

## Livelihoods in desert Australia

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This special issue builds on the significant body of work that the Desert Knowledge Cooperative Research Centre (DKCRC) generated during its life between September 2003 and June 2010 (see for instance, Stafford Smith 2008a; Davies and Holcombe 2009; McGregor and Edwards 2010; Seemann 2010; and the significant number of outputs on the legacy website DKCRC (2011). The research presented in this special issue builds on that reported in a previous special issue of this Journal (Stafford Smith 2008a) which focused on the building of a ‘science of desert living’. A key paper in that issue (Stafford Smith 2008b) outlined the ‘desert syndrome’ which identified a set of causally-linked factors that characterise remote Australia. The papers in this special issue use the concept of a ‘desert syndrome’ developed in that paper (Fig. 1) to show how research can identify livelihood opportunities that come from recognising these drivers.

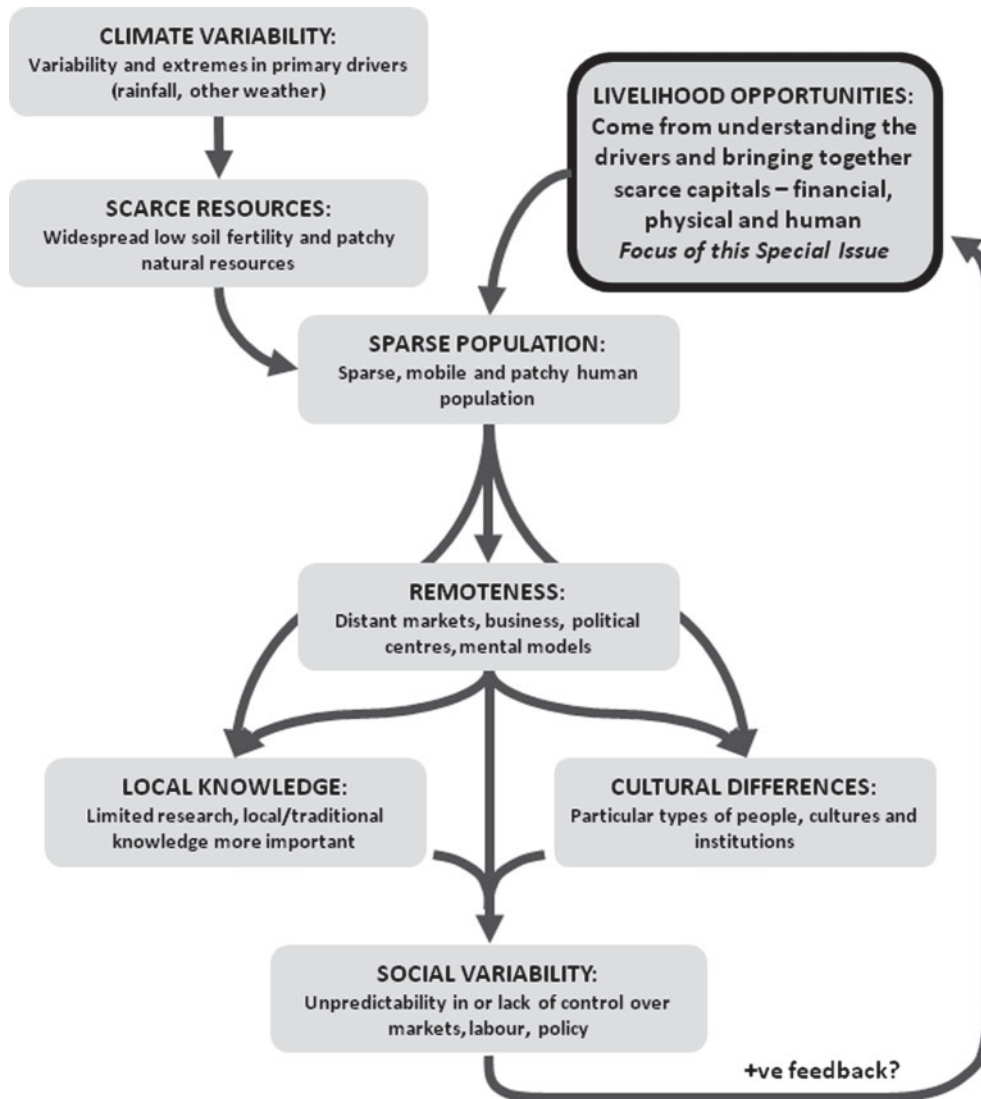
This Special Issue brings together a snapshot of the work on market-based and non-market based enterprises in desert Australia. The examples presented here are tourism, bush food harvesting and sale, and livelihoods based on public sector funding such as land management. Supporting these topics are contextual studies that seek to understand the social cultural and employment settings that are so different in desert Australia across all sectors. Obvious by omission is the compilation of the work by the DKCRC on pastoralism and small business characteristics which has been published elsewhere (e.g. Rola-Rubzen *et al.* 2011a, 2011b; Walsh 2009a, Walsh 2009b, Walsh 2009c, Walsh 2009d, Walsh 2009e, Walsh 2009f, Walsh 2009g, Walsh 2009h, Walsh 2009i, Walsh 2009j, Walsh 2009k, Walsh 2009l, Walsh 2009m).

The issue begins with a paper by Pittock (2011) looking at the constraints and opportunities that current and future energy systems impose on dwellers of remote parts of Australia. The drivers of *climate variability* and *remoteness* have been considered barriers to flourishing economies and settlements under the existing global transport and energy systems. The natural assets of desert Australia in the form of renewable energy from sun and geothermal predominantly, frames new options for enterprises and livelihoods. These opportunities come in the form of construction and maintenance of energy ‘farms’, and from the new enterprises that may be attracted to locate near the source of abundant, non-polluting power. Many consider such opportunities to be far distant in time but already such investments are unfolding in desert regions in other parts of the world.

Issues surrounding developing and maintaining a remote workforce has plagued both the private and public sectors through time. The current mining boom being experienced by Australia means that large numbers of jobs are becoming available in remote Australia and recent estimate by BHP suggest that there will be a need for 170,000 new workers in the resources sector over the next five years (BHP 2011). Demographic research shows that unlike coastal Australia there is a growing number of young Aboriginal people about to enter the workforce (Taylor *et al.* 2006). The next three papers address Aboriginal employment and staff attraction and retention issues.

Maru and Davies (2011) note that while there may be a multitude of employment opportunities in a region such as Anmatjere in Central Australia these are often filled by migrant or in other remote areas by Fly In Fly Out (Haslam McKenzie 2011) workers leaving local Aboriginal people unemployed or under employed. Their paper notes that the perceived reasons for this situation in the wider community are due to a lack of skills and/or motivation to work and welfare dependency. Their study shows how social networks underpin employment opportunities for Aboriginal people and in particular how sparse and weak bridging ties with employers are utilised to get jobs and/or undertake other livelihood activities. Problems are shown to occur when there are fewer people in broker roles in remote settlements. They also occur when those in brokering roles don’t have the cross-cultural skills [‘cultural differences’] to effectively perform the role or have the local knowledge with which to design workplace arrangements that accommodate both Aboriginal norms and the requirements of the workplace [‘social uncertainty and local knowledge’].

Ganter (2011) examines how Aboriginal and Torres Strait Islander people in jobs in Northern Territory public service enter and exit the government roles. The study finds that there is very high mobility of Aboriginal people from government to the ‘Indigenous sector’ and back. Cross-cultural positions whereby people were expected to both represent broader Aboriginal views and participate in the government of the desert comes with tensions across cultural barriers. These tensions and their job mobility, leave many Aboriginal people in ‘orbit’ – neither inside nor outside but somewhere at the edges of government. The paper illustrates Stafford Smith’s drivers of both ‘cultural differences’ and ‘social variability’ (small population with high turnover in the roles people occupy) manifesting and characterising the difference for desert livelihoods compared with jobs in other



**Fig. 1.** Hypothesised syndrome of linked 'desert drivers' with linkages to livelihoods shown (adapted from Stafford Smith 2008b).

settings. Ganter concludes that effective representation of Aboriginal people in the governance of central Australia would be more effective through collaborations with 'Indigenous sector' organisations rather than overly focusing on direct employment of Aboriginal people in government jobs.

The current two-speed nature of the Australian economy provides both opportunity and problems for remote communities. On the opportunity side, the additional jobs mean that there are increased employment opportunities for remote residents. On the other side, the rapidly increasing demand for workers during a period of low unemployment is taking workers away from other sectors of the economy (particularly the public sector) and increasing costs locally in remote areas for housing and other services. Historically it has been difficult to attract and retain workers in remote locations. Haslam McKenzie (2011) examines the dynamics of labour markets in remote Australia with a specific focus on the factors that enable and reinforce staff attraction and

retention. This paper looks at the approaches that different industry sectors, the public service and remote communities have used. These include ensuring potential employees are prepared properly for living and working in remote environments; and private and public sector investment in local infrastructure including health, education, housing, amenity and recreation. A significant finding was that soft factors such as a sense of community and 'incomers' having a sense of being included in the community. The significant observation was that in designing strategies there was a need to understand the linkages between 'hard' (infrastructure) and 'soft' factors and that an adherence to the economic efficiency alone would not lead to desirable outcomes.

The next group of three papers focus on how respecting and valuing the drivers of 'local knowledge' and 'cultural difference' can create more holistically effective livelihoods. The three papers originate from the DKCRC 'Livelihoods in Land' project.

Davies *et al.* (2011) starts by drawing together a framework for health and well being related to livelihoods for Aboriginal people based on land management activities. The four principles proposed – governance that recognises and respects Aboriginal custom and tradition; learning is embraced as a life-long process; relationships are recognised as very important; and partnerships are based on priorities that all parties agree are important – if followed, we are told would give Aboriginal people a greater sense of control over their land, culture and destiny.

LaFlamme (2011) develops the theory of Aboriginal land management underpinning the work of Davies *et al.* (2011) through a systemic framework for understanding and managing rangeland livelihoods so that rangeland managers can develop long-term strategies to react to a range of highly variable external environmental, political and socio-economic drivers. The framework is based on the human environment interaction and provides examples of how the different world views of managers [‘local knowledge’ and ‘cultural difference’] lead to different outcomes. The key to the framework is the monitoring of six key assets – landscape, biodiversity, flexibility, skills, information and networks – for changes in status, at a range of scales, so that land management is sustainable. The framework highlights the benefits of collaboration across rangeland groups and world views.

Aboriginal people’s strong association with land (Pawu-Kurlpurlurnu *et al.* 2008) means that they gain more than cultural benefits from working on country. The health and wellbeing benefits from such activity have been difficult to measure quantitatively but have been described in qualitative terms in numerous studies (see for example, Rea and Messner 2008; Davies *et al.* 2010; Walker 2011). Campbell’s (2011) contribution to this special issue is able to show that there are a range of private (to the individual) and public good benefits associated with Aboriginal people being on, and gaining a livelihood from working on, tradition lands undertaking customary and other land management activities. The private benefits include improved health and psychosocial status, and maintenance of culture while the public good benefits include maintenance of biodiversity and the complimentary impact of improved health and wellbeing on saved health costs. The research reported here builds on an earlier study that found that the annual savings in primary health care from Aboriginal people participating in caring for country in West Arnhem Land was \$268,000 per annum for a population of 1284, with a present value (discount rate 4.075%) of \$4.08 million in 2008 dollar terms (Campbell *et al.* 2011). In this current paper Campbell focuses on central Australia and derives annual cost savings estimates of between \$160,443 and \$268,139 per annum for an equivalent sized community.

The highly variable nature of the Australian desert environment has meant that enterprises based on opportunistic harvest of plant resources has historically swung through boom periods when storage of harvest goods (seeds and fruits) is limiting, to bust periods where there is virtually no harvest (and no stored products) for years. Hence, the ‘desert drivers’ of ‘Climate variability and ‘Scarce resources’ have paralysed the development of robust commercial industry because of poor supply chains, unreliable product delivery into western economies (Bryceson 2008). Remoteness would not itself be a

problem for enterprises developing if product supply and supply chains could be strengthened but with these two factors as weak links, remoteness is misdiagnosed as a problem and investment capital is attracted elsewhere. A central element to enterprise development in these circumstances is the empowerment of social networks which are in the control of Aboriginal harvesters (Cleary 2009). With this backdrop ‘Local knowledge’ and ‘Cultural differences’ are the important drivers in growing this livelihood area. Walsh and Douglas (2011) argue that one of the most important benefits of this livelihood area is the link to social and cultural integrity, language and land management, all of which are beneficial to health and wellbeing [as Davies *et al.* (2011) and Campbell (2011) highlight].

The final paper in the issue (Carson and Carson 2011) examines the institutional and regional constraints to diversification of the enterprise base from staple industries (food and fibre, mining producers) to include service industries such as tourism in rangeland regions. Not only are there traditional issues with tourism such as marketing of destinations but ‘Sparse populations’ and ‘Remoteness’ hampers the attraction, training and retention of appropriately skilled people who are unlikely to already be in the region (Haslam McKenzie 2011); ‘Cultural differences’ establish norms that get in the way of accepting new ways and new opportunities; and yet ‘Local knowledge’ is also needed to run businesses effectively.

In summary, this collection of papers highlights several differences and tensions that play-out in desert Australian jobs and livelihoods. There is the tension associated with attracting and retaining appropriately skilled people who are work ready and aligned with the localised economic drivers such as mining, pastoralism and horticulture (Haslam McKenzie 2011; Ganter 2011). At the same time, these established industries offer jobs that are neither standard for urban Australian’s – consider, for example, the working hours and weekly patterns required by mining companies and pastoralists – and not always a good fit for many Aboriginal people because of culture differences, skills and interests. Livelihoods (a range activities that add up to means of support) that better allow people to marry economic activity with culture and social obligations on traditional country have an important role. This is especially true as the demography of desert Australia indicates an increasing cohort of younger people, mainly Aboriginal (Taylor *et al.* 2006), who will need to identify opportunities that provide options for the maintenance of culture and which also give people the choice to remain on country. Livelihood opportunities built on culture can build new industries such as Aboriginal art, micro-industries such as carbon sequestration and bush foods (Walsh and Douglas 2011) or provide public good benefits such as land and ecosystem management (Davies *et al.* 2011). These developing opportunities have reinforced the importance of the passing on cultural knowledge and as a result strengthen the link between older community members and the younger generation.

These papers are a selection of the outputs from the Desert Knowledge CRC (2003–2010). Rather than being the last word on many of these subjects, the papers identify the complexities of livelihood development in desert regions. The work begun in the DKCRC is a platform for an even greater focus on the economic development of desert Australia through Ninti One Ltd and the CRC for Remote Economic Participation.

## References

- BHP (2011). BHP tips jobs bonanza. Available at: <http://www.watoday.com.au/business/bhp-tips-jobs-bonanza-20110928-1kxbt.html> (accessed 28 October 2011).
- Bryceson, K. P. (2008). Value chain analysis of bush tomato and wattle seed products. DKCRC Research Report 40. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Campbell, D. (2011). Application of an integrated multidisciplinary economic welfare approach to improved wellbeing through Aboriginal caring for country. *The Rangeland Journal* **33**, 365–372.
- Campbell, D., Burgess, C. P., Garnett, S. T., and Wakeman, J. (2011). Potential primary health care savings for chronic disease care associated with Australian Aboriginal involvement in land management. *Health Policy* **99**, 83–89. doi:10.1016/j.healthpol.2010.07.009
- Carson, D., and Carson, D. (2011). Why tourism may not be everybody's business: the challenge of tradition in resource peripheries. *The Rangeland Journal* **33**, 373–383.
- Clary, J. (2009). Perspectives on developing new cooperative arrangements for bush-harvested bush tomatoes from desert Australia. Desert Knowledge CRC Research Report 48. Available at [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011). CRC for Remote Economic Participation (2011). Available at: <http://crep.com/> (accessed 18 October 2011).
- Davies, J., and Holcombe, S. (2009). Special Issue: Desert Knowledge. *GeoJournal* **74**, 363–490. doi:10.1007/s10708-009-9279-4
- Davies, J., Campbell, D., Campbell, M., Douglas, J., Hueneker, H., LaFlamme, M., Preuss, K., Walker, J., and Walsh, F. (2010). Livelihoods in Land: promoting health and wellbeing outcomes from desert Aboriginal land management. DKCRC Research Report 78, Alice Springs. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Davies, J., Campbell, D., Campbell, M., Douglas, J., Hueneker, H., LaFlamme, M., Pearson, D., Preuss, K., Walker, J., and Walsh, F. (2011). Attention to four key principles can promote health outcomes from desert Aboriginal land management. *The Rangeland Journal* **33**, 417–431.
- DKCRC (2011) Desert Knowledge CRC. Available at: <http://www.desertknowledgecrc.com.au/publications> (accessed 18 October 2011).
- Ganter, E. (2011). Representatives in orbit: livelihood options for Aboriginal people in the administration of the Australian desert. *The Rangeland Journal* **33**, 385–393.
- Haslam McKenzie, F. (2011). Attracting and retaining skilled and professional staff in remote locations of Australia. *The Rangeland Journal* **33**, 353–363.
- LaFlamme, M. (2011). A framework for sustainable rangeland livelihoods. *The Rangeland Journal* **33**, 339–351.
- Maru, Y. T., and Davies, J. (2011). Supporting cross-cultural brokers is essential for employment among Aboriginal people in remote Australia. *The Rangeland Journal* **33**, 327–338.
- McGregor, M. J., and Edwards, G. P. (2010). Managing the impacts of feral camels. *The Rangeland Journal* **32**, i–iii. doi:10.1071/RJv32n1\_ED
- Pawu-Kurlpurlurnu, W. J., Holmes, M., and Box, L. A. (2008). Ngurra-kurlu: A way of working with Warlpiri people. DKCRC Research Report 41. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Pittock, B. (2011). Co-benefits of large-scale renewables in remote Australia: energy futures and climate change. *The Rangeland Journal* **33**, 315–325.
- Rea, N., and Messner, J. (2008). Constructing Aboriginal NRM livelihoods: Anmatyerr employment in water management. *The Rangeland Journal* **30**, 85–93. doi:10.1071/RJ07044
- Rola-Rubzen, M. F., Gibbs, J., Gabunada, F., Burritt, R. L., Altangerel, D., Fung, L., Rubzen, B., and Carter, A. (2011a). Growing businesses in the desert: Case studies of Australian desert micro, small and medium enterprises. DKCRC Research Report. 74. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Rola-Rubzen, M. F., Newman, W., Burritt, R. L., Mapunda, G., Norris, G., and Vemuri, S. (2011b). Report of the workshops on Supporting livelihoods and small businesses: Identifying clever ways of creating and supporting better livelihoods for desert Australia. DKCRC Research Report. 73. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Seemann, K. (2010). Desert Knowledge CRC Special Edition. *Journal of Economic and Social Policy* **13**(2), 2–300.
- Stafford Smith, M. (2008a). Desert Knowledge – building a science of desert living. *The Rangeland Journal* **30**, 1–2. doi:10.1071/RJ08900\_ED
- Stafford Smith, M. (2008b). The 'desert syndrome' – causally-linked factors that characterise outback Australia. *The Rangeland Journal* **30**, 3–14. doi:10.1071/RJ07063
- Taylor, J., Brown, D., and Bell, M. (2006). Population Dynamics and Demographic Accounting in Arid and Savanna Australia: Methods, Issues and Outcomes. DKCRC Research Report 16. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walker, J. (2011). The culture of conservation: valuing Aboriginal land management in arid Australia's protected areas. PhD Thesis, School of Environmental and Life Sciences, Charles Darwin University, Alice Springs, Australia.
- Walsh, D. (2009a). Cell grazing in the Pilbara: Cheela Plains, WA. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series 56. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009b). Conservative stocking in central Australia: Lyndavale Station, NT. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 50. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009c). A cow rotation in the Gascoyne: Mt Augustus, WA. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 58. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009d). An extended rest grazing system in central Australia: Narwietooma Station, NT. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 51. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009e). Flexible rotational grazing: Wyndham Station, NSW. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 61. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009f). The holistic management approach: Etiwanda Station, NSW. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 57. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009g). A maximum sustainable stocking rate system in central Australia: Woodgreen Station, NT. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 54. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009h). Rotational grazing and conservative stocking rates in the northern savanna: West Elsey, NT. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 60. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).

- Walsh, D. (2009*i*). Spelling in central Australia: Alcoota Station, NT. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 49. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009*j*). A steer paddock system in central Australia: Umbearra Station, NT. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 53. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009*k*). Time-controlled rotational grazing: Tara Station, Qld. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 59. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009*l*). A water-controlled rotational grazing system: Rockhampton Downs, NT. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 52. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, D. (2009*m*). Country-condition dependent' grazing in the goldfields: Bulga Downs, WA. DKCRC Working Paper, The Central Australian Grazing Strategies project Working Paper Series. 55. Available at: [www.desertknowledgecrc.com.au/publications](http://www.desertknowledgecrc.com.au/publications) (accessed 8 October 2011).
- Walsh, F., and Douglas, J. (2011). No bush foods without people: the essential human dimension to the sustainability of trade in native plant products from desert Australia. *The Rangeland Journal* **33**, 395–416.