

Western Division newsletter

ISSN 0314 - 5352

Number 106

www.agric.nsw.gov.au/reader/wdn

May/June 05

Produced for landholders in
the Western Division of NSW



Living in an oven – dire alert for NSW

By Stephanie Peatling
Environment Reporter, Sydney Morning Herald.
This article appeared in the Sydney Morning Herald on
15 November 2004 and is reprinted with their permission.

Climate change will stretch fire and rescue services within decades as parts of NSW face searing heat over 35 degrees for more than 100 days every year.

A CSIRO and Bureau of Meteorology report, to be presented to an international taskforce today, warns of dire consequences in the next 25 to 65 years, with more hot spells and fewer cold snaps.

‘Increases in hot days and hot spells can increase bushfire risk, human mortality and energy demand for air-conditioning,’ says the report, obtained by the *Herald*. ‘Heat stress to animals and crops is likely to increase. Transport infrastructure is also likely to be affected, with greater frequency of buckling of railway lines and melting of road tar.’

The Premier, Bob Carr, warned yesterday that the financial cost of climate change would only increase as the State Emergency Service and the Rural Bushfire Service faced more severe conditions for longer periods.

‘Recent flash floods and storms damaged houses, roads and farmlands,’ Mr Carr said. ‘This study is a warning that there may be more dramatic climatic extremes ahead unless we act.’

Mr Carr will host meetings this week of the International Climate Change Taskforce, a group of 16 scientists, politicians and business leaders working on ways to reduce greenhouse gas emissions after 2012, the last year covered by the Kyoto Protocol.

The report, commissioned by the State Government, focuses on the number of extreme weather events, such as the number of consecutive days over 35 degrees or below zero.

It completes the picture of NSW’s future weather following an earlier volume that predicted average temperature rises of up to 6.4 degrees in parts of NSW by 2070, while rainfall could drop by as much as 40 per cent.

The new report says warmer temperatures could harm crops such as stone fruits and some grapes. Towns in the Far West, such as Wilcannia, Walgett and Cobar, will be worst hit. Wilcannia already has 59 days a year above 35 degrees and 13 periods when the temperature remains that high for three or more consecutive days. By 2030 its residents can expect up to 83 days above 35 degrees. In 2070, it could be 136 days, and 37 longer stretches.

Canberra and Bathurst may become more temperate. Canberra is now below zero on 62 days a year, but this could drop to 39 by 2030 and just nine days by 2070.

In this issue ...

Living in an oven – dire alert for NSW

Sixteen years of landcare

Broken Hill collection finally returned home

Sheep nutrition in pastoral South Australia

Bourke women elders tell their story in new book

LMD update

Book review

Key species for sheep nutrition in pastoral South Australia

Broadscale fox control to assist mallefowl

Western Lands Advisory Council COMMUNIQUE

Continued on page 15

Jason Cody
Regional Natural Resource
Management Facilitator,
Western Catchment
Management Authority

Welcome to the May-June edition of the Western Division Newsletter.

Once again there are a wide variety of articles indicating the diversity of activities going on in the Western Division, from funding opportunities to fox control there is a wealth of information to be had. Not only are production and natural resource management issues well covered, community and cultural articles are becoming more prevalent.

Articles about the Emmdale Landcare group, the return of artefacts and the release of a book titled 'Aboriginal Women's Heritage: Bourke' show an increasing interest and desire to acknowledge the Aboriginal and social history, along with what is happening in the community.

Contributions from South Australia on the nutritional value of rangeland pasture for sheep, will provide some food for thought on the subject of feeding supplementary nutrients. The articles highlight the nutritional values of various plants and the potential to increase production through the addition of supplementary nutrients to the diet of stock.

Once again, I would like to take the opportunity to echo previous editors in encouraging community and Landcare groups, along with producers in contributing articles. These items can be of your successes, new ideas or upcoming events.

Finally, a big thanks to all who have contributed articles to this edition. If you would like to contribute to, pass comment on or provide suggestions for future editions please don't hesitate to contact your local DIPNR, NSW DPI or CMA office for assistance.



NSW DEPARTMENT OF
PRIMARY INDUSTRIES



Department of
Infrastructure, Planning and Natural Resources

The Western Division Newsletter is jointly produced by NSW Department of Primary Industries and the Department of Infrastructure, Planning and Natural Resources with funding assistance from the Department of Environment and Conservation (NSW) and the Western Catchment Management Authority.



Sixteen years of Landcare

Bill Ellicott
Chair, Emmdale Landcare Group

The Emmdale Landcare Group (ELG) has now survived 16 years of Landcare, not without its ups and downs. Because of a small group of dedicated people we are still meeting, still laughing, still being innovative and certainly not aiming to be down in the near future.

Our latest venture (pictured) is an 8ft and 4ft (we're not metric yet!) information sign at the McCulloch's Range rest area on the Barrier Highway between Wilcannia and Cobar in the heart of our ELG area.

This sign was the result of an enthusiastic effort by all members of this group over an eight-month period, with great help from our Broken Hill and Cobar facilitators Melinda Fletcher and Jason Cody. We have a membership that wavers in the early teens and includes John and Becky Blain, our Flying Padre, National Parks and Wildlife Service, Paroo Darling (I think a first in the State), a retired great grandmother from Wilcannia and a group of optimistic and light hearted landholders.

Our achievements over the years apart from the usual woody weeds, rabbits



and grazing pressure has been, in presenting a paper at the 2003 National Landcare Conference in Darwin – *Emmdale Landcare - Embracing the Triple Bottom Line* and a cookbook – *1001 way with a dead sheep* which sold Australia wide and various individual projects on each property.

We meet about 3 times a year and rotate our meeting among the members properties, that's when you have a big clean up! We have also been accepted as an S355 Committee of the Central Darling Shire so we no longer have to carry our Public Liability Insurance.

I think the most important past function of our group is not so much what happens at the meeting as the get together round the barbie later and a chance for the ladies to have a yarn as Landcare is our only community group still functioning.

Broken Hill collection finally returned home

by Jacki Roberts, Public Affairs DEC

An extensive collection of Aboriginal artefacts has been returned to Wilyakali country after being removed from locations around the Broken Hill area in the 1960s, for a private collection.

The private collection was purchased by the Department of Environment and Conservation (DEC) and has been returned to the rightful owners – the Broken Hill Local Aboriginal Land Council, on behalf of the Wilyakali people.

Department of Environment and Conservation Western Aboriginal Heritage

Section Manager Bob Sutherland said the artefacts included many significant items.

'All of the items are significant in terms of their return to country and they include grindstones and grinding dishes, axes and other objects,' Mr Sutherland said.

'Most of the items returned were part of a collection put together by adventurer Jack Absalom, but they also include items taken under the provisions of the NPW Act in the Broken Hill region by archaeologists during the mid-1970's.

'DEC has been meeting with the Broken Hill Local Aboriginal Land Council to determine how the community wanted to repatriate the items.

Continued on page 7

Sheep nutrition in pastoral South Australia

by Jim Franklin-McEvoy
Productive Nutrition Pty Ltd

Findings of a nutritional research project conducted by Productive Nutrition Pty Ltd, commissioned by the Central North Eastern Farm Assistance Program (CNEFAP) administered by Primary Industries South Australia. The findings of this research apply particularly to graziers in South Australia's central northeast pastoral zone. However, NSW Western Division graziers may find the information useful.

For further information, please contact:
Productive Nutrition Pty Ltd,
PO Box 513, Magill 5072
Ph: (08) 8331 9618
Fax: (08) 8332 2178
Email:
info@productivenutrition.com.au
Website:
www.productivenutrition.com.au

The pastoral industry is the dominant land user of Australia's semi-arid and arid regions and accounts for 20–25% of the nation's sheep population. However, compared to the higher rainfall areas of Australia, there is an overall lack of information available for pastoralists to better manage the nutrition of their sheep. Animal nutrition in pastoral areas involves managing the land and ecosystem for animal production, rather than simply formulating rations or supplements based on a few species of plants. Because the quality and availability of plants in pastoral systems varies greatly, the diet of animals grazing rangelands varies considerably over time and between locations.

In an attempt to provide graziers with a better understanding of how to optimise and strategically manage the nutrition of their sheep, four pastoralists, along with consultants from Productive Nutrition Pty Ltd, secured funding through the Central North East Farm Assistance Program (CNEFAP) to systematically study the nutritive value (NV) of the key plant species in their systems, and to use blood testing of sheep to monitor animal performance. The study period was from August 2003 to November 2004.



(Right) A productive pastoral system contains a mixture of species, including grasses and forbs, as well as shrubs including *Acacia*, *Atriplex* and *Maireana*. This diversity of species ensures ecosystem stability and provides sheep with a reasonably balanced diet.

Blood testing

Blood sampling sheep to determine their mineral status is an affordable way of alerting graziers that sheep health may be suboptimal. Producers should discuss with their veterinarian when would be the best time to sample, but from before joining to after weaning is ideal so that remedial action can be taken if necessary.

The overall mean blood test results from this project appear in Table 1. Blood calcium status on all properties in the study was below recommended levels while potassium and glutathione peroxidase (GSH PX, an indicator of selenium status) were elevated.

Table 1: Mean blood test results from two sampling sessions on each of the four properties in the study. Ca = calcium, Cu = copper, GSH PX = glutathione peroxidase (indicator of selenium), K = potassium, Mg = magnesium, P = phosphate, Vit B12 = vitamin B12 (indicator of cobalt), Zn = zinc

	Ca mmo/L	Cu uM	GSH PX U/gHb	K mmol/L	Mg mmol/L	P mmol/L	VitB12 pM	Zn uM
MEAN	2.6	11.9	767	5.9	1.1	2.1	2105	14.7
Recommended range	2.9–3.2	9–25	50–550	3.9–5.4	0.9–1.3	1.6–2.4	400–5000	7–25

The low blood calcium is of concern since none of the sheep sampled were pregnant or lactating. The calcium status of lactating animals would certainly be lower than the above results, increasing the risk of hypocalcaemia and related disorders, leading to poor ewe and lamb survival and therefore poor lambing percentage. Blood calcium levels were lower in older sheep, suggesting lifetime calcium deprivation due to insufficient calcium intake and/or retention. Low blood calcium is probably common throughout pastoral SA and is likely to be a major cause of poor lambing success in this area but is reasonably easy to remedy.

The high potassium levels in these sheep are sufficiently high to be increasing the incidence of potassium-related disorders which include impaired calcium status, hypomagnesaemic tetany, and heart disorders.

In addition, copper deficiency occurred on two properties in 2004 while zinc was low on one property in both years.

Both copper and zinc have roles in fertility and bone health. Thus, the low calcium, copper and zinc and high potassium observed in this study suggest that suboptimal mineral status of grazing sheep may be responsible for the reduced fertility and low lambing percentages that are common in pastoral systems. This finding highlights the value of using blood testing as a tool to monitor animal health in the pastoral regions and to make management decisions if necessary.

While the GSH PX is well above recommended levels, it is probably not sufficiently high to be limiting animal performance as sheep tolerate high selenium levels to a much greater extent than for minerals such as potassium and calcium.

Plant sampling

Plant samples were collected every two months on each of the properties involved, and sent to FeedTest, Victoria, for nutritive analysis. Due to the large number of samples collected, only the main nutritional strengths and weaknesses of the main species appear in Table 2.

Target NVs for this report were: crude protein (CP) = 12%DM; metabolisable energy (ME) = 8MJ/kgDM; neutral detergent fibre (NDF) = 30%. Recommended mineral targets were based on Underwood & Suttle (1999)

Table 2: The nutrition strengths and weaknesses of the main plant species identified in the CNEFAP project. Some plants may have alternative common names to those shown here.

'High' refers to a nutrient that a species consistently contains above adequate levels;

'Low' refers to a nutrient that a species consistently contains below adequate levels;

'xs' refers to a nutrient that a species consistently contains levels that are well in excess of requirements and may be toxic.

Botanical name	Common name	Strengths	Weaknesses
<i>Acacia paporacarpa</i>	Western Myall		Low ME, P, S, Zn
<i>Atriplex holocarpa</i>	Annual saltbush	High CP	xs Cl, K, Mg, Na
<i>Atriplex nummularia</i>	Old man saltbush	High CP, ME	xs Cl, K, Mg, Na. Low NDF
<i>Atriplex vesicaria</i>	Bladder saltbush	High ME	xs Cl, Fe, K, Mg, Na. Low P, Zn
<i>Carrichtera annua</i>	Ward's weed	High CP, Ca	xs Fe
<i>Maireana appressa</i>	Bluebush	High CP, Ca	xs Fe, Na. Low P, Zn
<i>Maireana astroiticma</i>	Bluebush	High Ca	xs Cl, K, Na. Low CP, P
<i>Maireana georgii</i>	Sanity bluebush	High CP	xs Cl, Na. Low P, Zn
<i>Maireana pyramidata</i>	Black bluebush	High CP, Ca	xs Cl, Fe, Mg, Na. Low P, Zn
<i>Maireana sedifolia</i>	Pearl bluebush	High CP	xs Cl, Na. Low P, Zn
<i>Medicago sp.</i>	Medic	High CP, Ca	xs Al, Cu, Fe
<i>Myoporum platyocarpum</i>	Sugar wood	High ME	xs Cu. Low NDF, P, Zn
<i>Rhagodia sp.</i>	Rhagodia	High CP, Ca	xs Cl, K, Mg, Na. Low P, Zn
<i>Salvia verbenaca</i>	Wild sage	High CP, Ca	xs Al, Cu, Fe. Low Na
<i>Sclerolaena ch., dia., eria.</i>	Copperburr	High CP, ME, Ca	xs Cl, Fe, Na. Low P, Zn
<i>Sclerolaena obliquicuspis</i>	Limestone copperburr	High Ca	xs Na, Fe, NDF. Low P, Zn
<i>Sisymbrium erysimoides</i>	Mustard weed	High CP, ME, Ca	xs Fe, K, Na. Low NDF, P
<i>Soliva pterosperma</i>	Bindii		xs NDF, Al, Cu, Fe, Na. Low ME, P
<i>Stipa sp.</i>	Speargrass		xs NDF. Low ME, P, S, Zn
<i>Tetragonia tetragonoides</i>	Spinach	High CP, ME, Ca	xs Al, Cu, Fe, K, Na. Low NDF

Many species in this study contained low energy levels suggesting that energy intake by animals is limiting their performance. There was some significant variation in plant NV between properties, suggesting that producers should determine NV of their main species on their own property in order to gauge the NVs of their own feed.

In addition, feed quality varied across the year, with CP being highest in September–October and NDF being highest in summer. This was best illustrated in *Medicago*, where spring CP and NDF were 27% and 35% respectively while in summer the CP of the stubble fell to 15% and the NDF rose to 60%.

All annuals had poorer nutritive value in summer and autumn, often with insufficient energy and protein to sustain animals at maintenance level of production. The high fibre content also lowers voluntary feed intake.

However many shrubs, especially the *Atriplex* and *Maireana*, contain usefully high levels of nitrogen throughout the year. This additional nitrogen improves overall feed utilisation while providing adequate dietary protein.

The very high salt levels of these species (Na up to 6%, K up to 4%, Cl up to 6%) present grazing animals with a further nutritional challenge although there is little producers can do about this, other than to ensure an adequate supply of low-salinity drinking water.

Better understanding sheep nutrition in pastoral South Australia

This study, which is representative of the central north east pastoral zone of South Australia, identifies some nutritional concerns for sheep producers.

It is first vital to recognise that the range of plant species available provide sheep with a reasonable diet to grow wool and rear lambs while maintaining the health and stability of a relatively fragile natural environment. In no agricultural system does a single plant species provide a perfect, balanced diet but as is evident in a pastoral system, most species contribute positively to animal nutrition. This shows the importance of managing the system to ensure a balance between the higher quality but low stability annuals and forbs and the lower quality but more stable shrubs.

Based on the plant sampling results, it would appear that CP intake is adequate due to the number of plants which contain adequate or high CP levels. Most of the *Atriplex* and *Maireana* species contain 17–20% CP, which is adequate for pregnant and lactating ewes, meaning that there is probably little value in providing sheep with a dietary protein supplement.

However, energy content of the majority of species is less than ideal, meaning that supplementing the diet with a source of energy should realise a production benefit.

Barley is typically the most cost-effective energy source for sheep but there is also the risk of excessive intake leading to acidosis which may result in sheep deaths. Successful feeding of barley-

based supplements requires regular feeding (3+ times per week) and careful monitoring. Due to the constraints of properly managing a supplementary feeding program in pastoral country, lupins are commonly fed. Lupins are a good source of both energy and protein and although the protein is probably not required in these systems, sheep cannot get grain poisoning from lupins so they are a safer supplement than barley. Oats are a good alternative as they provide energy without having high levels of protein and also do not cause grain poisoning.

Based on the blood testing, supplementary feeding with calcium, copper and zinc should be beneficial. Calcium can be provided as a dump of crushed limestone or gypsum near watering points. Calcium, copper and zinc can be supplied as a lick, also located near watering points.

It may be worthwhile considering the use of hay-based pellets manufactured for feeding to ewes during joining and pregnancy. The hay will slow rumen fermentation of the grain in the pellet and any minerals that are required (as determined by blood testing) can be added during the manufacturing process. Given the current high sheep prices (2004–05), strategic supplementary feeding may boost lambing rates and be economically viable.

Conclusion

This study suggests that sheep in the central north east of South Australia consume a diet that leaves them deficient in energy, calcium and in some cases copper and zinc. These four nutrients are all involved in fertility and growth, so supplementing the diet of pastoral sheep with these nutrients is likely to improve animal production and ultimately lead to improved economic viability of the whole property.

Whilst every care is taken to ensure accuracy and reliability in the information contained in this article, no responsibility will be taken for the consequences which may arise from application of the information without further consultation, as many other factors may come into effect. .

Bourke women elders tell their story in new book

A unique collection of life stories of Aboriginal women elders from the Bourke region was released at a special ceremony on Bourke wharf earlier this year.

An initiative of the Western Aboriginal Heritage Section of the Department of Environment and Conservation (DEC), it's hoped *Aboriginal Women's Heritage: Bourke* will raise the profile of the role of local Aboriginal women in our recent history.

DEC Western Aboriginal Heritage Section Manager Bob Sutherland, said the collection would assist to fill in the gaps of history books which see Aboriginal women's stories often overlooked.

'Ten elders from the Bourke region have told their life stories for the publication – from memories of a well-respected grandfather, to working on stations and fishing without hooks and rods, this truly is what happened in their own words.

'One thing that radiates from the book apart from the beautiful images, is a real sense of pride – pride from taking part in the oral history project and pride in their connections to country and of the work they and their families contributed to it.

'You also get a sense of their love of the Bourke area and its rugged red earth, from a woman's perspective,' Mr Sutherland said.

Dot Martin, whose story is one of those featured in the book said the project had meant a lot to her.

'It is very important for Aboriginal women to be given an opportunity like this – an opportunity to tell their own stories, especially the women from out here in Bourke. And our kids need to hear these stories.

'They need these books in the schools so the kids can read about their own heritage and history. It will give them a pride and



Bourke women elders at the launch.

sense of who they are as Aboriginal people, they will know the struggle and appreciate where they have come from', she said.

The Aboriginal women elders who have contributed are Cecily Hampton; Judy Harland; Dot Martin; Heather Mieni; Caroline Ramharter; Alma Jean Sullivan; Mary Sullivan; June Smith; Doris Turner and Grace Williams. Grace Williams has sadly passed on, but her family want her story to remain in the publication to honour her memory.

The book can be purchased online at www.bookshop.nsw.gov.au

'Broken Hill collection finally returned home' continued from page 3

'As a result of these discussions, the items are being housed in a keeping place and are on show in the Land Council office on behalf of the Wilyakali people.

'This repatriation is part of an ongoing program by DEC to reunite Aboriginal people with artefacts and remains which have been removed over many decades,' Mr Sutherland said.

Broken Hill Local Aboriginal Land Council Chairperson Maureen O'Donnell said the return of the collection was due to a successful partnership between BHLALC and DEC.

'It is wonderful to have these items come back to where they belong. They need to come home so we can feel at peace.' Ms O'Donnell said.

Lower Murray Darling CMA Update

by Pixie Jonasson
Catchment Education and
Media Relations Officer,
LMD CMA
Ph: (03) 5021 9432
Fax: (03) 502 11308
Mob: 0429 035 961

Information about the Lower
Murray Darling CMA, projects
and catchment issues can be
viewed at:
www.lmd.cma.nsw.gov.au

Rangeland Incentives Strategy

The Lower Murray Darling Catchment Management Authority (LMD CMA) has adopted a Rangelands Incentive Strategy (RIS) for the provision of 'Stewardship' and 'On-Ground Works' incentives for landholders. In order for landholders to input into the funding allocation process, a two-stage approach has been adopted. Stage 1 will be to seek landholder expressions of interest, which will be reviewed by LMD CMA, followed by Stage 2, being a more detailed submission and evaluation process.

A Landholder Information Sheet outlines the range of possible incentives to be considered by LMD CMA, and the priority vegetation communities and vegetation targets from the LMD Catchment Blueprint.

Proposals that best address the Catchment Blueprint Targets will be considered most favourably. LMD CMA and sponsors shall be recognised through signage and/or promotion.

Rangelands Incentives Funding

The Rangeland Incentives Strategy so far has received approval for \$307,900 from the NLP (National Landcare Program) and will work to secure the sustainability of the mixed farming/rangelands and rangelands areas.

Future funding from the Natural Heritage Trust (NHT) will expand the incentives on offer beyond conservation and riparian areas.

During this first funding stage, the incentives are available for both on-ground works and the stewardship scheme as follows:

On-ground works – funding to landholders wishing to undertake works

within conservation reserves and riparian areas. Such works include fencing, alternative water point installation and decommissioning, weed control, revegetation, rabbit control, wetland management, ecological use of fire, education and training to improve vegetation condition across the Catchment.

Stewardship component – funding for management agreements, to achieve conservation, rehabilitation and/or sustainable grazing.

For further information about rangelands incentives, contact the LMD CMA on Ph: (03) 5021 9460.

Investment Strategy 2004–2007

LMD CMA recently met in Sydney with State and Federal Government representatives to clarify details in its 2004-07 Investment Strategy. LMD CMA is pleased to announce that it is one of the first CMA's in the State to submit its Investment Strategy, which strategically focuses natural resource management investment in the Lower Murray Darling Catchment.

LMD CMA is hopeful that the Investment Strategy can be approved within the next month, in order for the new round of on-ground works to proceed.

Catchment Action Plan (CAP)

Consultation on the Catchment Action Plan will commence once the Investment Strategy is signed off by Government. LMD CMA will be holding a series of Information Sessions on the CAP around the Catchment over the coming months, giving people and groups an opportunity to discuss natural resource management, investment and property vegetation planning.

Menindee Lakes

The Menindee Lakes Environmental Impact Statement (EIS) is scheduled to be on public exhibition in June 2005.

Darling Anabranch

The Darling Anabranch Pipeline and Environmental Flows Project was recently approved. Construction of the pipeline is planned for later in 2005 and it is expected that the first meeting of the Darling Anabranch Eflows Committee will take place in May 2005. An Information Day on riverine and wetland management for properties at the lower end of the Darling Anabranch was held recently to progress water management issues for Tona, Neilpo and Oakbank Stations.

Draft Invasive Scrub Discussion Paper

LMD CMA agreed on a letter to be submitted to the Hon Craig Knowles, Minister for Infrastructure and Planning, and Minister for Natural Resources Minister on the Draft Invasive Scrub Discussion Paper.

Staff update

Recent appointments to the LMD CMA, based in the Buronga Office, are:

Kathryn Biesaga – Soils/Cropping Officer

Jacinta Cain – Catchment Officer (PVP's and Projects)

Kerryn Hart – Catchment Support Officer

Noel Hayward – Team Leader PVP's and Projects

Kathy Markotis – Team Leader Catchment Coordination

Troy Muster – Catchment Officer (Projects)

Local logo identity

Following a detailed review process, LMD CMA Board approved a local logo, to accompany the generic State logo, which reflects key attributes of the Catchment.

The logo incorporates a design theme by local indigenous artist Peter Peterson, which combines Aboriginal, dryland, and irrigation components, including the Murray and Darling Rivers and a silhouette of the iconic Murray Cod.

The Board also endorsed a statement supporting the logo, to reflect LMD CMA core values and beliefs:-

'Respect for our communities and the environment'

Book review:

Useful trees and shrubs for Central West NSW: the glove box guide

by Peter Milthorpe and Margaret Wynne, 2004 ISBN 0734716044

75 species of trees and shrubs have been described in this glossy GBG, designed to assist landholders to select more appropriate species for planting. Although the focal region for the book is the central west of NSW, bounded by Narromine and Forbes in the east, Quambone in the north, Gilgunnia and Hillston in the west, and Narrandera in the south, readers from a larger area of NSW will find the book useful. Eucalypts, acacias and a range of other species, including several introduced trees, are described.

by Vicki Glover, Librarian,
NSW Department of Primary Industries

In selecting species for inclusion in the GBG, preference has been given to those with a range of uses or functions, e.g. shade, forage, honey production, shelter, timber, oil and ornamental. Each plant is described by its form, habitat, uses, buds and flowers, and readers should find the glossy photos useful in identifying species. A table summarises the attributes of all species and indicates uses, salt tolerance and preferred soils.

The majority of data come from collaborative research and demonstration studies established at the Condobolin Agricultural and Advisory Station since 1950. People interested in seeing the mature trees can visit the Research Station and follow signposted walks.

Available for \$28.00 plus p&h from NSW Department of Primary Industries bookshop on 1800 020 374 or via email to bookshop@agric.nsw.gov.au, or from Central West Farming Systems at Condobolin on telephone (02) 6895 1001.

Key species for sheep nutrition in pastoral South Australia

by Jim Franklin-McEvoy
Productive Nutrition Pty Ltd

Findings of a nutritional research project conducted by Productive Nutrition Pty Ltd, commissioned by the Central North Eastern Farm Assistance Program (CNEFAP) administered by Primary Industries South Australia. The findings of this research apply particularly to graziers in South Australia's central northeast pastoral zone. However, NSW Western Division graziers may find the information useful.

For further information, please contact:
Productive Nutrition Pty Ltd,
PO Box 513, Magill 5072
Ph: (08) 8331 9618
Fax: (08) 8332 2178
Email:
info@productivenutrition.com.au
Website:
www.productive nutrition.com.au

The nutritive value, a photograph and relevant notes of nine key plant species of the central northeast are included in this fact sheet. It is best to consider the results in the context of the target nutritive values (NV) shown below. The values shown in this report are based on a 16-month study, starting in August 2003, conducted by four pastoralists in this region. Plant samples were collected every two months, and for most species the average values shown

here are based on the collection of at least ten samples across the sampling period.

Target plant nutritive values (NVs) appear below. These targets are based on the research of many scientific studies and are aimed for sheep in maintenance condition. Lactating ewes will have greater nutrient demands, especially for energy, calcium and phosphorus.

Target plant nutritive values for sheep in maintenance condition

CP %	NDF %	DMD %	ME MJ/kg	Ca %	Cl %	K %	Mg %	Na %	P %
12.0	30	60	8.0	0.2–0.8	0.1–0.2	0.5–0.8	0.12–0.2	0.1–0.2	0.16–0.4
S% %	Al mg/kg	B mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Mn mg/kg	Mo mg/kg	Se mg/kg	Zn mg/kg
0.14–0.26	< 2000	1.4–150	0.1–0.2	7–10	30–50	20–40	0.5	0.1–0.2	20–33

CP = crude protein

NDF = neutral detergent fibre

DMD = dry matter digestibility

ME = estimated metabolisable energy

A = aluminium

B = boron

Ca = calcium

Cl = chloride

Co = cobalt

Cu = copper

Fe = iron

K = potassium

Mg = magnesium

Mn = manganese

Mo = molybdenum

Na = sodium

P = phosphorus

S = sulphur

Se = selenium

Zn = zinc

Pop saltbush/annual saltbush (*Atriplex holocarpa*)

(Left): Annual saltbush is common, particularly in years with good winter



rainfall. It is high in protein, a good source of calcium but very high in chloride, potassium and sodium. The high levels of iron and magnesium may be associated with dust due to its prostrate habit.

CP %	NDF %	DMD %	ME MJ/kg	Ca %	Cl %	K %	Mg %	Na %	P %
17.5	30	74	10.0	1.4	5.2	2.57	0.65	5.94	0.22
S% %	Al mg/kg	B mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Mn mg/kg	Mo mg/kg	Se mg/kg	Zn mg/kg
0.35	1559	36	0.57	7.3	1531	97	1.28	0.38	29

Bladder saltbush (*Atriplex vesicaria*)

(Right): Bladder saltbush is a long-lived plant, with good estimated energy levels, high calcium but low phosphorus and zinc levels and excessive levels of salts.

This species must be protected from grazing before it defoliates during drought, as it cannot tolerate heavy, continuous grazing.



CP %	NDF %	DMD %	ME MJ/kg	Ca %	Cl %	K %	Mg %	Na %	P %
13.4	30	74	10.6	1.1	5.6	2.34	0.53	6.64	0.12
S% %	Al mg/kg	B mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Mn mg/kg	Mo mg/kg	Se mg/kg	Zn mg/kg
0.36	677	47	0.28	4.4	610	110	1.02	0.28	17

Ward's weed (*Carrichtera annua*)

(Right): Ward's weed was introduced from the Mediterranean and has become a common plant in pastoral Australia. It is high in protein and calcium and much lower in salts than the saltbushes and bluebushes. Due to its prostrate habit exposing the leaves to dust, iron content is high.



CP %	NDF %	DMD %	ME MJ/kg	Ca %	Cl %	K %	Mg %	Na %	P %
20.6	42	68	9.7	1.2	0.6	1.9	0.31	0.52	0.2
S% %	Al mg/kg	B mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Mn mg/kg	Mo mg/kg	Se mg/kg	Zn mg/kg
0.7	1890	32	0.67	6.3	1430	68	1.49	0.26	34

Climbing saltbush (*Einadia nutans* sp., formerly *Rhagodia nutans*)

(Right): Climbing saltbush is a widespread, palatable perennial. It is high in protein and calcium but contains excessive quantities of chloride, magnesium, potassium and sodium. It is low in phosphorus and zinc. It provides ewes with shade and shelter during lambing as well as being a haven for native birds and small mammals.



CP %	NDF %	DMD %	ME MJ/kg	Ca %	Cl %	K %	Mg %	Na %	P %
17.2	31	69	9.7	1.4	2.3	4.45	0.74	4.13	0.15
S% %	Al mg/kg	B mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Mn mg/kg	Mo mg/kg	Se mg/kg	Zn mg/kg
0.45	870	62	0.42	5.30	790	198	0.84	0.36	18

Black bluebush (*Maireana pyramidata*)

(Right): Black bluebush is only sparingly eaten and displays marked variation in palatability between individual plants. It is a good source of protein and calcium but contains excessive amounts of chloride, magnesium and sodium while being deficient in phosphorus and zinc. It is extremely drought tolerant.



CP %	NDF %	DMD %	ME MJ/kg	Ca %	Cl %	K %	Mg %	Na %	P %
16.8	38	63	9.1	1.1	1.8	1.89	0.67	5.95	0.13
S% %	Al mg/kg	B mg/kg	Co mg/kg	Cu mg/kg	Fe mg/kg	Mn mg/kg	Mo mg/kg	Se mg/kg	Zn mg/kg
0.26	1875	61	0.47	9	1544	235	0.76	0.25	14

Pearl bluebush (*Maireana sedifolia*)



(Left): Pearl bluebush is very long-lived plant that is mainly utilised during dry periods. It is a good source of protein but contains high levels of chloride and sodium. It is deficient in phosphorus and zinc and has a relatively low energy content. It cannot re-establish by spelling once grazed out, so must never be completely defoliated. [Photo: Ken Harrison, DLWC, 1992]

CP	NDF	DMD	ME	Ca	Cl	K	Mg	Na	P
%	%	MJ/kg	%	%	%	%	%	%	%
17.5	42	65	9.4	0.9	1.7	1.83	0.39	4.35	0.09
S%	Al	B	Co	Cu	Fe	Mn	Mo	Se	Zn
%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
0.2	1018	49	0.34	6.4	857	117	0.39	0.22	11

Medics (*Medicago* sp.)



(Left): Medics are nutritious plants and are valuable to the system despite being introduced. Fresh medic may have ME as high as 11MJ ME/kg, although this falls to 5.5MJ in summer. Protein content ranges from 15-27%. Aluminium and iron from dust contaminate the stubbles, leading to high levels of these two metals. Medic burrs are a vital feed during droughts.

CP	NDF	DMD	ME	Ca	Cl	K	Mg	Na	P
%	%	%	MJ/kg	%	%	%	%	%	%
19.8	48	57	8.1	1.4	0.4	1.47	0.29	0.23	0.26
S%	Al	B	Co	Cu	Fe	Mn	Mo	Se	Zn
%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
0.17	3900	45	0.12	12.3	3231	93	1.85	0.1	25

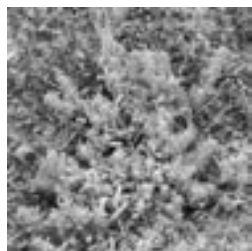
Speargrass (*Stipa* sp.)



(Left): Spear grasses are an excellent source of fibre (roughage). They are low in most minerals and are deficient in protein, energy, phosphorus and zinc. They are moderately palatable before seeding but once seeds have formed sheep should be removed as the sharp-pointed seeds can pierce eyes, lips and skin. [Photo: Plants of Western New South Wales, 1992]

CP	NDF	DMD	ME	Ca	Cl	K	Mg	Na	P
%	%	%	MJ/kg	%	%	%	%	%	%
7.5	68	53	7.6	0.4	0.5	1.09	0.11	0.12	0.1
S%	Al	B	Co	Cu	Fe	Mn	Mo	Se	Zn
%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
0.13	838	10	0.41	4.0	833	61	1.2	0.13	14

Copperburrs (*Sclerolaena chilicticapes*, *S. diacantha*, *S. eriacantha*)



(Above left): Silky copperburr (*Sclerolaena eriacantha*) and (below left) grey copperburr (*S. diacantha*) are nutritious plants, providing a good source of energy and protein. However, they contain excessive amounts of chloride, potassium and sodium and are deficient in phosphorus and zinc. Limestone copperburr (*S. obliquicuspis*) is of low NV, being high in salts and very low in energy.



CP	NDF	DMD	ME	Ca	Cl	K	Mg	Na	P
%	%	%	MJ/kg	%	%	%	%	%	%
19.3	42	70	10.2	1.0	1.7	2.1	0.38	4.7	0.14
S%	Al	B	Co	Cu	Fe	Mn	Mo	Se	Zn
%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
0.22	1785	29	0.75	9.5	1958	95	1.95	0.11	16

Understanding sheep nutrition in pastoral SA

It appears that sheep in the central northeast of South Australia consume a diet that leaves them deficient in energy, calcium and in some cases copper and zinc and this is supported by blood test results conducted during the study period.

These four nutrients are all involved in fertility and growth, so supplementing the diet of pastoral sheep with these nutrients is likely to improve animal production and ultimately lead to improved economic viability of the whole property.

The diet is further complicated by high intakes of salts, mainly sodium, chloride

Whilst every care is taken to ensure accuracy and reliability in the information contained in this article, no responsibility will be taken for the consequences which may arise from application of the information without further consultation, as many other factors may come into effect.

and potassium. Little can be done about the high salt intake as this is supplied by the most drought-tolerant and most protein-rich plants in the grazing system. It is therefore vital that sheep have adequate access to fresh or good quality water.

The digestibility of plants adds another factor, as plant digestibility will affect and limit the dietary intake of animals. Further research proposed in this area is currently being evaluated by AWI as the current system of measurement of NV appears to conflict with animal performance.

It is important that pastoralists do not overexploit the natural resource as many species will die out with overgrazing. Decisions relating to de-stocking, agisting and supplementary feeding need to be made well before the feed supply in the paddock becomes limiting and comprises animal performance. Animal performance may decline before visible symptoms of overgrazing occur.

Broad scale fox control to assist malleefowl

The regular autumn onslaught on foxes in National Parks and Wildlife Service reserves in the West is underway.

The autumn program is part of an extensive annual program of fox baiting by NPWS on reserves, from the air and on the ground. The on ground component is done cooperatively with neighbouring landholders, in a win-win situation for the malleefowl and domestic stock. Ultimately, the broadscale program creates a 300,000 hectare area with very low fox numbers covering the Round Hill, Nombinnie and Yathong Nature Reserves south of Cobar.

The most recent surveys of malleefowl mounds in the areas, shows the program is bringing rewards, with numbers of malleefowl holding and no decline in active mounds in any of the reserves surveyed. The surveys were carried out by NPWS staff from Cobar and Griffith in a helicopter.

NPWS Senior Ranger Hugh McNee said aerial surveys and monitoring were the most effective way to assess malleefowl populations.

‘An active mound shows that there is a breeding pair of malleefowl and knowing the number of active mounds allows us to monitor changes in breeding populations in that area. It also lets us know if the aerial and ground fox baiting programs, designed to protect malleefowl are working,’ Mr McNee said.

‘It is very pleasing to see that the number of active malleefowl mounds is not in decline, and fox control programs undertaken by NPWS on the reserves, and by landholders on adjoining properties, are working in protecting malleefowl and maintaining populations.

‘One of the reasons for the success of the program is the fox control work done by adjoining landholders. NPWS provides adjoining landholders with fox baits and this has helped established a large buffer zone around the reserves, maximising control impact.’

‘This results in a large area with very low fox populations, which removes one of the biggest risks to malleefowl chicks – predation by foxes,’ Mr McNee said.

The malleefowl mound surveys are part of an annual program monitoring malleefowl populations on Round Hill, Nombinnie and Yathong Nature Reserves south of Cobar and Tarawi Nature Reserve and Mallee Cliffs National Park in the south west of the state near Wentworth.



Western Lands Advisory Council COMMUNIQUE

Western Lands Advisory Council
P O Box 1840
Dubbo N.S.W. 2830
Phone: (02) 6839 1813
Mobile: 0419 279 610

1 March 2005

The second meeting of the Western Lands Advisory Council was held at Lightning Ridge on 17–18 February 2005

The primary agenda for the Council was to gain an overall appreciation of the complex issues in the area involving the dual land uses of mining and grazing, and the implications for land administration, to allow the Advisory Council to provide considered advice to Minister Knowles.

Council members had a guided tour including Lightning Ridge, the permissive occupancy area managed by Walgett Shire, Grawin, Glengarry, Sheepyards, and various other areas.

We were shown the by-product impacts of the mining processes, including the puddling tanks and coordinated and uncoordinated mullock heaps, various degrees of rehabilitation of old mining sites, legal and illegal dwellings and businesses on the permissive occupancy area and on grazing leases, impacts on vegetation and the evolving road systems.

Throughout the guided tour we had representatives present from the mining and grazing industries and the Department of Mineral Resources (now Department of Primary Industries), the Department of Infrastructure, Planning and Natural Resources and the Department of Environment Conservation.

The Advisory Council had separate meetings with representatives of miners, graziers, Department of Mineral Resources, Walgett Shire Council, and the Police, and were made aware of the various perspectives of the different groups.

In summary, the primary issues include: -

- Unresolved or unresolvable complications of dual legal rights to land use.
- Landholders perspective is the threats and impacts of ‘a group of individual miners’, whereas miners perspective is that they are ‘individuals who comprise a group’.
- Access rights and responsibilities.
- Legal and liability responsibilities relating to access, roads, public places and safety and use of unlicensed vehicles.
- Unapproved and uncontrolled establishment of public and private buildings on grazing and mining leases
- Environmental impacts of mining and of the mining industry.
- Inadequate rehabilitation of mine sites.
- Indefinite time scales for mining activities.
- Different standards imposed on graziers and on miners by different Departments eg: clearing and soil disturbance.
- Graziers’ loss of control of their established rights on their grazing leases, with no influence over the timing, the processes or the outcome.
- Lack of any mutually agreed and enforced operating procedures for mining activities.
- Inadequate level of resourcing by state and local governments for the scale of mining operations, no effective alternate resourcing options.
- Impacts of miners and mining on the privacy, security and business operations of graziers.
- Ineffective conflict resolution processes.

- Concern regarding the level of compensation and options for decommissioning of the grazing rights.

As a consequence, the Advisory Council resolved to provide an overall brief to Minister Knowles, and in particular for he to advise Minister Hickey :-

- That opal exploration and mining in the proposed new Opal Prospecting Area 4 (OPA4) should not proceed until an Environmental Impact Statement is conducted and the Walgett Shire Council prepares and has approved a Local Environment Plan to guide future development.
- That there is an essential need for the development and implementation of a management plan for OPA4, which is to include operational rules, provision of access for prospecting and mining, rehabilitation requirements, management of water supplies and native vegetation clearing processes.

Further, the Advisory Council resolved to advise the Minister that: -

- Where there are land use conflict areas from high density opal mining on Western Lands grazing leases an option must be established for the Government to purchase the grazing lease.
- Hudson Pear, an invasive, exotic offensive plant which has established around the mining claims and is now rapidly spreading must be controlled with assistance by the provision of special Government funding for chemicals and labour.

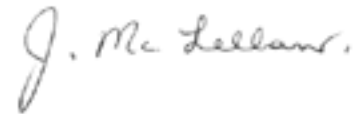
In other business,

- The council continues to operate with three positions not yet filled.
- Subject to one minor amendment, the council endorsed the definitions currently being used for the new Western Lands rural lease rental system. These definitions include 'Landholder, intensive agriculture and managed rehabilitation'.

- The council supported a departmental policy in relation to any requests for construction of banks or crossings in the Paroo River floodplain.
- The Council will be working on a submission to the discussion paper on Invasive Scrub.
- The Council is seeking the Minister as a matter of urgency, to implement a strategy for applying the Murray Darling Basin Commission Cap on extractions of water from the Barwon Darling, to establish certainty for all water users and to enable the development of a water sharing plan for the river.

Agenda items for the next meeting, which will be held on 1st – 2nd, June 2005 in Cobar, will include cultural awareness training, and discussion relating to a policy for conversion of agricultural leases to freehold.

Jenny McLellan
Chair



'Living in an oven – dire alert for NSW'
continued from page 1

The commissioner of the Rural Fire Service, Phil Koperberg, said climate change was 'already manifesting itself'.

'It follows that extremes of weather are going to produce a greater number of conditions such as high temperatures, strong winds and droughts that will lead to more fires. You don't have to be a rocket scientist to work that out.'

The behaviour of fires would change and become less predictable. 'We've just had the hottest October day on record followed by strong winds and a drought.'

The State Emergency Service's Philip McNamara is considering the impact on an already busy outfit. In October, it handled more than 4000 calls to storms in Coffs Harbour and Muswellbrook, and 'everybody has come to the conclusion that there will be more extreme events like storms and hail'.

Too darn hot

Average days above 35 degrees

	Now	2030*	2070*
Wilcannia	59	83	136
Cobar	41	65	128
Walgett	56	87	153
Gunnedah	19	40	103
Yamba	1	2	7
Bathurst	4	11	43
Sydney	3	6	18
Moruya	2	3	6
Canberra	5	13	42
Wagga	20	34	78
W Wyalong	26	42	93
Deniliquin	24	37	75

*Maximum of range in worst scenario
SOURCE: CSIRO, BOM

If unclaimed please return to:
Western Division Newsletter
NSW Department of Primary Industries
PO Box 865, DUBBO NSW 2830

POSTAGE
PAID
AUSTRALIA

To the Landholder



Western Division newsletter

The editors of the WDN welcome contributions

Issue	Editorial Office	Deadline	Issue	Editorial Office	Deadline
Sep–Oct	Western CMA, Bourke PO Box 342, Bourke 2840 Fax: (02) 6872 2993 Phone: (02) 6872 2144 Email: jessica.cohen@dipnr.nsw.gov.au	1 Aug	Nov–Dec	Lower Murray Darling CMA 32 Enterprise Way, Buronga 2739 Fax: (03) 5021 1308 Ph: (03) 5021 9432 Email: pixie.jonasson@cma.nsw.gov.au	30 Sept