unpacked by examining the visiting patterns of "visitors"

Recommendations on NATSISS in relation to crowding assessment

Need for a new metric of Indigenous crowding

Finally there is a need for a new metric to assess Indigenous households and whether they are crowded.

A key issue here will be the level of complexity and the cost (time involved) of using it.

Analysis of Current Policy Terms

Words currently used by policy formulators	Deconstruction necessary for Indigenous context
crowding	density/crowding
overcrowding	Crowding/non-crowding/types of crowding
community	Community/settlement
family	Kinship: agnatic, cognatic, classificatory types of kin All visitors as family
ABS resident = 30 days present or not counted	Visitors (not enumerated) Sanctioned v. non-sanctioned mobility
NATSISS resident – 'normal place of residence'	Visitors (not enumerated) Sanctioned v. non-sanctioned mobility
household ('common provision' def'n)	The residential group present for particular activities (eating, sleeping, nocturnal/diurnal, recreational) but transforming.
usual resident	Core resident, long-term, short-term, night visitor, day visitor.
visitor	Classificatory kin/strangers/multiple home bases.
homeless	Camping/public place dwelling/homelessness types

Acknowledgements

We gratefully acknowledge the assistance of

- AHURI for access to current research which the authors are undertaking on Indigenous crowding.
- Australian Bureau of Statistics for provision of data and access to data for analysis.

Thank you

Prof. Paul Memmott: p.memmott@uq.edu.au
Kelly Greenop: k.greenop1@uq.edu.au

The University of Queensland
Aboriginal Environments Research Centre
School of Architecture
&
Institute for Social Science Research

FaHCSIA (2007) National Indigenous Housing Guide (NIHG) Survey Data

Survey data

House size and population	Percentage of houses or areas in square metres	Total houses surveyed
House area		
House area less than 100 square metres	41%	3,615
House area greater than 100 square metres and less than 200 square metres	52%	3,615
House area greater than 200 square metres	6%	3,615
People per house		
0 to 4 people per house	49%	3,614
5 to 10 people per house	44%	3,614
More than 10 people per house	7%	3,614
For houses with population of 0 to 4 people		
Average population	2.5	1,770
Average area in square metres	118	1,770
Average area (square metres) per person	47.9	1,770
For houses with population of 5 to 10 people		
Average population	6.2	1,577
Average area (square metres)	126	1,577
Average area (square metres) per person	20.4	1,577
For houses with population of 10 people or more		
Average population	13.6	267
Average area (square metres)	125	267
Average area (square metres) per person	9.3	267

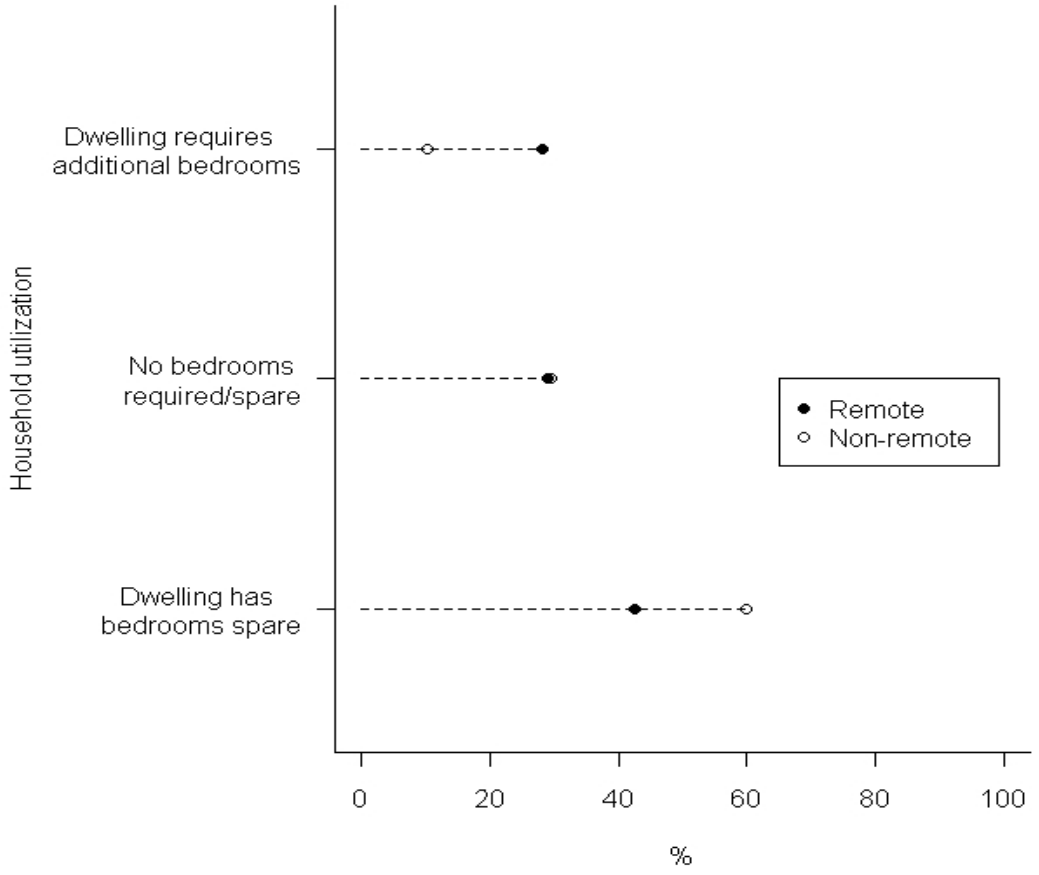
Note: The house sample is reduced because the 'number of bedrooms' question was not asked in some projects.

Based on Housing for Health and Fixing Houses for Better Health projects undertaken drawn from a survey of 3615 houses over a period of seven years.

Houses surveyed include urban, urban fringe, regional, remote and very remote regions, across four states, WA, QLD, SA, NSW and the NT.

Indigenous Housing Utilisation, 2008

By Remoteness and Non-remoteness



Source: Authors from ABS NATSISS data 2008

NAHA information based on NATSISS

Crowded houses by capital city, by balance of state

Table: Percentage Breakdown by States and Territories and by capital city/balance of State, of the 25,940 Indigenous households living in 'overcrowded' conditions out of a total of 193,421 Indigenous households in Australia during 2008.

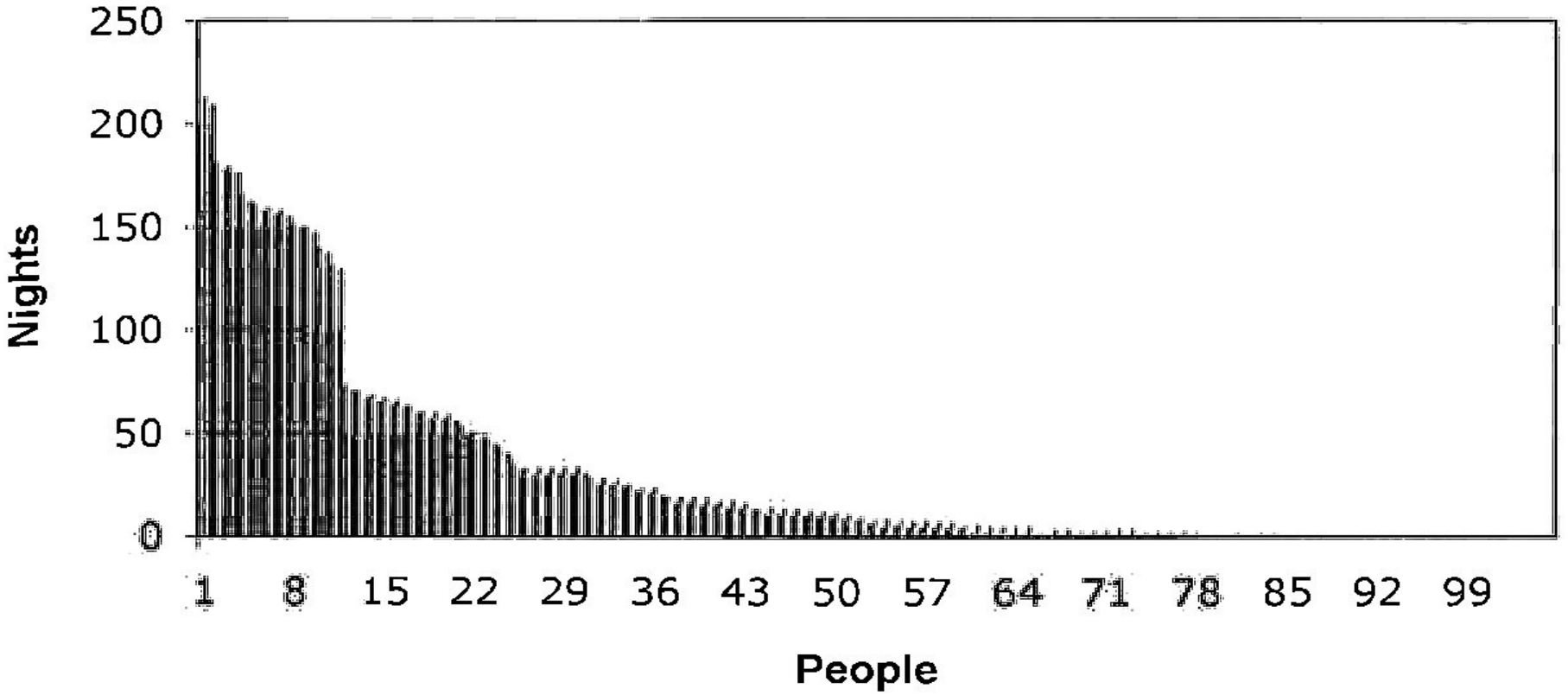
	Unit	*NSW*	*Vic*	*Qld*	*WA*	*SA*	*Tas*	*ACT*	*NT*	*Aust*
Capital City (b)	%	8.4	7.8	10.5	10.1	9.2	7.0	4.7	13.4	9.3
Balance of State (b)	%	11.0	6.9	16.7	18.4	11.6	5.8	na	43.8	15.8
Total (b)	**%**	**10.2**	**7.4**	**14.8**	**15.1**	**10.4**	**6.2**	**4.7**	**34.0**	**13.4**

(a) Overcrowded conditions are defined using the Canadian National Occupancy Standard for 'needing 1, 2, 3, 4 and > 4 bedrooms'.
(b) Includes where overcrowded conditions are 'Not Known', which account for approximately 0.8 percent of all Indigenous private dwellings.
na = Not available.

Source: Adapted from ABS (unpublished) National Aboriginal and Torres Strait Islander Social Survey 2008, Table NAHA (National Affordable Housing Agreement) 7.1.

Musharbash's Yuendumu *Jilimi* example

Number of night stays by 105 named people in a four bedroom (jilimi) women's residence at Yuendumu over 221 nights, intermittently recorded by Musharbash in 1998-2001.



Source: Adapted from Musharbash, 2008 *Yuendumu Everyday*, Aboriginal Studies Press, Canberra. , Figure 10, p. 63