

The Pastoral History, Biological and Cultural Significance of the Scotia Country, far Western New South Wales

MARTIN WESTBROOKE

Centre for Environmental Management, University of Ballarat, Mt Helen, Victoria 3353
(mew@ballarat.edu.au)

Published on 28 August 2012 at <http://escholarship.library.usyd.edu.au/journals/index.php/LIN>

Westbrooke, M. (2012). The pastoral history, biological and cultural significance of the Scotia Country, far western New South Wales. *Proceedings of the Linnean Society of New South Wales* **134**, A55-A68.

The Scotia country of far western New South Wales, once part of the vast Lake Victoria lease and subsequently split into six smaller properties after WW1, has one of the shortest grazing histories in the state. The low stocking rates due to unsuitable feed provided by the mallee vegetation and limited water supplies have left native vegetation communities relatively intact and close to original condition. A natural salt lake system with rare plants and plant communities adds to the values of the area. This paper reviews the pastoral history of the area and the features which make the Scotia of outstanding conservation and cultural significance.

Manuscript received 19 October 2011, accepted for publication 11 January 2012.

KEYWORDS: conservation, cultural, mallee, pastoral lease, plant communities, Scotia.

INTRODUCTION

The Scotia country of approximately 200,000ha is located in far western New South Wales midway between Wentworth and Broken Hill, latitude 33°43'S, longitude 143°02'E (Fig. 1).

The significance of the area relates not only to its natural characteristics but that the six homestead leases which comprise most of the geographic area were settled late in Australia's pastoral history. European land settlement in Australia commenced in 1788 when Governor Phillip claimed possession of the land for a penal colony on behalf of the British Government. All lands were vested in the name of the Crown, thus the name Crown lands. From 1791 to 1831 successive Governors issued free grants of land on behalf of the Crown to encourage and advance settlement of the State. Originally land in the far west of New South Wales (NSW) was divided into vast pastoral holdings but later the NSW Government pursued a policy of closer settlement (Heathcote 1965). This entailed resumption of large properties, subdividing them into units or home maintenance areas capable of supporting a family and allocating these by ballot (Young et al. 1984). These family leases in western NSW varied with carrying capacity from 4,000 to 40,000 ha.

BACKGROUND TO THE ESTABLISHMENT OF THE SCOTIA BLOCKS

The Scotia blocks (see Table 1) are located in far south western New South Wales to the west of the Darling Ana-Branch. The Scotia country is a region of thick mallee scrub (predominantly *Eucalyptus dumosa*, *E. socialis*, *E. oleosa* and *E. gracilis*), interspersed with bluebush flats and Belah, *Casuarina pauper*, woodland which begins about 40km. west of the Darling Anabranh, land traditionally owned by the Barkindji people of the Mallee country (NPWS 2001). The first European settlement on the land was by George Melrose in 1845, following exploration of the area by Sturt and Eyre (Withers 1989). Despite Melrose developing the property over the next few years, after surveys of the area were completed by the NSW Government and land offered for tender in Government Gazettes in 1854, the Lake Victoria lease which encompassed the Scotia country was granted to John McInlay who had no previous link to the area (Withers 1989).

In 1859 the Lake Victoria lease was transferred to Charles Brown and shortly after to John Hay. At this time the lease consisted of the East Rufus, West Rufus, Tara, Yantarella, Westbrook and Scrub Blocks 1, 2, 3, 4, 5, 6, 8, 9 and 10 (Jervis 1947), see figure 2.

SCOTIA COUNTRY HISTORY AND SIGNIFICANCE

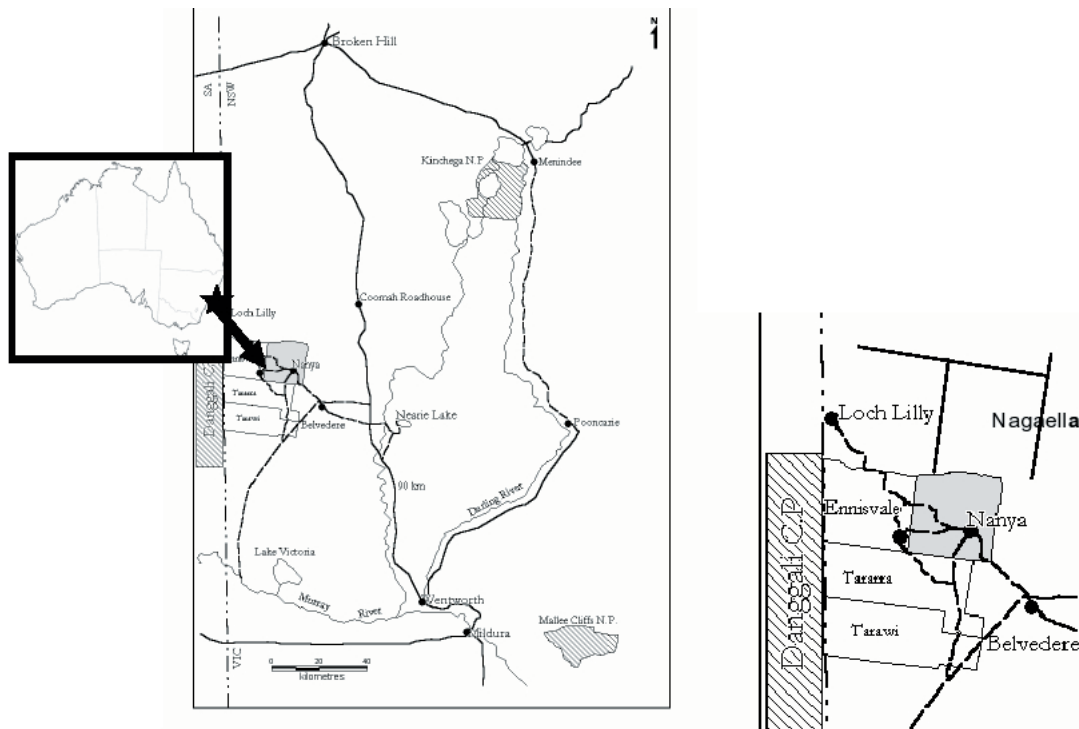


Figure 1. Location of the Scotia Country of western New South Wales

Property	Old name	1st Owner	Amalgamation phase	Current ownership and use
Nanya	Winnebaga	Gordon Cumming	Belvedere	University of Ballarat Conservation 2004 -
Nagaella	Badham	H C Cullen	Wemba	Private Goats – c1996 -
Loch Lily	Barry	Frederick Hucks	Mazar	Private Goats – c1995 -
Tarawi	Grose	Harry O’Flynn	Hyperna	National Parks and Wildlife Conservation 1996 -
Ennisvale	Scotia	Aubrey Bowerman	Tarrara	Australian Wildlife Conservancy Conservation 1994 -
Tarrara	Phillip	Toby Bornholm	Ennisvale	Australian Wildlife Conservancy Conservation 1994 -

Table 1. Summary history of the Scotia leases with current use.

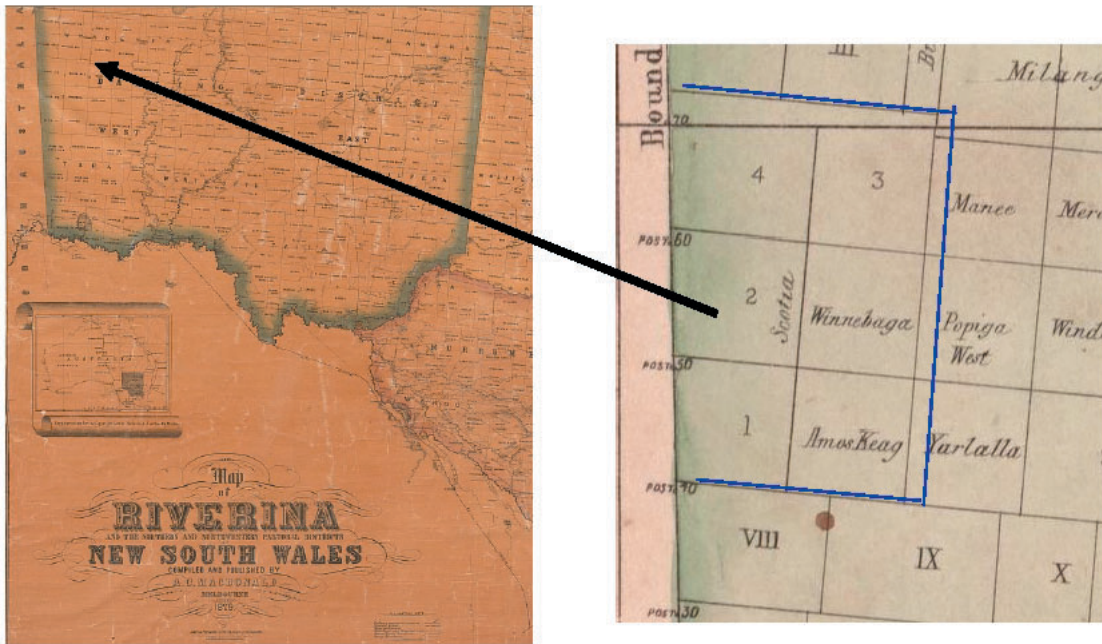


Figure 2. Runs of the Lake Victoria lease in the late 19thC (MacDonald 1879). Scotia 1, 2, 3, 4, Winnebaga and Amoskeag comprise the Scotia.

The lease consisting of 457,000 ha was sold in 1862 to Phillip Gell however he was ruined by drought and left the lease in 1869. The *Argus* (Melbourne) 12 February 1876 records the lease being owned by McPherson and the *Wentworth Telegraph* and *Murray Darling News* of 18 November 1882 reports its sale to Robert Tully.

The *Sydney Morning Herald* of 15 July 1885 reports the Lake Victoria Pastoral Holding (Leasehold No. 170) included the following runs: East and West Rufus, Pellwaka, Yantaralla, Tara, Wannawanna, Westbrook, Amoskeag, Scrub run blocks 2, 3, 4, 5, 6, 8, 9 and 10, Scotia blocks 1, 2, 3 and 4 and Winnebaga. It is assumed that at some time during the 1870s Scotia blocks 1, 2, 3 and 4, Amoskeag and Winnebaga, which along with the Scrub run blocks formed the back blocks of the Lake Victoria lease were formed by the NSW Lands Department in the hope that they could be leased as separate runs as a revenue raising exercise. On an 1879 pastoral map (MacDonald 1879) the six blocks (the subject of this paper) are encompassed by Winnebaga, Amoskeag, Scrub 8 and 9, Scotia 1, 2, 3 and 4 (Fig. 2). The name Scotia is thought to have been named by Henry Ricketson after his homeland, Nova Scotia, as Winnebaga and Amoskeag, the names of the waterholes on his neighbouring runs are similar to the Canadian words for a lake over the United States border, or a swamp, a muskeg. (Withers 1989).

In 1883, the Legislative Council of New South Wales held an inquiry into the state of the public lands following the failure of the Selection Acts to satisfy the land hunger of the new settlers. The subsequent Land Act of 1884 created the Western Division of the colony and led to the sub-division of the large pastoral holdings into two areas, leasehold to be held under a pastoral lease with tenure of fifteen years, and the resumed area which could be held by an annual occupation licence until it was claimed by Homestead lessees. Homestead leases not exceeding 4,200 ha and not less than 2,362 ha were granted within the resumed areas and on application a lessee had to pay a deposit of 1d. per acre and the cost of a boundary survey, as well as paying for any existing improvements. The lessee had to fence the boundaries within two years if possible and live on the land for at least six months of every year during the first five years of the lease. Otherwise the conditions and length of tenure were the same as those of pastoral leases (Withers 1989).

It is likely that, following this Act, the back blocks of the Lake Victoria lease which became part of the Resumed Area, were subject to boundary changes, in some cases renamed and offered as Homestead Leases. Scotia blocks 1 to 4, were initially leased by the London-based Australian Mortgage Land and finance Company which paid 70 pounds a year in rent, but there is no record of the country being stocked, and in 1897 the Scotia blocks were offered for sale by

SCOTIA COUNTRY HISTORY AND SIGNIFICANCE

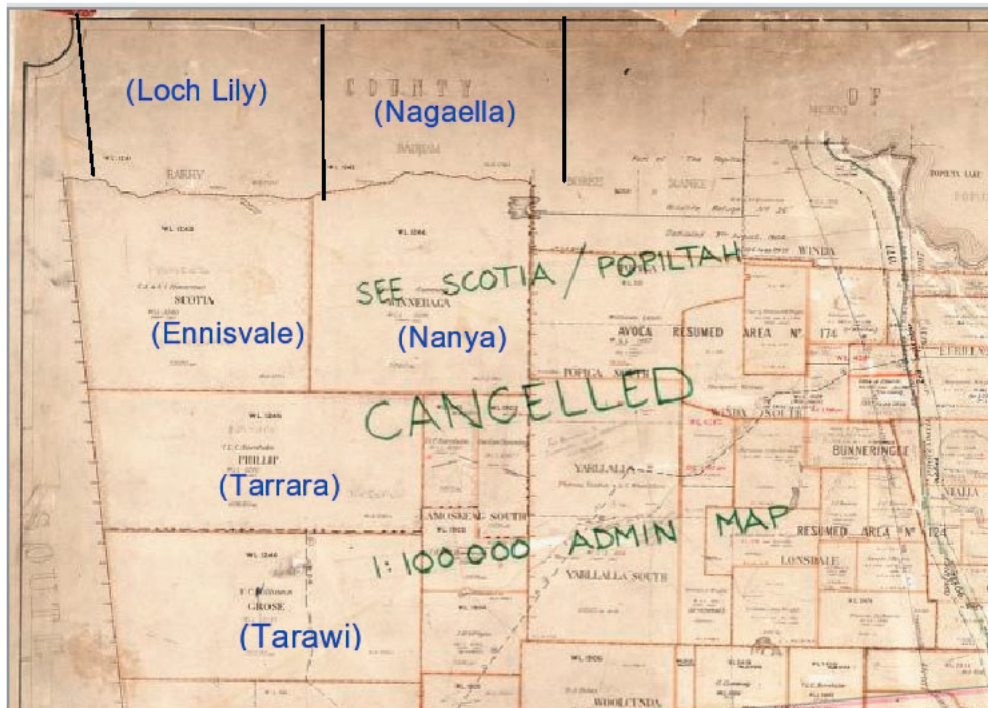


Figure 3. Section of Tara Parish map of 1926 (Land and Property Information NSW 2001) with current names overlaid

the State as Improvement Leases (Withers 1989). The name Improvement Lease indicates the requirement of potential lessees to make improvements on the leasehold area (clearing of scrub, provision of water and fencing) they would therefore have been offered for a cheaper rent than the formerly offered Homestead Leases. However without access to water all blocks except for part of Block 3 remained untenanted but sometimes the adjacent properties of Belmore and Nulla used the land to run wethers during the winter months (Withers 1989).

This situation continued through the early years the 20th century but, following George Anderson's success in finding artesian water on Belmore in 1925, the dry Scotia country comprising 432,000 acres (sic) was surveyed and divided into six Homestead leasehold blocks allocated by ballot (Withers 1989). On the Tara and Windemeyer Parish maps of 1926 (Land and Property Information NSW 2001) they were named Winnebaga, Grose [Scrub 8], Phillip [Scotia No.1], Scotia [Scotia No. 2], Badham [Scotia No.3] and Barry [Scotia No. 4] (Fig. 3).

The Sydney Morning Herald of 27 September 1928 refers to the 'leasing of the hitherto despised and neglected stretch of country known as the Scotia Country for sheep raising'. The nature of the land demonstrates the need to offer the land by ballot rather than by leasehold. All properties were approximately 30,000ha. with a rating of 3,000 sheep. Subsequently

the lease areas were again renamed most likely by the new owners.

The ballot system ensured that all the leases were taken up this time, although Mark Williams who drew a northern lease, Badham (Nagaella), took one look at the timber and thick scrub and forfeited it. Subsequently the forfeited lease was transferred to H. C and H. A. Cullen in 1929. Barry (Loch Lily) was drawn by Frederick Hucks and Phillip (Tarrara) by Thorvald Ludwick Christian (Toby) Bornholm. Scotia (Ennisvale) was occupied by Aubrey Bowerman, whose father was an overseer at Lake Victoria, Harry O'Flynn settled at Grose (Tarawi), and Winnebaga (Nanya) was taken up by Gordon Cumming initially with his brother Lorie. (Sydney Morning Herald 1928).

LIFE ON THE SCOTIA BLOCKS (1930 – 2000)

Life on the Scotia blocks was very different to that experienced on the large pastoral holdings of the 19th century. The new leaseholders initially camped on the land and set about drilling bores, digging ground tanks and establishing fencing largely using materials off the land. At Nanya, Gordon Cumming initially camped on chaff bags before constructing a makeshift hut with bush poles and rudimentary concrete using local calcrete as a low quality aggregate and at

Nagaella, the Cullen brothers' first hut was made of flattened petrol tins. (Withers, 1989) These anecdotes indicate that the new lessees were not wealthy and the later infrastructure suggests that they did not make their wealth on the land. From establishment until their closure as pastoral leases developments were restricted to essential infrastructure with only a brief period of wealth demonstrated during the 1950s wool boom.

The properties were family run with few employees. All of the blocks would have contained relatively small largely corrugated iron clad houses dating from the 1930s however prosperity in the 1950s allowed some improvement to infrastructure. In most cases ancillary buildings were of rudimentary construction with chicken sheds and enclosures built from bush poles and wire and laundries and meat houses constructed from recycled timber and iron. The shearing sheds and quarters were also simple buildings constructed from local materials where possible and, unlike earlier large pastoral holdings, were located close to the homestead.

At Nanya the wool boom period of the 1950s is reflected in the improvements made on the property at that time. These improvements included a more substantial Red Gum framed homestead constructed adjacent to the earlier cottage and new steel machinery shed. At this time all of the Scotia blocks had a resident family and there was an active social life including weekend tennis tournaments and community Christmas functions (Norma Scadding, Belvedere Station pers comm.).

When the homestead leases of the Scotia were established in the late 1920s they were intended to have a sheep carrying capacity of approx 3,000 sheep, which was seen to be adequate for a family income. This may initially have been the case and was certainly the case during the early 1950s when wool prices were at an all-time high of \$1 per 11b. However from the early 1970s, increasing costs and declining wool values made incomes inadequate to support families. Gordon Cumming of Nanya however lived at and worked his property until he died in 1983 at the age of 97. Similarly the Bornholm brothers managed Tararra and Ennisvale until the 1990s. Stocking rates in the Scotia have always been low due to the difficulty of providing water and the unpalatable nature of the dominant mallee vegetation (Stanley and Lawrie 1980). The official grazing rating was one sheep to 10ha. but on Nanya for example during the 1970s overall stocking rates were closer to one sheep to fifteen ha. due to large areas without reliable water supply (Norm Scadding, Belvedere Station pers. comm.). These low stocking rates along

with the short grazing history (80 years compared to 160 years in much of western NSW) led to retention of relatively intact vegetation.

During the 1980s most leases were sold and amalgamated with adjacent larger properties. From 1988 staff from the University of Ballarat undertook intensive vegetation and fauna surveys in the Scotia which highlighted the high conservation significance of the area (Westbrooke et al. 1998). As wool prices further declined in the 1990s, the amalgamation trend was reversed and many leases were purchased for alternative land uses including 'farming' of feral goats and conservation. Of the six "Scotia" blocks which in the 1950s supported six families depending on income from wool four are now managed for conservation and two for feral goats (Table 1.).

BIOLOGICAL SIGNIFICANCE OF THE SCOTIA COUNTRY

Vegetation and flora

The relatively short grazing history and, due to unreliability of waterpoints and unpalatable vegetation, low grazing pressure during that time have resulted in native vegetation communities remaining in good condition. Mean percentage weediness of quadrats recorded in 1992 in mallee communities on Nanya Station were 3% compared to 4.7% for equivalent communities at Mallee Cliffs National Park (Westbrooke 1990). This may reflect the longer grazing history of the latter site prior to reservation. The short grazing history of the Scotia contrasts with most of the remainder of western NSW which was settled between the early 1850s and 1876 (Hardy 1969). Other factors which have contributed to the intactness of vegetation communities are the unsuitability of the deep sands of the mallee for rabbits and the poor water holding of the earth tanks which are the predominant water source. This latter factor has meant that high stock numbers could only be maintained during wet periods. Whilst the predominant vegetation of the Scotia is dune and swale mallee 25 communities are represented, several of which, such as *Halosarcia lylei* low shrubland (Fig. 4), are of limited distribution or restricted to the area (Westbrooke et al. 1998). Two factors contributing to this natural diversity are the presence of complex salt lake systems and proximity to the boundary of the Murray Darling Depression and Broken Hill Complex IBRA regions (Thackway and Cresswell 1995). Communities present in the Scotia with code and conservation status (Benson 2006) are given in Table 2.

SCOTIA COUNTRY HISTORY AND SIGNIFICANCE



Figure 4. *Halosarcia lylei* low shrubland, for NSW only recorded from Scotia

Code	Community	Conservation status
16	<i>Eucalyptus largiflorens</i> open woodland	Near threatened
190	<i>Eucalyptus porosa</i> open woodland	Near threatened
58	<i>Casuarina pauper</i> woodland/open-woodland, mixed shrub understorey	Near threatened
221	<i>Casuarina pauper</i> woodland/open-woodland, <i>Maireana sedifolia</i> understorey	Near threatened
57	<i>Casuarina pauper</i> / <i>Geijera parviflora</i> open-woodland	Near threatened
28	<i>Callitris glaucophylla</i> open-woodland	Vulnerable
252	<i>Myoporum platycarpum</i> open woodland	Vulnerable
199	<i>Hakea tephrosperma</i> / <i>Hakea leucoptera</i> low open woodland	Near threatened
119	<i>Acacia aneura</i> open-shrubland	Near threatened
128	<i>Acacia loderi</i> tall open-shrubland	Endangered
170	<i>Eucalyptus</i> spp. open-shrubland - shrub understorey	Least concern
171	<i>Eucalyptus</i> spp. open-shrubland - <i>Triodia</i> understorey	Least concern
	<i>Eucalyptus gracilis</i> open shrubland – <i>Mesembranthemum</i> understorey	
191	<i>Eucalyptus gracilis</i> / <i>Melaleuca lanceolata</i> , open-shrubland	Least concern
143	<i>Dodonaea</i> / <i>Eremophila</i> / <i>Senna</i> shrubland	Least concern
152	<i>Nitraria billardieri</i> shrubland	Least concern
196	<i>Lycium australe</i> shrubland	Least concern
18	<i>Atriplex vesicaria</i> low open-shrubland	Vulnerable
154	<i>Maireana sedifolia</i> low open shrubland	Near threatened
64	<i>Halosarcia pergranulata</i> low shrubland	Least concern
65	<i>Halosarcia lylei</i> low open-shrubland	Vulnerable
253	Gypseous shrubland	Vulnerable
24	<i>Eragrostis australasicus</i> swamp	Least concern
165	<i>Stipa</i> spp./ <i>Eragrostis</i> spp. tussock grassland	Least concern

Table 2. Vegetation communities of the Scotia Country, occurrence and conservation status (Benson 2006).

The more widespread communities are also of significance as, due to the short grazing history, they are amongst the most intact examples in NSW.

Over 400 vascular plant species have been recorded including several listed under the Threatened Species Conservation Act (Westbrooke et al 1998). Significant species include new records for New South Wales: *Hemichroa diandra* (Amaranthaceae) (Fig. 5), *Dodonaea stenozyga* (Sapindaceae), *Halosarcia lylei* (Chenopodiaceae), *Eleocharis glaber* (Asteraceae) and significant extensions to species of limited known distribution: *Acacia acanthoclada* (Mimosaceae), *Swainsona colutoides* Fabaceae), *Cratystylis conocephala* and *Kippistia suaedifolia* (Asteraceae).

Fauna

A diverse fauna has been recorded including 20 native mammals, over 50 species of reptile and over 110 species of birds (Westbrooke 2010, NPWS 2001). Of particular significance are three species listed under the Environmental Protection and Biodiversity Conservation Act which are associated with old-

growth mallee: Malleefowl, Black-eared Miner and Lesser Long-eared Bat. A further twenty species are listed as endangered or vulnerable under the NSW TSC Act:

Saltlakes

Many of the significant plant communities and species are associated with the salt lakes on Nanya, Loch Lily and Tarrara (Fig. 6). Apart from a hydrological study (Ferguson et al. 1995) there has been little investigation of these highly significant salt lake systems which have been subject to minimal disturbance.

Fire history

The Scotia has a wide range of fire histories. Significant wildfires occurred in 1917/18, 1975/6, 1985, 1997/1998 and 2005. The extent of the 1917/18 fires is not accurately known but newspaper reports at the time suggest it was extensive. The Mildura Telegraph (January 1918) reported:

...Three huge fires are raging in various parts of the lower Darling district and there



Figure 5. Tussocks of *Hemichroa diandra* (Amaranthaceae), a new record for New South Wales

SCOTIA COUNTRY HISTORY AND SIGNIFICANCE



Figure 6. Part of the Nanya Discharge Complex

is practically no hope of stopping them by ordinary human methods, even if water for fire-fighting carts were considerably handier than it is. The prolific growth of grass during the past two seasons has been responsible for the outbreak of fire in several places. Tremendous efforts have been made to keep it within safe limits and head it off in the unsettled Scotia country ...

In 1975 a fire burnt about 30,000ha. of Ennisvale, Loch Lily and Nagaella. Other fires have generally burnt patches of less than 5,000ha. Smaller areas have been subject to management burns for 'pasture improvement' or asset protection and areas of Tarawi and Nagaella were burnt in a CSIRO fire research program in the 1980s which aimed to demonstrate improved grazing capacity resulting from frequent fire (Noble 1989). The extensive fires tend to follow two or more years of well above average rainfall such as occurred prior to the 1917/18 and 1975/6 fires. In these circumstances extensive growth of Spear Grass in the more open swales, which normally have sparsely distributed ground fuel loads, assist the spread of fire as is noted by the Western Lands Commission:

"Speargrass to one metre in height covered the southern two-thirds of the Western Division, producing a fuel load of the order of 5-6 tons per acre (12-15 tonnes per

hectare), linking fuel types which would otherwise be very different in fire behaviour."
(Western Lands Commission, 1975)

As a result of its fire history there is a mosaic of age classes across the Scotia, including significantly areas of mallee which have not burnt since 1917 or earlier. Preliminary studies based on a regression of stem size measurements at sites of known fire history indicate that some of these areas are approximately 135 years post fire (M. Westbrooke and S. Florentine unpublished data). This suggests that fires followed the high rainfall years of the early 1870s (Clewett et al. 1994). Further evidence of very long periods since fire is the presence of stands of single stemmed *Callitris verrucosa* forming woodland which is reported as a characteristic of long unburnt mallee (Bradstock 1990). It should be noted that 'old-growth mallee' has been defined as an area not burnt for 50+ years (NPWS 2003). The relative non flammability of bands of *Casuarina pauper*/*Alectryon oleifolius* woodland occurring in wider swales has meant that even larger fires result in a mosaic of burnt and unburnt patches. This diversity of fire regimes, recognised as contributing to maintaining diversity and resilience of plant and animal communities (Bradstock et al. 1995) adds greatly to the biological significance of the Scotia.

Flooding

Areas of the Scotia have been impacted by flooding of the Olary Creek. This ephemeral creek floods in response to high rainfall events in the Olary Ranges of South Australia. The impact of a 1998 flood event and its interaction with fire and grazing has been monitored (Westbrooke and Florentine 2005, Westbrooke et al 2005) as well as its influence on invasion by the exotic shrub *Nicotiana glauca* (Florentine and Westbrooke 2005).

CULTURAL SIGNIFICANCE OF THE SCOTIA COUNTRY

The history and significance of the large pastoral leases taken up in western NSW in the 19th century are generally well understood. For example the grand homesteads and shearing sheds of the vast early pastoral leases such as Kinchega, Yanga and Willandra in NSW are well recognised and protected. Recognition of important examples from later phases, following the break-up of these large holdings into small family blocks however is often neglected. The development of the Scotia leases show another side to Australia's pastoral history and illustrate the rich pastoral history that exists in relation to small homestead leases. Although rudimentary, the remaining infrastructure tells stories of the struggle for a dependable water supply and the simple life led by those who tried to make a living off these blocks. They may not include grand structures or early colonial relics but their remoteness, starkness and demonstration of mid 20th century pastoral technologies and way of life deserve to be recognised and preserved (Westbrooke and Westbrooke 2010). Additionally relics such as yards and bores often help to explain features of current vegetation and a number of issues relating to cultural elements link with conservation management

Homestead complex buildings

Scotia buildings are generally confined to functional requirements and typically consist of one or more homesteads, shearing and machinery sheds and shearers quarters consisting of four-room accommodation block, kitchen, messroom and amenities. Since they are generally built of local materials they may provide insights into the original vegetation. The main support posts of the shearing and engine room sheds at Nanya are crudely trimmed bush poles of Native Pine, *Callitris glaucophylla*, now rare in the area.

Cultural plantings

A policy in many conservation reserves is to eliminate all exotic species both animal and plant. However cultural exotic plantings may be an important heritage element in some locations generally associated with occupation sites. In remote areas of Australia Tamarisk, *Tamarix aphylla*, Pepper Trees, *Schinus molle*, and Agave, *Agave Americana*, may be the only remaining elements of previous European occupation (Figure 7), though concentrations of exotic agricultural weeds may indicate sites of stock usage.

Fortunately most of these cultural plantings do not pose a threat to the environment and can be left as part of a heritage overlay in the limited areas of intensive past disturbance. The issue is more complex where the plantings are Australian natives 'out of place' such as Kurrajong which does not naturally occur in the western province of NSW (Harden 1990-93) and not obviously an introduced species. In some cases original plantings can be retained but any self seeding juveniles removed.

Yards and fences

Yards are associated with mustering of sheep both around shearing sheds and at remote locations. These yards often illustrate early fencing techniques such as Double Post-and-Rail or Paling fences (Pickard 2009) (Figure 8). These yards are of additional interest from an ecological point of view as the species and number of trees felled to create these fences may explain the occurrence of extensive treeless areas. These open areas remain due to the failure of many arid woodland trees to regenerate under conditions of elevated grazing pressure (Westbrooke 1998). Based on data from Pickard (1994), fencing a 30,000ha. property such as Nanya is likely to have led to the felling of 15 – 20,000 trees! This example, as well as the species of timber used for the shearing shed, demonstrates insights into ecological history can be derived from the observation of cultural artefacts.

Water supplies

Despite optimistic statements regarding water quality in the 1920s, water from bores was of high salinity and reticulation was expensive due to the short life of steel pipe. As a result of the poor quality of bore water and maintenance costs of equipment much of the stock and domestic water supply on these properties is from ground tanks. Of more than ten bores sunk in the Scotia only two are still functional but at disused bores significant mechanical artefacts remain such as the remains of a pump at the disused

SCOTIA COUNTRY HISTORY AND SIGNIFICANCE



Figure 7. Cultural plantings: Kurrajong and cactus – Nanya



Figure 8. Belah Paling fence and Double Post-and-Rail fence on Nanya Station



Figure 9. Remains of Southern Cross bore pump on Ennisvale Station

Crystal Bore on Ennisvale Station (Figure 9). It is important that artefacts such as this are retained in situ since they provide evidence of past disturbance.

On properties managed for conservation a high priority is reduction in total grazing pressure from exotic animals including rabbits and feral goats, and elevated populations of native kangaroos. A key

strategy for this is closure of ground tanks, preferably by filling and returning the land to the original landscape profile (Figure 10). In most cases however the high cost precludes total landscaping and they are closed by blocking the inlets.

SCOTIA COUNTRY HISTORY AND SIGNIFICANCE



Figure 10. Functional and landscaped ground tanks

CONCLUSION

The Scotia country is a biologically diverse region through being on the boundary of two biogeographic regions and having a suite of plant communities associated with a saltlake system. The pastoral history of the Scotia has led to the survival of intact plant communities with low levels of disturbance compared to most of western NSW. This is linked to the history of grazing leases in NSW, the limited water supply and the generally unpalatable vegetation which together have led to a short and light grazing history. The result is a nationally significant refuge for biological diversity. The biological diversity and intactness provide significant research opportunities. The low pastoral value has in recent years led to land use changes which fortuitously include four of the six key constituent properties now being managed for conservation. This change to conservation management has been opportune as a combination of technological change – cheap reticulation of water with black PVC pipe – and a change from Merinos to goats or Dorper sheep – would have led to heavier grazing pressure. The properties of the Scotia are also of cultural significance as examples of small 20th century homestead leases of contrasting character and infrastructure to the better known large pastoral holdings such as Kinchega, Yanga and Toorale.

ACKNOWLEDGEMENTS

I wish to acknowledge the generous assistance given by many people in providing information on the history of the Scotia. In particular I thank Rusheen Craig, Jeanette Hope, Geoff Rhodda (dec.), Norm and Norma Scadding and Maxine Withers. I also thank many colleagues for their assistance in fieldwork in the Scotia and Peter Bevan who inspired my interest in pastoralism.

REFERENCES

- Benson, J. S., Allen, C. B., Togher, C. and Lemmon, J. (2006). New South Wales Vegetation Classification and Assessment: Part 1 Plant communities of the NSW Western Plains. *Cunninghamia* 9(3): 383- 450.
- Bradstock, R.A. (1990). Relationship between fire regimes, plant species and fuel in mallee communities. In: *The Mallee lands: a conservation perspective*. Proceedings of the National Mallee Conference, Adelaide, April 1989. Eds, J. C. Noble, P. J. Joss and G. K. Jones. CSIRO, Melbourne.
- Bradstock, R.A., Keith, D. and Auld, T.D. (1995). *Fire and conservation: imperatives and constraints on managing for diversity*. In: *Conserving Biodiversity - Threats and Solutions* (eds. Bradstock et al.). Surrey Beatty and Sons, NSW.
- Clewett, J.F., Clarkson, N.M., Owens, D.T. and Abrecht, D.G. (1994). 'Australian Rainman: Rainfall Information for Better Management'. Department of Primary Industries, Brisbane.
- Ferguson, J, Radke, B.M., Jacobson, G.J., Evans, W.R., White, I.A., Wooding, R.A., Whitford, D. and Allan, G.L. (1995). The Scotia groundwater discharge complex, Murray
- Florentine S. K. and M. E. Westbrooke. (2005) Invasion of the noxious weed *Nicotiana glauca* R. Graham after an episodic flooding event in the arid zone of Australia. *Journal of Arid Environments* 60: 531-545
- Harden, G.J. (ed.) (1990-93). *Flora of New South Wales*, Vols. 1-4. New South Wales University Press, Sydney.
- Hardy, B. (1969). *West of the Darling*. Jacaranda, Brisbane.
- Heathcote, R.L. (1965). *Back of Bourke*. Melbourne University Press, Carlton.
- Jeans, D. N. (1972). *An Historical Geography of New South Wales*. Reed, Sydney.
- Jervis, J. (1947). *The West Darling Country: Its Exploration and Development*. Read before the Royal Australian Historical Society September 1947.
- Land and Property Information NSW (2001). *Parish Maps, Western Lands Division Set*. Land and Property Information, Bathurst.
- Lennon, J. (2007). Beyond the Pale - the plight of remote area heritage. In *Extreme Heritage : ICOMOS conference held at James Cook University*, Cairns, 19-21 July 2007.
- MacDonald, A.C. (1879). *Map of the Riverina and the Northern and Northwestern Pastoral Districts, New South Wales*. A.C. MacDonald, Melbourne.
- Noble, J. C. (1989). Fire studies in mallee (Eucalyptus spp.) communities of western New South Wales: the effect of fires applied in different seasons on herbage productivity and their implications for management. *Australian Journal of Ecology* 14(2) 169-187.
- NPWS (2001). *Tarawi Nature Reserve, Plan of Management*. NSW National Parks and Wildlife Service, Sydney.
- NPWS (2003). *Black-eared Miner (Manorina melanotis) Recovery Plan*. NSW National Parks and Wildlife Service, Sydney.
- Pickard (1994) Do old survey plans help us discover what happened to western New South Wales when Europeans arrived. In: *Future of the Fauna of Western New South Wales*, eds. D. Lunney, S. Hand, P. Reed, and D. Butcher. *Transactions of the Royal Society of New South Wales*.
- Pickard, J. (2009) *Illustrated glossary of Australian rural fence terms*. Heritage Branch, News South Wales Department of Planning, Sydney. Heritage Branch Report HB 09/01.
- Stanley, R.J. and Lawrie, J.W. (1980). Pastoral use of mallee in the Western Division of New South Wales. In 'Aeolian Landscapes in the Semi-arid Zone of South Eastern Australia'. Proceedings of

SCOTIA COUNTRY HISTORY AND SIGNIFICANCE

- a Conference held at Mildura, Victoria, in October 1979. (Eds R.R. Stannier and M.E. Stannard.) pp. 231-242. Australian Society of Soil Science Inc., Riverina Branch.
- Sydney Morning Herald*, 27 September 1928
- Thackway, R. and Cresswell, E. D. (1995) *An Interim Biogeographic Regionalisation for Australia: A Framework for Setting Priorities in the National Reserves System Cooperative Program*, Version 4.0 Australian Nature Conservation Agency, Canberra.
- The Argus*, 12 February 1876
- Wentworth Telegraph and Murray Darling News*, 18 November 1882
- Westbrooke, M. E. (1990). Effects of Grazing Pressure on Weediness in Mallee Communities – Studies at Mallee Cliffs National Park and Nanya Station, Southwestern New South Wales. In: *The Mallee lands: a conservation perspective*. Proceedings of the National Mallee Conference, Adelaide, April 1989. Eds, J. C. Noble, P. J. Joss and G. K. Jones. CSIRO, Melbourne.
- Westbrooke, M. E. (2010). *Nanya Station Western New South Wales: Conservation Research Education*. University of Ballarat, Mt Helen.
- Westbrooke, M. E., Miller, J. and Kerr, M. (1998). Vegetation of the Scotia 1:100,000 map sheet. *Cunninghamia* **5**(3): 665-684
- Westbrooke, M.E. (1998). *The Ecology and Conservation Status of Belah Woodlands in South Eastern Australia*. PhD Thesis La Trobe University, Bundoora.
- Westbrooke, M.E. and Florentine, S.K. (2005) Rainfall-driven episodic flood events: Are they a major factor in moulding Australian arid land vegetation patterns? *Australian Geographer* **36**: 171-181.
- Westbrooke, M.E., Florentine, S.K. and Milberg, P. (2005) Arid land vegetation dynamics after a rare flooding event: influence of fire and grazing. *Journal of Arid Environments* **61**: 249-260.
- Westbrooke, S. and Westbrooke, M. (2010) Balancing heritage and environmental conservation Management of small homestead leases in a remote pastoral landscape. Outback and Beyond, Australian ICOMOS Conference, Broken Hill April 2010.
- Western Lands Commission, (1975). *Annual Report*. Western Lands Commission, Sydney.
- Withers, M. (1989). *The Bushmen of the Great Anabranch*. Withers, Woodlands.
- Young, M.D., Gibbs, M., Holmes, W.E. and Mills, D.M.D. (1984). Socio-economic influences on pastoral management. In: Harrington, G.M., Wilson, A.D. and Young, M.D. eds. *Management of Australia's Rangelands*. CSIRO, Melbourne.