

RATHBURNIE ESTATE NATURE REFUG.

Ph [REDACTED]  
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31st August, 2015.

[REDACTED]  
The Agricultural & Environment Committee,  
Parliament House,  
BRISBANE. Q'LD.

Dear Members,

SUBMISSION - DROUGHT RELIEF ASSISTANCE SCHEME.

Further to my SUBMISSION TO THE DROUGHT RELIEF ASSISTANCE SCHEME forwarded by Fax on 28th August, as requested I am enclosing a hard copy of that composite Submission hurriedly faxed when I learnt from our local paper of its pending closure on the 28/8/15.

In order to provide a background from my early years when I lived in Brisbane and worked at the C.S.I.R.O. Cooper Laboratory (Agrostology Division of Plant Industry) at Lawes and St. Lucia until my marriage in 1952 to a grass/lucerne beef breeder on the upper reaches of the Brisbane River, I am enclosing a M.L.A. Target 100 Initiative article on "Sustainable Farming Education and Innovation" initiated by my late husband Graham Campbell Burnett (A.I.F. QX.898 Corps of Signals), and a list of References by Scientists on which he based his land management after his return from P.O.W. in Austria where he was sent after being taken prisoner at the evacuation on the beaches in Greece. (a campaign which delayed Hitler until his planned invasion of Russia met the extreme Russian winter that stopped Napoleon also).

In his Pulitzer Prize-winning "Guns, Germs and Steel", and later in his book "Collapse" Professor Jared Diamond on the A.B.C. warned that the land degradation in Australia which had occurred during the last 200 years is heading towards "collapse" as did the earlier civilisations like Rome whose granary on the African Mediterranean Coast is now the desert of Libya, as were previous earlier civilisations now archaeological ruins in other countries.

Australia is a very old continent - the fertility from volcanos has eroded and we have no snowfields to feed our rivers. The early settlers found what appeared to them to be lush woodlands with a lush understorey of Kangaroo and other perennial grasses. They gave no credit to the thousands of years the Australian Aborigines had husbanded the land as hunter/gatherers, allowing the vegetation to mulch the surface and be incorporated into the humus of the soil which provided fertility and moisture-holding capacity to produce a 'bountiful' landscape.

Through ignorance and the imperative to provide a short "green pick" for their horses (only means of transport) and sheep, they burnt vast tracts of land and reaped the response of the Aboriginal mulching the soil for many years, until it was depleted and droughts became more frequent, and with climate change are likely to escalate. This burning also encouraged regrowth of native trees which every 30 years are likely to explode into disasters as the eucalyptus oils in the lower canopies combust. (See "Fire & Biodiversity CSIRO article attached).

Also enclosed is a painting of the original Woodlands in the 1800s compared with the regrowth fire devastation of the 2000s.

DROUGHT "RELIEF" ASSISTANCE.

Drought relief assistance should be made available only on the following terms:-

- P.5.Ag.Coop. } Low interest loans CONDITIONAL upon COVENANTS:-  
Green Paper } (a) Properties will be managed according to the CSIRO "Ecograzing" Wet Weather Spelling Regime. (See Control of Wild Dog Fence below)
- (b) Regrowth timber will be managed according to optimum spacing of 80 stems/ha. established by CSIRO "Effect of Trees on Grazing Herbivore Biomass" - Walker et.al. 1986.  
and/or  
Where cultivation exists, native tree belts will be planted or retained in belts across or surrounding smaller paddocks (as in W.A.)
- (c) Regular burning (other than fire-breaks) will cease destroying surface mulch as indicated in CSIRO "Fire & Biodiversity" - D.Sands.

a,b,c:to be written in such loans on both FREEHOLD and LEASEHOLD LAND TITLES.

It is imperative that landholders become aware that the LAND is the NATIONAL ESTATE and that "freehold" title is an "Estate in Fee Simple" - i.e. free of paying rental to the Crown unlike Leasehold Title.

If we are to restore the land to somewhere near its state 200 years ago, we must husband the land not exploit it further; and establish a NATIONAL CIVILIAN SUSTAINABILITY CORPS (See Page 6 of the enclosed Federal Agricultural Competitiveness Green Paper) to aid landholders in restoration of our National Estate. Also restore Extension Officers CONTROL OF WILD DOGS FENCE. once employed by Dept. of Agriculture.(+)

The Corps could provide the labour necessary for erection of the proposed wild dog fencing on properties. THIS FENCING SHOULD BE LOCATED TO DIVIDE PADDOCKS for CSIRO "Wet Weather Spelling" management, as well as aiding stock rotational management.

The Agricultural Competitiveness Green Paper OVERVIEW PAGE IX states:-

"We must take advantage of our capacity for both robust and environmentally sustainable development and need to ensure environmental regulations and processes affecting new development are based on SCIENCE and not emotion." (+) Landcare e.g. etc.

I urge the Panel to act accordingly to ensure the future of our country rather than apply more band-aid short-term solutions; and offer drought-affected landholders the options outlined above if they wish to remain on their holdings.

Yours truly,

(Mrs.) V.D. BURNETT.  
TRUSTEE



# TARGET

100 initiatives to deliver sustainable  
cattle and sheep farming by 2020.

[www.target100.com.au](http://www.target100.com.au)

RATHBURNIE ESTATE NATURE REFUGIUM  
[REDACTED]  
[REDACTED]

## **Visionary Thinking and Generosity Lay Foundations for Sustainable Farming, Education and Innovation**

**Valmai Burnett,  
Rathburnie Environmental Estate  
Brisbane River Valley, Queensland**

I am determined to see my late husband Graham's visionary thinking on sustainable land management live on.

Prior to retirement we produced Angus cattle and organic hay on our 1700-acre property 'Rathburnie', in the upper Brisbane River Valley.

In 1987 Graham bequeathed the property in trust to the World Wide Fund for Nature Australia (WWF) to make it available for "research, demonstration and education into integrated economic and ecologically sustainable farming practices." In 1973 he donated five acres of land to facilitate the building of Lions' Camp Duckadang. With accommodation and a large meeting hall, it was established on an Aboriginal campsite above a deep waterhole.

I remain living on the property, which is under long-term lease. As trustee of Graham's estate I'm in the process of transitioning full control to WWF.

Our hope has always been that the property will inspire landholders to rethink land management in this ancient continent and educate city dwellers on the importance of sustainable farming.

Graham was ahead of his time when it came to sustainably managing farmland. Born in 1910 at Colinton in the Brisbane River Valley he had an affinity with the land. He purchased 'Rathburnie' – then a bullock paddock – in 1932.

Returning home following World War II, where he was taken as a POW in Greece, he realised the Valley had degraded during his absence – something not obvious on a day-to-day basis to those remaining.

Early on, he recognised the value of surface mulch which, when incorporated in the soil humus (compost) by soil micro-organisms, increased soil fertility and improved its moisture-holding capacity.

He also saw the damage that uncontrolled burning in the previous 200 years had caused to the landscape, leading him to eliminate deliberate burning to preserve the surface mulch and biodiversity.

After visiting South Africa's Bloemfontein Research Station in 1979 Graham grazed native pasture paddocks on a 'wet weather spell grazing system', whereby alternate paddocks are spelled during the prevailing wet season for two successive years in every four to allow native pastures to set seed before the cattle are allowed to return. This system was later proven to greatly increase carrying capacity by the CSIRO's 'Ecograz' project.

He also supported thinning native forest regrowth forest to the optimum spacing of 80 trees/ha, advocated by a CSIRO project, to allow pastures to prosper, as well as timber and biodiversity. Wasted thinnings could be used for bio-fuels or turned into pellets as a substitute for coal, providing jobs.

The property was declared a fauna sanctuary in 1973; and registered under permanent title as a nature refuge by the Queensland Government in 2008.

'Rathburnie' is home to many native species, including koalas, wallabies, platypus, wedge-tail eagles and lungfish.

*The grass is rich and matted. It holds the rain and the mist and they seep into the ground feeding the streams. . . . It is well-tended, and not too many cattle feed upon it; not too many fires burn it, laying bare the soil. Stand unshod upon it, for the ground is holy, being as it came from the Creator. Keep it, guard it, care for it, for it keeps men, guards men, cares for men. Destroy it and man is destroyed. . . .*

—ALAN PATON, Cry, the Beloved Country

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Meat & Livestock Australia Limited ABN 39 081 678 364  
Level 1, 165 Walker Street North Sydney NSW 2060  
Postal Address: Locked Bag 991 North Sydney NSW 2059  
Ph +61 2 9463 9333. Fax +61 2 9463 9393. [www.mla.com.au](http://www.mla.com.au)

This demonstration was designed by Ron Hendricksen M.Ag.Sc. after his retirement from Queensland D.P.I. at Brian Pastures.

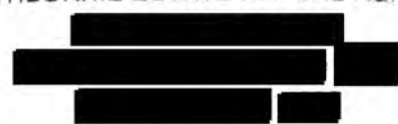
#### REFERENCES

##### GRAHAM C. BURNETT MEMORIAL DEMONSTRATION

##### A SUSTAINABLE SILVAPASTORAL PROJECT - INTEGRATED NATIVE PASTURES/NATIVE TIMBER MANAGEMENT SYSTEM

1. **AMP Report on Colinton Estate (including Avoca Section) – 1900**  
Queensland Oxley Memorial Library
2. **"Effect of Trees on Grazing Herbage Biomass"**  
Walker J., Robertson J.A., Pentridge L.K. 1986 Division of Land & Water CSIRO  
and Sharpe P.J.H. Texas N&M University, USA
3. **"Planning for a Sustainable Forest Enterprise"**  
M.S. Cant & I. Hanson, D.N.R. 09/01/01
4. **"Native Forest Management Guide"**  
R. Miller 2003 Queensland Murray/Darling Committee Inc.
5. **"Small can be Better- with the Right Management"**  
Bill Kerruish, Head of Forest Technology Program  
Queensland Forest Network News, March 1999. ISSN:1328 696 X.
6. **"Developing Guidelines to better manage grazing country"**  
CSIRO "Ecograzing Project". Ash et.al.2002
7. **"Managing Native Grassland"**  
David Eddy WWF (Australia) July 2002
8. **"Getting Down to Grassroots"**  
G. Keith & S. Betts WWF (Australia) January 2003
9. **"Recognise, Relate, Innovate" – a Rangelands Report, NSW Northern Tablelands**  
Dr. Christine Jones, 2003
10. **"'Redesign' for Soil, Habitat and Biodiversity Conservation"**  
Professor Stuart B. Hill, 6<sup>th</sup> April 2002  
"Health Soils Campaign" Nature Conservation Council of NSW
11. **"The Closing Circle"**  
Professor Barry Commoner
12. **2001 S.E.Q. Biodiversity Recovery Conference**  
"Integrated Native Forest and Native Pasture Management"  
  
**2002 S.E.Q. Biodiversity Conference**  
"Soil Biodiversity – the Base of the Pyramid of Life on Earth"  
- Mrs V.D. Burnett, "Rathburnie Estate" Linville Qld
13. **"Fire & Biodiversity"**  
Don Sands, Hon. Research Fellow, C.S.I.R.O.

RATHBURNIE ESTATE NATURE REFUG



SUBMISSION TO SOMERSET REGION PLANNING SCHEME.

GROUNDS FOR SUBMISSION.

SUPPORTING FACTS ENCLOSED.

1. 2007. FLUVIAL AUDIT OF UPPER BRISBANE RIVER : by Australian Rivers Institute of Griffiths University.
2. 2010. SOMERSET FUTURES - Submission to First Round Consultations.
3. 2011. QUEENSLAND FLOODS COMMISSION OF ENQUIRY - Submission.
4. 2013. PHOTOGRAPHS HUGE GUM TREES & DEBRIS remaining after 2011 Flood in Upper Brisbane River.
5. 2014. A GRICULTURAL COMPETITIVENESS GREEN PAPER - Submission.
6. 2015. PRELIMINARY FEASIBILITY INVESTIGATION INTO FLOOD MITIGATION STORAGE INFRASTRUCTURE BRISBANE CATCHMENT.  
Extracts from 203 Page Report on Internet.

CIRCUMSTANCES IN SUPPORT OF SUBMISSION.

"Flowing water respects neither the laws of man  
nor the rights of individuals"  
- a well-known quotation.

This was overlooked in the previous Shire Council amalgamations, as were the natural boundaries of the Upper Brisbane River - the Ranges on the west, north and east watersheds, and the lower southern watershed of the Upper Brisbane River and Lockyer Creek.

Instead the manually surveyed boundaries of the Esk Shire in 1800s were adopted at amalgamation of Kilcoy Shire into Somerset Regional Council.

This left a section of the Lower Lockyer Creek entering the Middle Reach of the Brisbane River below Wivenhoe Dam, and ignored further anomalies in the Upper Brisbane River Catchment above Wivenhoe Dam whereby several other amalgamated Regional Councils over the dividing ranges responsible for small sections of headwaters, namely:-

- Cooyar & Emu Creeks - Toowoomba Regional Council.
- Cooyer Creek - South Burnett Regional Council.
- Stanley River - Moreton Bay Regional Council.
- Stanley River - Sunshine Coast Regional Council.

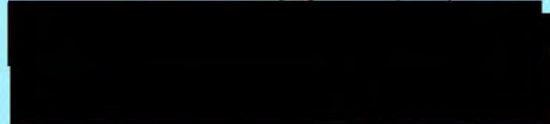
thereby making INTEGRATED MANAGEMENT of the UPPER BRISBANE RIVER difficult and irresponsible.

"The CATCHMENT AREA of a river is the natural unit in erosion control, and the CATCHMENT AND DRAINAGE AREAS are also a natural unit of life - a region unified by the water flowing through it and the conformation of the land". (SEQ Healthy Waterways Partnership).

Laser and G.P.S. modern surveying technology allows State Governments to address such irrefutable natural and biological features; and Somerset Regional Council must have the foresight to correct these anomalies affecting S.E.Q. Catchments before costs escalate in the future - by approaching the incoming State Department of Local Government immediately and negotiating with the Lockyer Regional Council to share expertise of Somerset staff based at Esk Council Chambers to date.

Towns of Cooyar, Yarraman, Blackbutt and Woodford would be relocated within the Somerset Region, offsetting the inclusion of towns and dormitory suburbs planned within the Lockyer Regional Council.

RATHBURNIE ESTATE NATURE REFUGE



REFER  
P. 2.  
SUBMISSION 1.

2015 SUBMISSION - SOMERSET REGION PLANNING SCHEME.(cont.)

SUBMISSION NO.1.

Attachments.

Q.R.A.A. - HERE FOR A CHANGING LANDSCAPE (P.21, Q'ld. Country Life, 12/3/15) (b)  
AN INITIATIVE OF THE Q'LD. GOVERNMENT - SUSTAINABILITY LOANS.

Once the anomaly of fragmentation on the Upper Brisbane River Catchment -- (c)  
 identified by the C.E.O. of S.E.Q.Catchments--has been corrected, the  
 Draft Planning Scheme can address the Fluvial Audit of the Upper Brisbane  
 River Catchment by the Australian Rivers Institute of Griffiths University  
 outstanding since it was commissioned by S.E.Q.Catchments in 2007 (covering  
 the total area of 6969 km<sup>2</sup> identified by the 11/19/13 Brisbane River (d)  
 Catchment Flood Study for the benefit of the entire Region above the  
 Wivenhoe Dam):-

SOMERSET SUSTAINABLE AGRICULTURE PROJECT.

This project (along the lines of the Fitzroy Basin/Barrier Reef Scheme)  
 would address the recovery of the Upper Brisbane River Catchment and  
 further sedimentation of Wivenhoe Dam Lake after the recent drought,  
 involving:-

S.E.Q. Catchments C.E.O. & Local Manager (Bruce Lord)  
 Somerset Regional Council Natural Resources Manager (D.McPherson)  
 W.W.F. Sustainable Beef Project Co-ordinator (x DPI Ian McConnel)  
 Q.R.R.A. and Q'ld. Govt. Primary Industry Productivity  
 Enhancement Initiative.

and the attached Submission to NRM. 2007 Management Review (e)  
 offers a future direction for management of this Scheme,  
 involving :-

C.S.I.R.O. "Ecograzed" Wet Weather Spelling System. (f)  
 C.S.I.R.O. Fire and Biodiversity Management. (g)  
 C.S.I.R.O. "Effect of Trees on Grazing Herbage Biomass." (h)

Under the optimum spacing recommended by C.S.I.R.O., unemployed persons (i)  
 would thin native regrowth on private properties and road verges to the  
 recommended optimum 80 stems/ha; the thinnings harvested and supplied to  
 a regional processing facility so there would be more jobs and markets  
 for the bio-fuel locally. (Refer "Biofuels to Fly" CSIRO article Q.C.L. (j)

Retained straight stems would grow on allowing 3P native grasses to (k)  
 establish under the Wet Weather Spelling management system, and to  
 provide fencing, poles and laminated "Tall Timber" which offers renewable (l)  
 practical and environmental advantages over conventional construction  
 materials of concrete and steel and which are being utilized overseas and  
 now in Sydney .

SUBMISSIONS OUTSTANDING FROM 2010 SOMERSET FUTURES . (No.2 ENCLOSURE)

In addition to the ideas outstanding from my Submission to the 2010  
 Futures , the following concepts would involve additional employment and  
 business ventures for Valley of the Lakes residents.

WIVENHOE CASINO/HOTEL.

Brisbane does not need a second Casino : and Surfers Paradise adequately  
 serves the Gold Coast and northern N.S.W. The Wivenhoe Lake has potential  
 for another Casino to serve the Sunshine Coast, Burnett and Darling Downs  
 regions and Ipswich and overseas tourists with access roads converging on  
 Esk and the Brisbane Valley Highway.

RATHBURNIE ESTATE NATURE REFUGE

Submitted by  
 (Mrs) Valmai D. Burnett.  
 (Aged 87)

The enclosed article in the Travel Supplement writes up Ipswich as a "Gourmet Getaway" and "The Sky's the Limit" for ballooning. The proposed "Valley of the Lakes" entered over the Wivenhoe Dam Causeway (and leaving the built-up areas behind) is another easily accessed Capital City Getaway such as the Barossa Valley and Hunter River Valley offer Adelaide and Sydney, and could easily extend the "Getaway" experience.

ANNUAL CALENDARS.

Ipswich Regional Council does not issue booklets, but promotes its city with a glossy calendar and promotions below photographs on an "Enviroplan" Calendar.

The Somerset "Valley of the Lakes" offers opportunity for a similar annual competition "Grab your Camera" pictorial calendar, which photos could also be displayed in the new Toogoolawah Art Gallery.

I should like to enter with a photograph of the beautiful scene of the Brisbane River and mountains beyond taken from Harlin Hill, the painting of which by Val Mulcahy should be sought for the Toogoolawah Art Gallery.

-----oOo-----

I commend this Submission to your Council Planners with whom I should be pleased to discuss the potential at "Rathburnie" (as I no longer at 87 drive) from the perspective of a widely travelled "elder" in all continents and oceans.

P.S.

As you will note from the enclosed Submissions, I had previously accessed the help of a tablet capable friend to present them in a more modern format than I am able to do on a portable typewriter. I would greatly appreciate if you could arrange for Council typist to present the three pages of my Submission in a more modern format before circulation. Thank you.

*DDB*

Submitted by  
(Mrs.) Valmai D. Burnett.  
(Aged 87)

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RATHBURNIE ESTATE NATURE REFUGE

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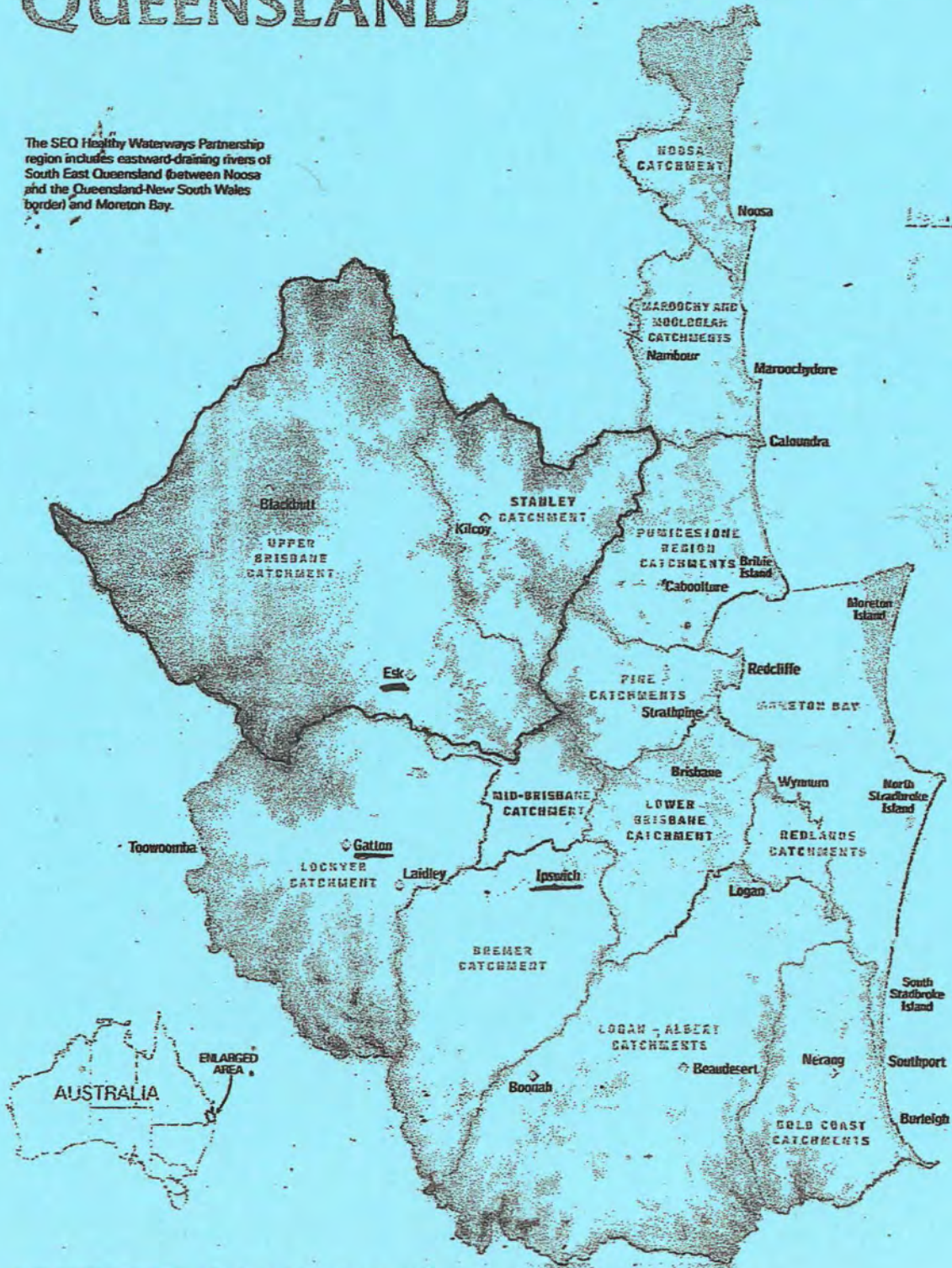
....Page 4.  
Enclosures.





# CATCHMENTS OF SOUTH EAST QUEENSLAND

The SEQ Healthy Waterways Partnership region includes eastward-draining rivers of South East Queensland (between Noosa and the Queensland-New South Wales border) and Moreton Bay.



For further information about the  
SEQ Healthy Waterways Partnership  
telephone (07) 3402 4206 or visit:

## Researchers aim to fly jet biofuel project

By From p17

That is approaching a million hectares of land.

"So there is a lot of potential for many farmers to contribute," Dr Raison said.

"This would be a significant industry if it happens.

"It will start small but scale up, and there will be several potential models for how farmers could be involved.

"The landholder could rent out some of their land and let someone else manage it and get a land rent, which is what we have assumed in our economic model, or the farmer could manage his land for both biomass and grazing.

"A biomass broker could also manage and harvest on their behalf.

"There are several possibilities there."

Dr Raison said there was a lot of social research to be done. The early stages of an ex-

tended project would involve working closely with farmers.

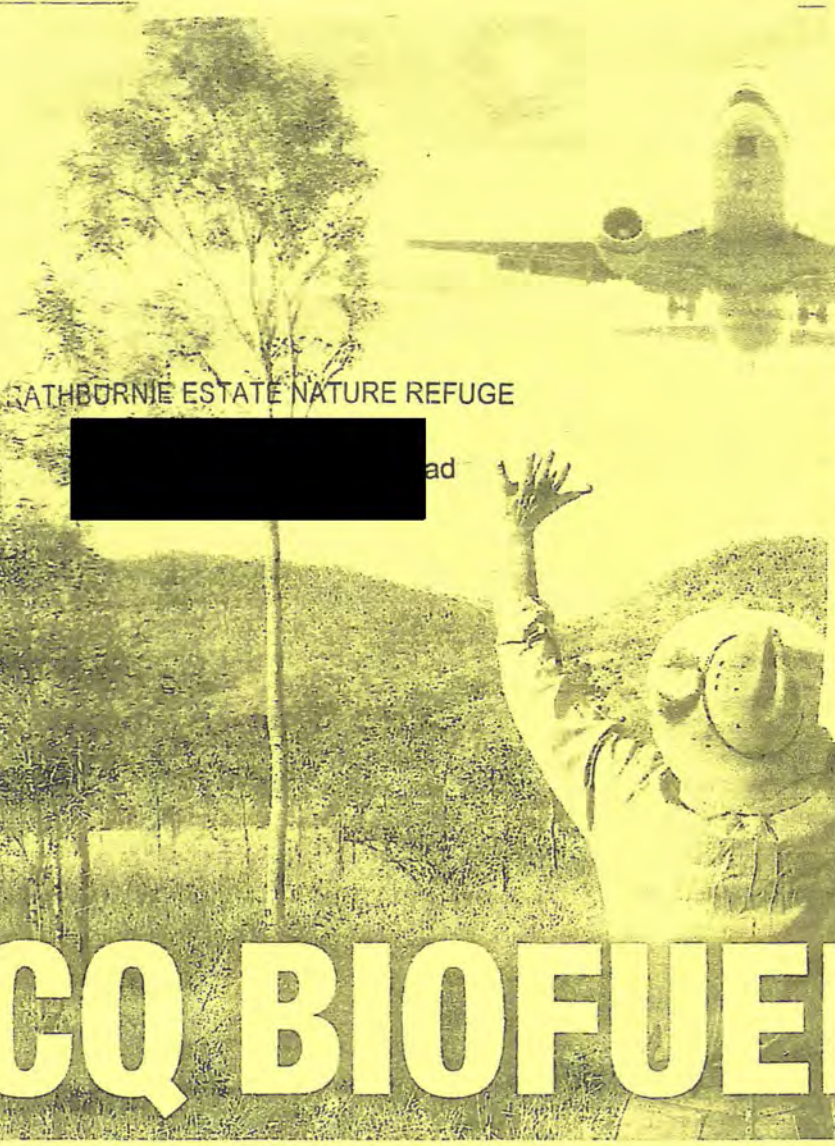
Economic modelling show that biofuel is still more expensive than fossil fuel.

However, Dr Raison said once the project started it would become more efficient.

Currently estimated costs to produce aviation biofuel is \$1.10 a litre and about \$0.90 for fossil fuel.

"We think it looks reasonably promising and needs more study in detail as there are lots of uncertainties, as there is no industry as yet, but a good research and development program will reduce the risks and encourage industry investment."

The CSIRO team will soon prepare a proposal for project funding and has met state and local government, the Fitzroy Basin Association, several Queensland universities, the aviation industry, graziers, mining and other heavy industry.



RATHBURNIE ESTATE NATURE REFUGE

ad

# CQ BIOFUEL TO FLY

By INGA STUNZNER

INSTEAD of spending money on controlling regrowth, Central Queensland graziers could soon be profiting if a new biofuel project goes ahead.

The CSIRO is looking at ways to produce aviation fuel from biomass (vegetation), and regrowth in the region looks to be the most profitable.

"Regrowth is the most interesting as there is a lot of it and it's a problem for farmers, and it is already there and can kick-start the industry," said CSIRO Ecosystem Sciences chief research scientist Dr John Raison (pictured).

Dr Raison said demand for fuel from the aviation industry was growing rapidly at 5 per cent a year, and there was pressure to produce biofuel to reduce greenhouse effects and to hedge against the volatility of costs of conventional fuel.

These drivers led to an initial study in the Fitzroy Basin jointly funded by Boeing, he said.

The study, just completed, looked at three sources of biomass: a rotational system where new trees are grown, harvested every 10 years then regrown; harvesting native grass; and the management of regrowth for on-going biomass production.

Managing regrowth is the cheapest of the three biomass sources and new technology is emerging where biofuel can be produced in processing facilities around the region, so the biomass does not need to be transported to central plants.

"It allows initial processing in the region, so there will be more jobs, and the markets for fuel are in the region too," he said. "Diesel can be used by farmers and mining, which is just on the doorstep."

The new up-scaled project is exploratory of this stage and grew out

of the scoping study CSIRO conducted in partnership with Boeing in 2011. That study looked at the sources of biomass in the Fitzroy Catchment and a scale-up over 25 years of production of about 500 million litres of aviation fuel a year.

"That was the background of this work and got us close to the stage where we are now," Dr Raison said.

The CSIRO team visited Central Queensland a number of times and in September talked with graziers and AgForce about the project.

"They were quite keen for anyone who can help with the regrowth problem and help with the term 'come home' even, so we talked at a very positive ground about a new idea. It has an attraction in that it is compatible with the grazing industry," he said.

The next stage of the project is to get potential partners from state and federal governments, aviation, mining and agricultural sectors and then put

together a major proposal for funding. "Our plan would be to get it all stitched up by end of the financial year and to commence full activity by the middle of next year."

The idea is to initially build a small plant that will require about 60,000 tonnes of biomass a year, then in five years another 10 would be built. There would be a progressive scale-up over a 25-year timeframe until the plants would produce 470 megalitres of aviation fuel each year - about 5 per cent of Australia's annual use of aviation fuel.

"A lot of money is needed to start up," he said. "The difficulty in this industry is overcoming the risk so investors will do it, so we need to find the three areas: those producing the biomass, those processing it into fuel, and those who use the fuel."

If the project goes to full scale, it would need about 5 million tonnes of biomass per year.

NOT CONFIDENTIAL.

7th December, 2014.

Agricultural Competitiveness Taskforce,  
Department of the Prime Minister & Cabinet,  
P.O.Box 6500,  
CANBERRA. A.C.T. 2600.

Dear Sirs,

SUBMISSION TO THE AGRICULTURAL COMPETITIVENESS GREEN  
PAPER.

OVERVIEW.

PAGE VII. "BETTER RETURNS AT THE FARM GATE TO ENSURE A SUSTAINABLE  
AND COMPETITIVE AUSTRALIAN AGRICULTURE SECTOR."

At the Global Food Forum held in Sydney in March, 2014, many prominent  
farmers commented:- (+)

- (a) The enormous size and scale of the task ahead of Australia's  
agricultural and farm sectors to increase production by 70% by 2050;
- (b) The second element missing from the scenario painting the  
Australian farming and food scene as world flavour of the  
month by others at the Forum was how to make returns to  
PRODUCERS better and their businesses more profitable or  
producers will not increase production if profits are not  
there.

This situation was highlighted at the recent Landcare Conference by (++)  
Major-General the Hon. Michael Jeffery (Soils for Life Founder) and  
Mark Wootton (Climate Institute President) and also by Sir Gordon  
Conway at the China Agricultural University (ABC RN Breakfast 19/8/14)  
OVERVIEW.

PAGE IX. "FARMERS' SHARE HAS DECLINED FROM 80-90% in 1900 to 10%  
OR LESS TO-DAY.

- (A) This enviable record (Fig.3.) can only continue if we achieve  
the right balance between EXPLOITING OUR NATURAL RESOURCES for  
agricultural production and protecting them for long-term  
SUSTAINABLE USE.
- (B) To take advantage of our capacity for both robust and  
environmentally sustainable development we need to ensure  
environmental regulations and processes affecting new  
development are based on science and not emotion. (+++)

N.F.F. at <http://www.nff.org.au> "Farm Facts" states Government Support  
for Australian farmers represents just 4% of farming income. By comparison  
according to the OECD in Korea it is 52%. EU 23%, Canada 17% and USA 9%.

EXPLOITING OUR NATURAL RESOURCES.

The application of European farming methods to this old and fragile  
continent has degraded our soils, the land and the rivers. This continent  
with its variable rainfall, no snow to feed rivers and shallow ancient  
soils underlaid with salt was originally quite productive due to soil  
biota and humus (carbon) content built under Aboriginal hunter-gatherer  
custodians over millennia.

(+) "Weekend Australian" Business 29-30/3/2014.

(++) "Q'ld. Country Life" Landcare Conference. 21/11/2014.

(+++) M.L.A. Target 100 - Rathburnie. (attached)

OVERVIEW.

Page XI.

"FAMILY FARMS ARE THE BEST STEWARDS OF THE LAND BECAUSE THEY CARE ABOUT MAINTAINING IT FOR FUTURE GENERATIONS!"

Some farmers are good stewards of the land; but of course, farmers need extension officers to bring them the latest information, and a capacity to finance the operation of the farm and repayments if there exists a reasonable path to purchase or operate the business, and cover living costs and childrens' education. They are concerned with survival ahead of maintaining it for future generations in this old and fragile land.

"FARMERS NEED A CAPACITY TO FINANCE THE REPAYMENT AND OPERATION OF THE FARM FROM RETURNS IF THEY ARE TO STAY ON THE LAND".

The present view expressed in "The Value of Nothing" by eminent economist Raj Patel :-

"We inflate the cost of things we can (and often should) live without, whilst assigning absolutely no value to the resources we all need to survive" and

Buddha :- "The Theory of Value: Not it's ability to satisfy a craving, a desire or a vanity - but to meet the need for well being."

has been overlooked to-day by a city-centric population who values wants above needs : food being the primary NEED, yet farmers are expected to meet their capital requirements whilst University Students are subsidised to meet their capital - their brains, -with no distinction between basic needed courses and higher income potential, leading the present debate.

OVERVIEW.

PAGE XIV.

"WHILST ARTIFICIALLY LOWERING THE EXCHANGE RATE MIGHT SEEM DESIRABLE, MONETARY POLICY BY THE RESERVE BANK IS BASED AROUND MANAGING THE INFLATION RATE".

Why did the Reserve Bank not heed the Nobel Prize-winning Economist<sup>(+)</sup> advice to the Wallis Enquiry nor the Adjunct Professor P.D. Jonson, former Reserve Bank Chief Economist to "Tax Capital Flows to Tame the Australian Dollar"? (+) Nobel Laureate Professor James Tobin)

PAGE XIV.

"A KEY ELEMENT IN MEETING THE CHALLENGE.....THE DECLINE - IN CAPACITY OF LARGE DAMS SINCE THE 1980s WITHOUT A CHANGE OF APPROACH IN BUILDING MORE WATER INFRASTRUCTURE".

Siltation from exploitation of our natural resources is reducing the storage capacity of our existing dams. The Queensland Government is conducting a preliminary investigation into potential flood storage sites across the Brisbane River Catchment, above and below Wivenhoe Dam, due by the end of 2014.

In view of the comments of Sir Gordon Conway (former President U.S.A. Rockefeller Foundation and Chief Scientist of the U.K. Department for International Development) "The world's food production needs to be increased by 70 to 100% by 2050 on the same amount of land and with the same amount of water, because we've got limited amounts of good quality land and water" it seems illogical that the Queensland Government would even investigate a dam at Linville which would flood irrigation and farm land in a 30" average rainfall belt, whereas a site in Benarkin Forest on Cooyar Creek rising in the Bunya Mountains (another headwaters site under investigation) would not flood irrigation or farmland or much infrastructure, could provide downstream irrigation water and be closed off to mitigate flooding after heavy rainfall, whilst also retaining the Lions Camp Duckadang 100 person recreation facility built 1973 with RED funds.

OVERVIEW.  
PAGE XV.

"THE GOVERNMENT HAS PRIORITISED AGRICULTURE AS ONE OF THE FIVE PILLARS OF THE ECONOMY FOR GOOD REASON. AGRICULTURE HELPED TO BUILD AUSTRALIA - IT CONTINUES TO PUT FOOD ON OUR TABLES, AND IT UNDERPINS OUR NATIONAL ECONOMY AND RURAL COMMUNITIES. A STRONGER AND MORE COMPETITIVE AGRICULTURE SECTOR WILL SUPPORT JOB CREATION, GROWTH AND INVESTMENT".

"THE GOVERNMENT'S PLAN IN THE WHITE PAPER WILL BE THE SUPPORT THE FUTURE OF AGRICULTURE. IT MUST LEAVE A LEGACY THAT ATTRACTS THE NEXT GENERATION OF FARMERS".

If FOOD is the BASIC NEED OF MANKIND why is it not the priority and not one of five pillars of the economy which is at present devoted to WANTS not NEEDS?

Professor Stuart B. Hill, School of Social Ecology & Lifelong Learning, University of Western Sydney, in a paper, "Redesign" for Soil, Habitat and Biodiversity Conservation: Lessons from Ecological Agriculture & Social Ecology, presented to the NSW Healthy Soils Campaign Conference, Sydney, in April 2000 stated:

Soil is the primary natural HABITAT that determines the long-term wealth of nations. Most declines in civilisation throughout history have been largely caused by the mismanagement and subsequent degradation of the LAND (Carter & Dale 1974, Hyams 1952 and Hillel 1992).

Who amongst us has not at one time or another doubted the wisdom of the deceptively simplistic notion that on-going economic growth can solve our problems? As the ecological economist Kenneth Boulding remarked:

You cannot have infinite consumption in a finite world. The only people who believe that are either madmen or economists.

We must learn from history - as outlined by Professor Jared Diamond in his books, "Guns, Germs and Steel," and "Collapse," - if history is not to be repeated.

Professor Julian Cribb states population driven changes occur due the fact that:

... almost everyone in society now receives fair pay - except for farmers, and many people enjoy the cheapest food in human history.

It is argued that such changes are at the cost of degradation of the Australian environment - the driest continent with the oldest depleted soils - and consumers get food produced for "quantity not quality", as farmers struggle to survive; and consumers assign little value to the quality of the soil and its ability to produce healthy food and fibre.

At the "Carbon Cycle Forum" at Armidale in September 2005, Mr G Gillespie - NSW Department of Environment & Conservation Sustainability Programs Division stated:

The judgement of global trade has forgotten it cannot exist without feed healthy soil. It is the soils of other lands, which feed and clothe the workforce, which makes the goods for export. You cannot have a labourer in any country in this world make products for another country if that labourer cannot be fed, regardless of how cheap their labour may be.

The nation of Japan relies on 12 million hectares of land, outside its own landmass to maintain its inputs for production. Six million hectares of this land are in Australia, which, until profound change takes place, will not be able to maintain its current level of exports in several generations.

Everything we do, everything we export, relies on the quality of our soil and its ability to produce. In NSW 70% of land is affected by at least one form of land degradation. In the Murray-Darling Basin we are losing up to \$700m. worth of agricultural land every year to degradation in various forms.

OVERVIEW.

PAGE XVIII. BUILDING NEW TRANSPORT INFRASTRUCTURE.

Policy Idea 1. Transport should be by rail wherever possible - not roads.

A Melbourne to Brisbane fast rail corridor should be a priority, with smaller towns along the route to decentralise population and reduce danger of terror attacks on the majority of Australians.

Rapid development of the new Toowoomba Range Road to access new Toowoomba International Airport - including access from proposed Mary River export project which could be jointly funded by Gina Reinhardt and Government.

Policy Idea 2. Coastal shipping could handle much more freight if regular services were instituted as in Norway - thus taking more freight from roads up the coast.

Rail could run from ports inland.

Policy Idea 3. A.B.C. programmes should concentrate on Regional Radio Stations, Channels 1 and 3 on T.V. (Channel 2 being unnecessary infringement on commercial programs) and education of the population on living standards with much less emphasis on electronic music and unintelligible lyrics which Sir Raphael Cilento warned would deaden developing teenage brains and which were until recently banned in China and Russia.

PAGE XIX. WORKING WITH THE STATES AND TERRITORIES. FEDERATION REFORM.

Policy Idea 4. Duplication between Federal and State Government (and in Queensland since Local Government is no longer based on LOCALITY, but on population) must cease.

Policy Idea 5. Protecting the resource bases:

Written in 1900, the Australian Constitution is no longer applicable to present-day Australia with its degraded lands and increasing population; taking into account progress in laser surveys and satellites, ecology and biology and technology, making Federation Reform essential.

States should be re-surveyed as CATCHMENT BOUNDARIES are the NATURAL form of SUBDIVISION, they also serve to form communities, aiding social inclusion and integrated management of natural disasters; and Queensland and Western Australia and even New South Wales should be re-surveyed based also on LATITUDE as climatic differences affect people as well as other creatures and plants.

"SOIL & CIVILISATION" by Elyne Mitchell

The CATCHMENT AREA of a river is the natural unit in erosion control, and the catchment and drainage areas are also a natural unit of life - a region unified by the water flowing through it and by the conformation of the land.

Recognition of these principles and the welding of them into one, could open the way for perhaps the first really creative effort in which Australians have ever taken part as a people - the recreation of the fertility of their soil and the creation of a society in which the balance between agriculture and industry, city and farm, should be held in such a way that the whole Australia, the land and its people could prosper with strength.

Policy Item 5. (b)  
cont.

Providing Opportunities for farmers to convert leasehold into freehold. This is unnecessary and unwise.

"Freehold" Title is granted "In fee Simple" not as people believe it means free to do whatever with the land - our NATIONAL ESTATE.

Farmers and others must be educated that it only covers freedom from paying rental to the Crown; but in older days in Great Britain it could also mean freedom from paying that rental in fighting men.

(and) NO PART OF OUR NATIONAL ESTATE should be sold as "Freehold" to foreigners - only as LEASEHOLD with COVENANTS AS SET BY THE FOREIGN INVESTMENT BOARD to protect the land. Such a regulation could be enforced when title is transferred.

OVERVIEW.

Page XXI. COMPETITION AND REGULATION.

Policy Idea 8. Could breaches of market power provisions attract higher income tax rates?

Policy Idea 9. Whilst improvement to "Country of Origin" regulations should ensure consumers clearly understand the origin of their food, it is also important that a STAR HEALTH RATING be shown to address the obesity epidemic; and as Lady Gilento wrote as "Medical Mother in The Courier-Mail, children should be educated that toasted cereals are not as natural cereals, nor are poultry, fish or other animals fed grains not green grass or algae as rich in Omega 3.

OVERVIEW.

Page XXIII FINANCE, BUSINESS STRUCTURES AND TAXATION.

Policy Idea 10.

(c) "Agriculture is a special form of activity, not comparable in any way with trade and industry, owing partly to the nature and length of operations involved, and partly to the rate of yield on invested capital. The FUTURE OF THE RURAL SOCIETY (\*\*) depends on: -

- > Systems of agricultural credit be kept quite separate from normal commercial banking.
- > Credit should be granted for a sufficiently long period commensurate with the length of the operation it is designed to facilitate.
- > It should be granted at a LOW RATE OF INTEREST."

(\*\*) Lois Tardy, Director-General of France's National Agricultural Bank.

Policy Idea 11.

Fuel Tax Credit Scheme should continue for agriculture but be discontinued for Mining and Gas enterprises, as they do not replenish our natural resources but deplete them.

OVERVIEW.

PAGE XXX & XXXI. WATER AND NATURAL RESOURCE MANAGEMENT.

Policy Idea 18. Improving Water Infrastructure and Markets.

- (a) Refer also to PAGE XIV - Decline in Capacity of Large Dams. Investment in new dams only where no arable land is inundated as "we've got limited amounts of good quality land" (+)  
(+) Sir Gordon Conway - refer P.2.)

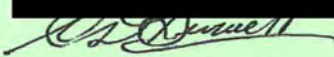
Policy Idea 19. Natural Resource Management Initiatives.

- (c) The fragmented National Landcare Programme does not warrant provision of \$1 billion over four years, particularly for staff who are not actually engaged in projects on the ground.
- (d) Establishment of a "Green Army" engaged in similar Landcare fragmented projects is also not targeted across the country to arrest the land degradation and encourage carbon storage.
- (e) I refer to a letter written on 28/11/14 to the A.C.F. following the Landcare Conference, in which I express my amazement that Christianity places so little emphasis on the 4th Commandment "REMEMBER the Sabbath to keep it holy" and remembrance of the first Sabbath when the earth was a Garden of Eden - a world in ecological balance - and endeavour to keep the injunction of Genesis "to dress it and to keep it". All living things dress a barren planet but mankind has failed to keep it as a Garden of Eden once he ceased to be a hunter/gatherer.
- (f) In this coming ANZAC CENTENARY YEAR, Australians have an obligation to honour the Anzacs' legacy - to ENSURE THE SUSTAINABILITY OF THIS LAND THEY FOUGHT TO PROTECT.

As Mark Carnegie suggested on Q&A, in "The Australian" and at the Di Gribble Argument at the Wheeler Centre, instead of (d)' Green Army' the Government should establish a CIVILIAN SUSTAINABILITY CORPS enlisting our youth in a gap year's service to the Nation (not unlike the military corps operating in Norway, but achieving a similar result that President Roosevelt's Conservation Corps did in the Tennessee Valley and the Muskingum Conservancy District in the Great Depression).

This would promote a sense of national pride, purpose and discipline in young people under the direction of returning stressed Servicemen and older redundant employees. Older unemployed people could be engaged in community services closer to their homes, in aged care, disabled care and monitoring children in their early years to read and later with school learning problems.

PROJECTS FOR CORPS. Preparation of fire breaks; Fire fighting; Thinning native forest regrowth to density proven by CSIRO to be optimum for timber and 3P Perennial grasses in the understorey; Harvesting thinnings for bio-fuel production and aviation fuel envisaged by Ecosystem Chief CSIRO Scientist, Dr. John Raison; Building and operating small plants progressively he envisages to produce bio-fuels; noxious and invasive weed control; Native Tree planting around cultivation perimeters for windbreaks, timber production and wildlife; cleaning up flood and fire debris; Natural disaster relief and repairs; control of exotic animal pests decimating wildlife and farmed animals. [REDACTED]

  
SUBMISSION FROM MRS. V.D. BURNETT. (2002 271)



HARD COPY  
OF  
FAXED  
SUBMISSION  
28/8/15.

RATHBURNIE ESTATE NATURE REFUGE  
[REDACTED]  
[REDACTED]  
[REDACTED]

28th August, 2015.

The Q'ld. Department of Agriculture & Fisheries,  
FAX. 35.536699  
BRISBANE.

SUBMISSION - DROUGHT RELIEF ASSISTANCE SCHEME.

Having just learnt that this "scheme is currently under review with residents of the Somerset Regional Council" from the local paper delivered to-day and "a guide to making submissions is available from an internet address", in the absence of mobile or internet connections on the upper reaches of the Brisbane River Catchment, I am faxing you a SUBMISSION TO THE FEDERAL AGRICULTURAL COMPETITIVENESS GREEN PAPER which outlines the causes and remedies necessary to mitigate droughts using scientific research findings.

Enclosure 1.

Also is an earlier SUBMISSION TO THE Q'LD. STATE DEVELOPMENT & INFRASTRUCTURE & INDUSTRY COMMITTEE - VEGETATION SECTION relative to prevention of land exploitation which has occurred during the past centuries of white settlement when "burning - management" was practiced to get a "green pick" for horses upon which early settlement depended and which is continuing to this day despite the fact that the soil humus (fertility and moisture holding capacity) is no longer restored by surface mulch as in Aboriginal custody.

Enclosure 2.

Finally a 2007 SUBMISSION to the UPPER BRISBANE RIVER CATCHMENT NETWORK - FUTURE DIRECTION FOR NRM MANAGEMENT REVIEW" again in an endeavour to correct the mis-management now causing droughts in the Brisbane River Catchment.

Enclosure 3.

I regret this late announcement regarding Submissions to the Drought Relief Assistance Scheme has precluded me from preparing an integrated Submission; but I trust the Panel will allocate sufficient time to peruse the three enclosures and perhaps have the vision to implement some of the points to avoid further droughts to a great extent.

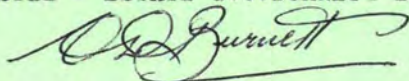
Enclosed also is a summary of the background - MLA Target 100 - of the Rathburnie Estate Nature Refuge and the dedication to sustainability of the land by my late husband Graham C. Burnett.

I wish you well in your deliberations for the future of our land - the National Estate on which we all depend.

Yours truly,

(Mrs.) V. D. BURNETT.

TRUSTEE - ESTATE G. C. BURNETT DEC'D.



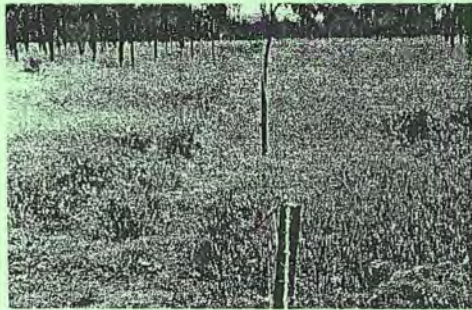
## INCREASE LITTER COVER AND INCREASE INFILTRATION OF RAINFALL

A full wet season rest allows maximum pasture bulk and, consequently, an increased amount of leaf and stem that decays and falls to the ground as litter. The presence of ground cover and litter has a direct and significant impact on the ability of the soil to soak in rainfall. This is particularly important for Indian couch dominated pastures, as Indian couch plants have a small root mass compared to 3P grass tussocks, and therefore have less ability to soak in the rain that falls.

“ Gives 3P grasses a chance to recover before being preferentially grazed. ”

MANAGE STOCK NUMBERS TO ALLOW FOR A PLANNED QUANTITY OF PLANT MATERIAL TO BE LEFT AT THE END OF THE DRY SEASON BY SETTING PASTURE YIELD THRESHOLDS WITHIN A FORAGE BUDGET.

The DPI&F Stocktake Monitoring Workshop includes a simple program to enter paddock monitoring details and calculate feed budgets.



## RECOVERING PADDOCKS NEED EXTRA CARE AND ATTENTION COVER UP TO CONSERVE RESOURCES

Recovering C condition paddocks need extra attention to maintain and encourage the processes of recovery. In addition to conservative use of pasture and more regular full wet season spelling, it is important to retain adequate minimum ground cover and pasture reserves at the end of the dry season, to protect the soil surface and encourage rainfall infiltration. Aim for the following levels:

- ✓ Retain at least 60% ground cover at the end of the dry season to maximise rainfall infiltration.
- ✓ For C condition Indian couch pasture recovery:
  - ✓ Retain at least 500 kg/ha of dry feed at the end of the dry season in below average rainfall years and 800 kg/ha of dry feed in better seasons.
  - ✓ Encourage litter build-up, 3P grass recovery and the joining of grassy patches through wet season rest.
  - ✓ Monitor land condition, and balance feed supply and animal demand using the DPI&F Stocktake package.



## WET SEASON SPELLING

### THE KEY TO RECOVERY

Full wet season spelling, or rest, is essential to recover land in poor condition. To make the most of the precious rain that falls, you need to manage your land in ways that improve condition. This not only keeps sediment and nutrients in your paddocks, it also ensures good pasture and animal production.

Note: Also addresses problem of run-off to Great Barrier Reef.



MEAT & LIVESTOCK AUSTRALIA  
Free Call: 1800 023 100  
Email: info@mla.com.au



DEPARTMENT OF PRIMARY  
INDUSTRIES AND FISHERIES  
Charters Towers - Phone: (07) 47546100



CSIRO  
DAVIES LABORATORY  
Townsville - Phone: (07) 47538500

(F)

## ALLOW THE LAND TO RECHARGE ITS BATTERIES

Wet season spelling or rest, provides a period of protection from grazing that allows the plant to replenish essential plant reserves, set seed and allow seedling recruitment. Pastures need to be spelled during the wet season when they are actively growing. Regular wet season pasture rest is essential to ensure long-term beef production.

Typically, pastures are spelled after the first significant rainfall event (more than 50mm over 3 days) until the middle (early wet) or end (late wet) of the rainy season. In cases where it is difficult to shift cattle at the break of season, paddocks can simply be spelled from the last round muster. The benefits of rest, however, will only occur with complete de-stocking of a paddock, and will not be obtained through lighter stocking rates. This is because cattle will preferentially graze the 3P (perennial, palatable, productive) grasses despite other feed on offer.

RATHBURNIE ESTATE  
LINVILLE  
QLD. 4306

“Show us the hidden costs of not allowing our land to recharge its batteries. What will it cost in lost production, soil or biodiversity, if we don't do this? I could maybe get away with not doing this, but my kids might curse me for destroying what I want to leave them.”

Burdekin grazier, 2006

## RECOVERING POOR CONDITION LANDSCAPES MANAGING PATCHY RECOVERY

Landscapes do not recover evenly across paddocks. Recovery in C condition landscapes will be patchy, with some areas of a paddock responding quickly in terms of increased cover, pasture yield, 3P species composition and ability to trap water and nutrients. However, other areas may remain static or continue to degrade for some time. Full wet season rest for two years in a row, combined with conservative dry season grazing, is the best way to speed up the recovery process, especially in the early years. Benefit will be seen from opportunistic wet season spelling but, in recovering landscapes, the growth of new 3P grass seedlings and formation of new patches from the initial spell will be delayed and therefore recovery will be slower.

TO RECOVER LAND IN POOR (C) CONDITION REQUIRES THE REMOVAL OF ALL GRAZING ANIMALS OVER THE FULL LENGTH OF THE WET SEASON. FULL WET SEASON REST FOR TWO SUCCESSIVE YEARS IS NECESSARY TO SPEED UP THE RECOVERY PROCESS.

Recovery of poor condition, Indian couch dominated country is likely to be slower and patchier than equivalent paddocks with a higher occurrence or scattering of 3P tussock grasses. 3P tussock grass patches provide the architecture necessary to trap and accumulate resources such as litter, where Indian couch pastures have the tendency to collapse during drought conditions. It is important to allow build-up and connectivity between recovering patches to slow the flow of water, capture and retain sediment and nutrients, and reduce landscape leakiness.

MANAGE FOR THE PROPORTION OF C CONDITION PATCHES PRESENT, NOT AVERAGE Paddock CONDITION.

Recovering paddocks remain highly vulnerable to heavy stocking and short duration, intense rainfall events, due to the patchy distribution of plant bulk, ground cover and 3P grasses. Recovering landscapes take much longer to increase the size and number of 3P pasture plants, pasture root mass, organic matter and nutrient reserves than land in fair (B) and good (A) condition.

PREMATURE RETURN TO HIGHER STOCKING RATES COULD EASILY RE-EXPOSE RECOVERING PATCHES TO HIGH GRAZING PRESSURE AND RE-OPEN LEAKINESS PATHWAYS.



“Nature is strong and recovery will occur providing cattle are removed.”

## WHAT IS INFILTRATION?

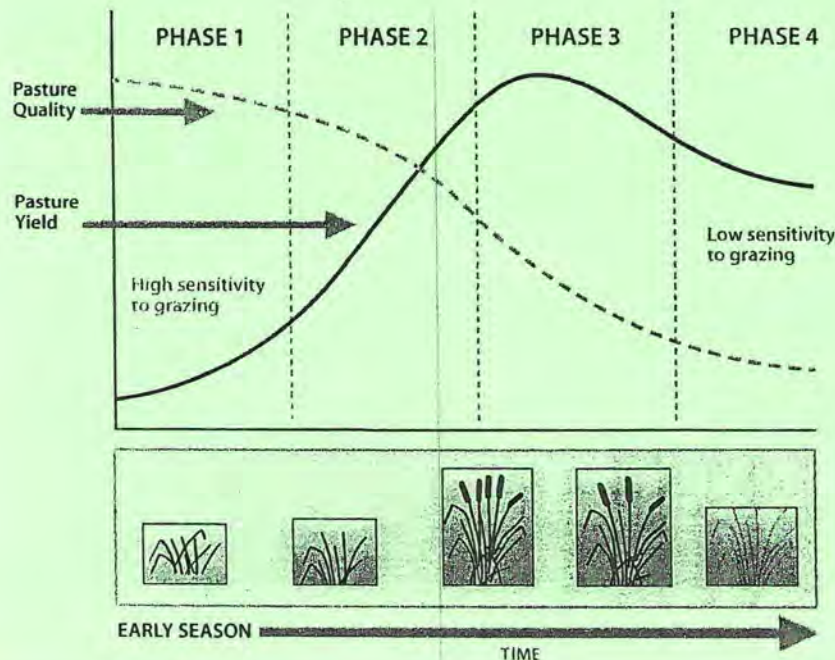
Infiltration is the process by which water enters the soil. The higher the infiltration the faster the water moves into the soil. This means less runoff and less erosion. Different soil types have different infiltration rates, but generally the higher the ground cover, the higher the infiltration rate. 3P tussock grasses increase soil infiltration by slowing down water as it flows across the landscape. They also help to protect the soil against raindrop impact and improve the condition of the soil. If your soil has low infiltration, you need to maintain a higher cover of grasses to restrict runoff.



Recovery of C condition land  
VIRGINIA PARK STATION 2166

## HOW DOES WET SEASON REST WORK?

Resting pastures in the early wet season allows the pasture plants to awaken from dry season dormancy and rapidly build depleted energy reserves. The plants are very sensitive to grazing and are of the highest diet quality at this time. Once the pasture is in its green leafy stage of growth with moderate quality (phase 2), continued rest (late wet season rest) allows the plant to reach its potential leaf and stem bulk (phase 3) and move energy reserves into the roots and crowns to drive growth the following season. It is usually during this phase that a pasture plant flowers and seeds. However, this can occur at any stage of pasture growth, and is dependent on the plant species, the land type, and the way rain has fallen during the season. Allowing the pasture to store energy reserves also builds plant resilience to grazing and drought.



SUBMISSION

to

THE QUEENSLAND STATE DEVELOPMENT & INFRASTRUCTURE  
& INDUSTRY COMMITTEE.VEGETATION SECTION.BACKGROUND TO SUBMISSION.

Sustainable Farming - Refer attached M.L.A. TARGET 100 Initiative, and attached References.

SUBMISSION.

- (a) Regrowth Timber. Following uncontrolled fires, native timber regrowth is excessive .

Refer: "Black Saturday 14/2/2009 - W/E.Australian  
"Fire & Biodiversity" - D.Sands, CSIRO.

Such regrowth does not produce mill timber nor allow sunlight to penetrate to grow productive 3P Perennial Native Grasses to feed livestock.

CSIRO scientists in association with Texas N & M University, USA in "Effect of Trees on Grazing Herbivore Biomass found THINNING NATIVE FOREST REGROWTH to the optimum spacing of 80 trees/ha. allowed pastures to prosper as well as mill timber and biodiversity.

- (b) Pasture Production. Full wet season epelling (or rest) is essential to recover land in poor condition as proven by CSIRO Ecograzing Project . Recovering paddocks retaining adequate minimum ground cover and pasture reserves at the end of the dry season will protect the soil from erosion and encourage infiltration of rainfall, in addition to increasing carrying capacity and carbon sequestration equal to that of trees.

Summary. It is essential to maintain an optimum native forest REGROWTH for production of additional herbivores protein to replace dwindling fish stocks.

It is however not essential to retain ALL REGROWTH as advocated by extreme Conservationists as such regrowth produces 3.6 times in bushfires delivery of Carbon dioxide as an animal's rumen, as well as human disasters.

Excess regrowth should be thinned and thinnings harvested for eco-fuel production by Environmental Corps of unemployed and asylum seekers working in the national interest.

I urge the Committee to consider this Submission in the national interest as well.

(Mrs.) V.D. BURNETT

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Don Sands, Hon. Research Fellow, C.S.I.R.O.

WHY NATIVE FOREST REGROWTH OCCURS.

(Refer "Background" Sheet.)

Aboriginals used fire much more circumspectly than white settlers, burning small mosaic patches in late autumn or winter when the cold night air put fires out, burning after rainfall when the fire did not penetrate to bare soil, leaving mulch on the ground.

(Refer C.S.I.R.O. "Fire &amp; Biodiversity" Article attached).

Late spring/summer fires lit deliberately or accidentally, if driven by hot winds can leap even wide fire-breaks causing wild fires in the low bush canopy, which has replaced the open woodlands early explorers and settlers described.

(Refer 1895 of Gippsland painting - woodlands and 3P grass compared with understorey.)  
21st century photographs of burnt out "bushland" attached.

DRAWBACKS OF REGROWTH (BUSHLAND)

- (a) Too dense a canopy to allow nutritious 3P perennial native grasses to grow and sequester carbon. (+)
- (b) Too dense to allow mill logs to develop with so much competition from undesirable stems. (+)
- (c) Dense canopy provides perches for birds which drop seeds (particularly Lantana e.g.) to form an understory of weeds not 3P grasses which require more sunlight.
- (d) Growing trees draw too much moisture from the aquifers and streams and dams.
- (e) Dense and low canopy carries hot fire storms, which deliver heavy greenhouse gas emissions.
- (f) Thick regrowth makes it difficult to muster or control fires or feral animals.

BENEFITS OF THINNING REGROWTH. (N.B. This is not "clearing")

PASTORAL. If sustainably managed using C.S.I.R.O. "Ecograzing" Wet Weather Spelling (see brochure attached) the deep-rooting 3P perennial native grasses improve CARBON sequestration, reduce salinity, minimise erosion, increase soil fertility and moisture-holding capacity whilst C.S.I.R.O. "Ecograzing" results show up to 80% increase in carrying capacity can be achieved - so important to increasing our capacity to feed increasing world populations.

Note: Firebreak preparation is essential; and young land-holders are often absent earning off-farm income to meet high costs of production and low cattle prices.

Refer Q.C.Life 2/4/15 "In real terms current prices are about only HALF what they were in the 1970s".

AGRICULTURAL. As in Chile, belts of native trees could surround cultivation, or be retained in strips on cultivated areas (as in West Australia) to provide wind-breaks, wildlife habitats and carbon sequestration, as Green Conservationists require.

- (+) "EFFECT OF TREES ON GRAZING HERBAGE BIOMASS"  
Walker J, Robertson J.A. Pentridge L.K. 1986.  
C.S.I.R.O. Division of Land and Water, and  
Sharpe P.J.H. Texas N & M. University, USA.  
(optimum 80 stems per hectare).



A

Fleeing the front: Visitors to the National Gallery of Victoria look at John Longstaff's *Gippsland, Sunday Night, February 20th 1898*

FATHURBURNIE ESTATE NATURE RESERVE



Intense aftermath: A destroyed house, top right, sits among the moonscape of what was once a heavily forested mountain range near Kinglake

2009.

Picture: Stuart McEvoy

Dense Regrowth on discontinued road verge near Kilcoy Turnoff at Harlin, Upper Brisbane River Valley.

This would have been similar to "bush" destroyed by Black Saturday Victorian Bushfires.

Note: Off old tall timber in background.



Fernvale/Esk roadside, Queensland.

Dense regrowth in background. Thinned Regrowth in foreground.

RATHBURNIE ESTATE NATURE REFUGE





# fire & biodiversity

## Insects, Small Animals and Fire in Southeastern Queensland

Article by Don Sands  
Honorary Research Fellow CSIRO, and  
Christine Hosking  
Land for Wildlife landholder

Fire moulded the survival and evolution of fauna and flora in Australia long before the arrival of humans. The impacts of fire on the environment were not uniform across the continent and they varied with climate and from one ecosystem to another. Fires were almost exclusively caused by lightning. Fires varied with season, frequencies, intensities and distribution.

There is convincing evidence from palaeoecological research and observations from early non-indigenous settlers that traditional Aboriginal land managers used landscape fires very differently and often far less, than current European practices. While fire is undoubtedly "part of Australia's heritage", not all Australian ecosystems are dependent on fire, need fire, or become healthier after fires. Some plant and animal species respond positively after fire, others are detrimentally affected and some are unable to tolerate any exposure to fire.

### Inappropriate fire regimes

Certain species become threatened when the frequency of burning is unnaturally increased or decreased. With fire-adapted insects, most need many years after being burnt to reach stability as plants and other food sources build up their biomass and reach maturity. Times between fires vary with each insect but most of the common herbivore species may require more than 10 years after fires before the food and habitat is sufficient in an area to sustain breeding colonies.

### Seasons for burning

Fires are particularly destructive to subtropical (SEQ) insects in winter and early spring because most insects are inactive and in suspended development during the cooler months. Tropical insects tend to be actively breeding or mobile during winter when low temperatures do not persist to decimate the over-wintering stages. Subtropical insect life history strategies are mostly different to tropical insects, with over-wintering 'diapause' as part of their immature

suspended development. Most are without wings in winter, currently the time most often chosen for fuel reduction burns.

Before European occupation, winter fires in the subtropics would rarely have been started by lightning and the late spring storms were usually the first for the season, accompanied by extinguishing rain. Fires are also most destructive to lizards in winter when they are inactive, and the greatest impact on small mammals is during spring and early summer, when offspring need food, (i.e. invertebrates) shelter, and they are too young to flee.

### Mobility helps escape fires

A few mobile insects and many large mammals are able to escape being burnt and react positively after fires by migrating back into the areas to feed on re-sprouting vegetation. However, if their food sources are specialised or become depleted, their chances of recolonising are reduced. Plants as hosts for herbivorous insects only become suitable if allowed to reach the age required without being burnt. Adequate corridors are necessary and movement back into recovering areas may depend on several years of growth before insects can breed adequately.

Poorly mobile invertebrate species are most affected. At any time of the year wingless insects or those that have very small 'closed' breeding habitats are unable to escape or easily re-populate in fragmented landscapes unless they are species that shelter underground (e.g. ants). Local insects are especially at risk in smaller, fragmented landscapes. Insects do not always colonise plants or plant communities that appear to be favourable. Subtle symbiotic relationships with other organisms frequently limit the areas needed for breeding sites.

Small ground-dwelling vertebrates can also be placed under intense pressure because they must compete for food in an unburnt area and they are also in symbiotic relationships with their



A disused gold-mining test-site on Mt. Coot-tha. Such sites are used by micro-bats for night roosting. Micro-bats are repelled by smoke and forced to disperse, particularly in cases such as this when the hazard reduction burn continued for two weeks. In addition, their prey (moths) will be depleted. Photo by Christine Hosking.

established environment. One example is micro-bats. They are repelled by smoke, forced to disperse and have to find new roosting sites. Fire and smoke are particularly detrimental if a burnt area contains a maternity roosting site. Micro-bats also lose important food sources if invertebrates such as moths are burnt.

### Leaf litter insects: the importance of senescing plants

Some small oecophorid moths are very prone to local extinctions when extensive patches are burnt. Their larvae feed on, and decompose dead eucalypt leaf litter on the ground and can take years to re-colonise after fires. Therefore, their loss leads to decreases in recycled nutrients, increases in accumulating leaf litter, and increases in the "fuel load".

Poorly mobile and wingless insects that live in senescing timber that is prone to burning, logs on the ground and leaf litter, require prolonged years of vegetation growth (>15 years) before they can move back into areas that have been completely burnt. Many other small animals depend for food on insects found in these micro-habitats. Some examples from SEQ are bandicoots, antechinus, planigales and ground-foraging birds such as Pheasant Coucals. Smaller mammals are also at greatly increased risk from predation by feral species such as foxes as they search for food and are exposed in the burnt areas.

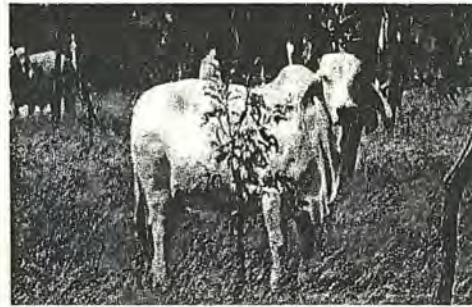
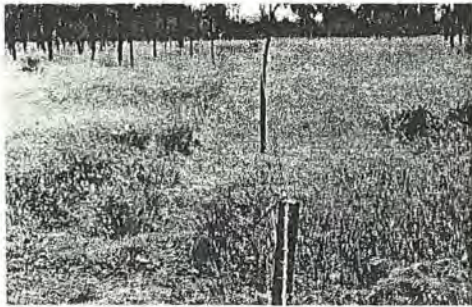
## INCREASE LITTER COVER AND INCREASE INFILTRATION OF RAINFALL

A full wet season rest allows maximum pasture bulk and, consequently, an increased amount of leaf and stem that decays and falls to the ground as litter. The presence of ground cover and litter has a direct and significant impact on the ability of the soil to soak in rainfall. This is particularly important for Indian couch dominated pastures, as Indian couch plants have a small root mass compared to 3P grass tussocks, and therefore have less ability to soak in the rain that falls.

“ Gives 3P grasses a chance  
to recover before being  
preferentially grazed. ”

MANAGE STOCK NUMBERS TO ALLOW FOR A PLANNED QUANTITY OF PLANT MATERIAL TO BE LEFT AT THE END OF THE DRY SEASON BY SETTING PASTURE YIELD THRESHOLDS WITHIN A FORAGE BUDGET.

The DPI&F Stocktake Monitoring Workshop includes a simple program to enter paddock monitoring details and calculate feed budgets.



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Recovering C condition paddocks need extra attention to maintain and encourage the processes of recovery. In addition to conservative use of pasture and more regular full wet season spelling, it is important to retain adequate minimum ground cover and pasture reserves at the end of the dry season, to protect the soil surface and encourage rainfall infiltration. Aim for the following levels:

- ✓ Retain at least 60% ground cover at the end of the dry season to maximise rainfall infiltration.
- ✓ For C condition Indian couch pasture recovery:
  - ✓ Retain at least 500 kg/ha of dry feed at the end of the dry season in below average rainfall years and 800 kg/ha of dry feed in better seasons.
  - ✓ Encourage litter build-up, 3P grass recovery, and the joining of grassy patches through wet season rest.
  - ✓ Monitor land condition, and balance feed supply and animal demand using the DPI&F Stocktake package.



## WET SEASON SPELLING

### THE KEY TO RECOVERY

Full wet season spelling, or rest, is essential to recover land in poor condition. To make the most of the precious rain that falls, you need to manage your land in ways that improve condition. This not only keeps sediment and nutrients in your paddocks, it also ensures good pasture and animal production.

Note: Also addresses problem of run-off to Great Barrier Reef.



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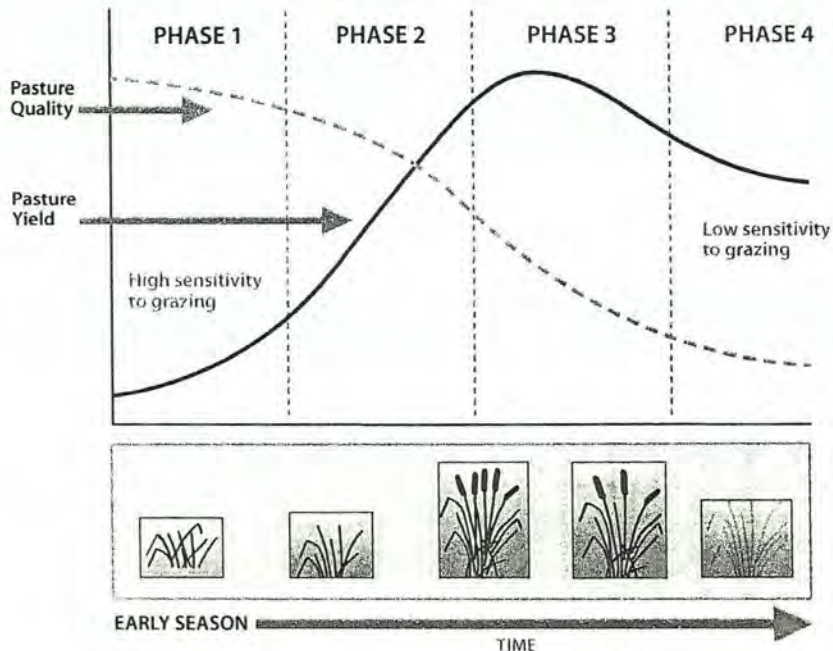
## ALLOW THE LAND TO RECHARGE ITS BATTERIES

Wet season spelling or rest, provides a period of protection from grazing that allows the plant to replenish essential plant reserves, set seed and allow seedling recruitment. Pastures need to be spelled during the wet season when they are actively growing. Regular wet season pasture rest is essential to ensure long-term beef production.

Typically, pastures are spelled after the first significant rainfall event (more than 50mm over 3 days) until the middle (early wet) or end (late wet) of the rainy season. In cases where it is difficult to shift cattle at the break of season, paddocks can simply be spelled from the last round muster. The benefits of rest, however, will only occur with complete de-stocking of a paddock, and will not be obtained through lighter stocking rates. This is because cattle will preferentially graze the 3P (perennial, palatable, productive) grasses despite other feed on offer.

## HOW DOES WET SEASON REST WORK?

Resting pastures in the early wet season allows the pasture plants to awaken from dry season dormancy and rapidly build depleted energy reserves. The plants are very sensitive to grazing and are of the highest diet quality at this time. Once the pasture is in its green leafy stage of growth with moderate quality (phase 2), continued rest (late wet season rest) allows the plant to reach its potential leaf and stem bulk (phase 3) and move energy reserves into the roots and crowns to drive growth the following season. It is usually during this phase that a pasture plant flowers and seeds. However, this can occur at any stage of pasture growth, and is dependent on the plant species, the land type, and the way rain has fallen during the season. Allowing the pasture to store energy reserves also builds plant resilience to grazing and drought.



## RATHBURNIE ESTAT/ LINVILLE QLD, 4306

“Show us the hidden costs of not allowing our land to recharge its batteries. What will it cost in lost production, soil or biodiversity, if we don't do this? I could maybe get away with not doing this, but my kids might curse me for destroying what I want to leave them.”

Burdekin grazier, 2006

## RECOVERING POOR CONDITION LANDSCAPES MANAGING PATCHY RECOVERY

Landscapes do not recover evenly across paddocks. Recovery in C condition landscapes will be patchy, with some areas of a paddock responding quickly in terms of increased cover, pasture yield, 3P species composition and ability to trap water and nutrients. However, other areas may remain static or continue to degrade for some time. Full wet season rest for two years in a row, combined with conservative dry season grazing, is the best way to speed up the recovery process, especially in the early years. Benefit will be seen from opportunistic wet season spelling but, in recovering landscapes, the growth of new 3P grass seedlings and formation of new patches from the initial spell will be delayed and therefore recovery will be slower.

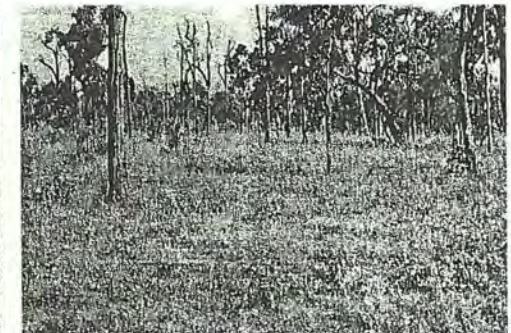
TO RECOVER LAND IN POOR (C) CONDITION REQUIRES THE REMOVAL OF ALL GRAZING ANIMALS OVER THE FULL LENGTH OF THE WET SEASON. FULL WET SEASON REST FOR TWO SUCCESSIVE YEARS IS NECESSARY TO SPEED UP THE RECOVERY PROCESS.

Recovery of poor condition, Indian couch dominated country is likely to be slower and patchier than equivalent paddocks with a higher occurrence or scattering of 3P tussock grasses. 3P tussock grass patches provide the architecture necessary to trap and accumulate resources such as litter, where Indian couch pastures have the tendency to collapse during drought conditions. It is important to allow build-up and connectivity between recovering patches to slow the flow of water, capture and retain sediment and nutrients, and reduce landscape leakiness.

MANAGE FOR THE PROPORTION OF C CONDITION PATCHES PRESENT, NOT AVERAGE Paddock CONDITION.

Recovering paddocks remain highly vulnerable to heavy stocking and short duration, intense rainfall events, due to the patchy distribution of plant bulk, ground cover and 3P grasses. Recovering landscapes take much longer to increase the size and number of 3P pasture plants, pasture root mass, organic matter and nutrient reserves than land in fair (B) and good (A) condition.

PREMATURE RETURN TO HIGHER STOCKING RATES COULD EASILY RE-EXPOSE RECOVERING PATCHES TO HIGH GRAZING PRESSURE AND RE-OPEN LEAKINESS PATHWAYS.



## WHAT IS INFILTRATION?

Infiltration is the process by which water enters the soil. The higher the infiltration the faster the water moves into the soil. This means less runoff and less erosion. Different soil types have different infiltration rates, but generally the higher the ground cover, the higher the infiltration rate. 3P tussock grasses increase soil infiltration by slowing down water as it flows across the landscape. They also help to protect the soil against raindrop impact and improve the condition of the soil. If your soil has low infiltration, you need to maintain a higher cover of grasses to restrict runoff.



Recovery of C condition land  
VIRGINIA PARK STATION 2006

“Nature is strong and recovery will occur providing cattle are removed.”

Telephone/Facsimile: [REDACTED]

The Homestead  
Rathburnie Estate  
[REDACTED]

18<sup>th</sup> May 2007

The Chairman & Delegates  
**UBRCN'S FUTURE DIRECTION FOR NRM MANAGEMENT REVIEW**  
Woodford Community Hall – 24/5/07  
c/- 'The Hub' Landcare Centre  
**KILCOY QLD 4515**

Dear Delegates

**FUTURE DIRECTION FOR NRM MANAGEMENT REVIEW**  
**SUBMISSION**

Due to prior commitments, I am unable to attend the above Meeting; but as an invitee I would like to nominate Jim Slingsby as my proxy to present this Submission to Delegates at the Meeting.

**1. A SUSTAINABLE REMEDY FOR RANGELANDS**  
**(INCLUDING CATCHMENTS)**

**STAGE 1 THE FOUNDATIONS (THE BASE ECO-SYSTEM)**

**(a) Perennial Grasses**

As outlined in the CSIRO "ECO-GRAZE" PROJECT (ISBN-0-9579842-0-0)  
"A wet-season spelling regime (P.37) can support higher overall utilisation rates than continuous grazing without damaging the key perennial grasses."

Where wet-season spelling can be implemented using fairly simple two, three or four paddock grazing systems, followed by 50% utilisation, it recovers native tussock perennial grasses in poor condition pastures, even during drought years;

**but**

"As perennial grasses are lost through over-grazing, the rainfall effectiveness declines, pasture productivity is reduced and the system becomes desertified".

.....21.

**STAGE 1 THE FOUNDATION**

**(a) Perennial Grasses cont.**

This objective of LONG-TERM SUSTAINABILITY of the RANGELANDS (70% of land usage in Australia) has many benefits – the surplus pasture, manure and litter will mulch the soil surface thereby minimising evaporation, erosion and excessive run-off whilst feeding the soil biota capacity and penetration of surplus water to the aquifer to feed ground water and year-long stream flows, and increase the carbon levels in the soil instead of in the atmosphere (eligibility for carbon sequestration credits).

**Implementation.** The Eco-Graze Project established "wet-season spelling regime was cost effective" and the tested the long-term sustainability of this grazing system; on P.37 "it was assumed that considerable amounts would need to be spent on fencing and water in order to implement this sustainable rotational grazing system".

Funds from the Federal May Budget could provide LOW INTEREST LOANS to landholders for provision of materials needed for such infrastructure; and to establish a Conservation Corps (similar to that President Franklin Roosevelt used comprising unemployed to transform the Tennessee Valley pre-War) to provide the necessary Labour Force.

**(b) Native Woodlands (\*)**

The assumption has been that the original native vegetation was forests; and people have said you've got to replant a lot of trees. Early explorers described 'travelling through country where the grass reached the horses' bellies – an open grassy woodland with widely spaced trees, that you could gallop a horse through, or ride through with horse and dray."

Queensland's "New Code applying to Native Forest Practice on Freehold Land" should be introduced to all Freehold Lands (Freehold is freedom from paying rent to the Crown not freedom to damage the National Estate – the Land) wherein a limited number of non-commercial regrowth trees are regularly thinned to ensure less demand for water and to favour trees with better commercial potential- thereby protecting the soil resource from degradation by maintaining good pasture growth (under a wet-season spelling regime) to ensure the land does not become unproductive from a grazing or timber perspective, maintaining wildlife habitats, protecting ground water and stream flows, drainage lines, wetlands and springs and controlling salinity, erosion and evaporation.

The Conservation Corps could be gainfully employed in thinning regrowth and harvesting the thinnings and milled tree-heads for production of Ethanol and Bio-Diesel from the wood chips. (This is now proven by Apace Research at Nowra in conjunction with the Tennessee Valley Authority, and in Europe by Shell.) Production of bio-fuels from woodchip/waste will not disrupt the costs of grains for animal production etc.

.....3/.

(\*)

"EFFECT OF TREES ON GRAZING HERBAGE BIOMASS" (Optimum Spacing of Trees/Grass) Walker J., Robertson J.A. Pentridge K., 1986 Division of Lan' & Water, CSIRO. and Sherne P.J.H. Texas N&M University, U.S.A.

**STAGE 1 THE FOUNDATION cont.**

**(c) Fire and Biodiversity**

Don Sands, Hon. Research Fellow, CSIRO, in an article "Fire and Biodiversity" in the January, 2007 issue of "Land for Wildlife" states

"Observations from early non-indigenous settlers provides – together with palaeoecological research – convincing evidence that traditional Aboriginal land managers used landscape fires very differently and often far less, than current European practices. Not all Australian ecosystems are dependent on fire, need fire, or become healthier after fires. Some plant and animal species respond positively after fire, others are detrimentally affected and some are unable to tolerate any exposure to fire".

The Conservation Corps could be gainfully employed in weed control and in preparing fire-breaks to prevent fires occurring more frequently than 15-30 year intervals; and to thin regrowth in national parks to the lesser density to prevent wild canopy fires predicted under Climate Change, and subsequent forest regeneration that uses more water than the mature forests they replace.

**STAGE 2 THE WINDOWS. (THE SECONDARY ECO-SYSTEM)**

Once the initial BASE SYSTEM has been established, the present fragmented projects can be built on this foundation, involving the "THE GUIDELINES AND THRESHOLDS FOR SUSTAINABLE GRAZING LANDS" as outlined in the CSIRO Grazed Landscapes Management Project "Understanding and Using Landscape Thresholds in Property Planning – Balancing Conservation & Production" which could then be initiated by Catchment Authorities rather than the past decades 'tyranny of small decisions' (Simon Smith, NSW Department of Environment – Weekend Australian P.17 14-15/10/2006).

**STAGE 3 ADMINISTRATION AND MONITORING OF BOTH ECO-SYSTEMS (THE ROLE OF CATCHMENT AUTHORITIES.)**

Once the Foundations are in place, Stage 2 could also be monitored by the Catchment Authorities who would recommend Eco-Credits as they accrued on each property – perhaps credited through Shire Council Rate Rebates, but funded by NRM.:-

- Improved soil structure
  - Improved timber resources
  - Improved biodiversity, and habitat
  - Improved water efficiency
  - Improved carbon sequestration
  - Controlled burning regimes
  - Reduction in water requirements
  - Reduction in evaporation
  - Reduction in salinity
  - Reduction in erosion
  - Reduction in artificial fertilizers & chemicals
  - Reduction in weed infestation
- .....4/.

**2. SUSTAINABLE REMEDY FOR AGRICULTURAL LANDS**

I refer Delegates to "CARBON & CATCHMENTS – inspiring REAL CHANGE in natural resource management" – presented to the International Workshop 'Defining the Science and the Practice' at Bungendore, NSW on 31/10/2006 and 1/11/2006 by Dr Christine Jones

and

I also refer Delegates to Professor Stuart B Hill's presentation "REDESIGN FOR SOIL, HABITAT & BIODIVERSITY CONSERVATION" – Lessons from Ecological Agriculture & Social Ecology – to the Nature Conservation Council of NSW Soils Campaign, 6<sup>th</sup> April, 2002

Both these papers have been lodged with Bruce Lord and The Hub and I trust Delegates will source them accordingly.

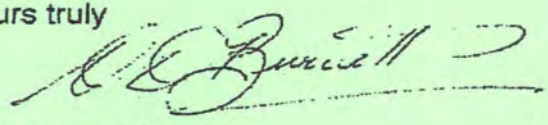
**3. CLIMATE CHANGE – CARBON SEQUESTRATION**

In a "Landline" Interview with Professor Tim Flannery on 11/2/2007 he stated:

"Carbon trading represents one of the great opportunities for farmers in Australia. But what we really need in order to maximise the opportunity is some good Government policy. We also need a proper account system for carbon. **One of the great opportunities in Australia is sequestering or storing carbon in the soil .....** There are a number of ways that this can be done, but essentially it's all to do with good management of your soil. .... I think it will be a major industry world wide in future and whoever has access to broad acres will be very advantaged in that .... The broad figures are that we can store enough carbon in the living biosphere, to offset all of the carbon emissions since the beginning of the industrial revolution".

I commend these scientifically backed remedies to the Meeting.

Yours truly



**(Mrs) V.D. BURNETT**

**(TRUSTEE – ESTATE G.C. BURNETT DECD)  
BENEFICIARY – World Wildlife Fund Australia)**

## Somerset Futures, First Round Consultations

Submission of Valmai Burnett, Rathburnis Estate Nature Refuge, [REDACTED]  
Dated 24/11/2010

Enclosure: **Background of future of agriculture & regrowth**

### (A) BACKGROUND.

The application of European farming methods to this old and fragile continent has degraded our soils, the land and the rivers. This continent with its variable rainfall and shallow ancient soils underlaid with salt was originally quite productive due to soil biota and humus (carbon) content built under Aboriginal custodians over millennia.

Captain Cook, early explorers and settlers described it "like a gentleman's park with widely spaced trees and oat-like grasses in the understorey." Early explorers also described travelling through country where the grass reached the horses' bellies, and through you could gallop a horse or drive a horse and dray. (Refer 1895 painting "A")

Since the 1850s grazing "management" associated with tree-clearing and altered fire regimes has characterised significant changes in the grassy woodlands of south-eastern Queensland. (Refer A.M.P. Report on Colinton Estate - 1900 - Queensland Oxley Memorial Library).

In an address to the Agri-Food Conference in Melbourne last year "Tackling the Global Food Crisis", The Adjunct Professor of Science Communication at the University of Technology, Sydney, Julian Cribb, outlined some alarming facts about global food supply and the challenges facing agriculture now and in the future. According to Professor Cribb each year for the past seven years, the world has consumed more grain than its farmers have been able to grow, leaving grain supplies at the lowest level for 50 years.

Professor Cribb sees the current food crisis as a WARNING of what could lie ahead as civilisation runs low on water, arable land, nutrients and technology, as marine catches collapse, biofuels expand on arable land whilst oil supplies and oil-based fertilizers run out, energy costs soar and droughts intensify due to climate change. At the same time as he expects world population increasing will cause global demand for food to double. "

Australian Farm Journal, 1/2/2009.

These warnings are repeated world-wide in articles from The Weekend Australian, Queensland Country Life Newspaper, A.B.C. "Bush Telegraph" which quote "Collapse" (Prof. Jared Diamond, U.S.A.), "The Weather Makers" (Prof. Tim Flannery) Patrick Coleman (U.K. Soils Association) and "Why China's Base is Fragile" (Matthew Cawood, Environmental & Science Writer, Q.C.Life) and Professors from the Tokyo Institute of Technology. (W/E. Australian P.13, 14-15/3/09)

In view of the looming global food crisis warned world-wide, strategic directions must focus on NEEDS not WANTS - i.e. providing healthy food within minimum "food miles" of ever-increasing population centres.

Such strategic direction must involve retention of scarce arable lands in high rainfall belts and frost-free areas. It must also address restoration of the degraded productive rangelands and arable lands in Australia.

It must also involve production of Bio-Fuels from sources other than from food grains. (Refer Submission NRM- "B") attached.



# Somerset Futures, First Round Consultations

Submission of Valmai Burnett, Rathburnie Estate Nature Refuge, [REDACTED] [REDACTED]  
Dated 24/11/2010

Enclosure:

U.N. Review of Paper No. 8

LAND AND WATER DISCUSSION PAPER

## Review of evidence on drylands pastoral systems and climate change

Implications and opportunities for mitigation and adaptation

The review highlights the significant untapped potential for climate change mitigation and adaptation associated with improved management of grazing lands in pastoral systems and rangelands. Grasslands and rangelands deserve greater attention, not only for their large extent, widespread degradation and limited resilience to drought and desertification, but also for their potential capacity to sequester and store carbon in soils. Degradation of the land base negatively affects the accumulation of carbon in the soils. Thus, reversing land degradation in extensive dryland areas through improved pasture and rangeland management would contribute to restoring the soil carbon sink while also improving livelihoods of pastoral and agropastoral peoples. The review also highlights the multiple benefits of enhancing ecosystem services and processes for improving livelihoods while contributing to adaptation to climate change impacts. Realizing this potential will require increased awareness and coordinated global efforts alongside interventions that address associated socio-political and economic barriers, such as land tenure constraints and inadequate services for, and political marginalization of, pastoral and agropastoral communities. The opportunity to support climate change mitigation in drylands that will simultaneously contribute to climate change adaptation and reduced vulnerability of pastoral societies should be a key area of focus in post-Kyoto mechanisms.

THE FOOD & AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS.  
Rome, 2009.

THE FOOD & AGRICULTURE ORGANIZATION  
OF THE UNITED NATIONS.  
Rome, 2009.

Suggest downloading of this very interesting Paper No.8 from  
Web site: <http://www.fao.org>  
(via Google.)

Contents include:-

Abstract	v.
Executive Summary	vii.
Key Messages	29-30
"The Way Forward"	31-32
Scientific References	33-38.

ISBN 978-92-5-106413-9 ISSN 1729-0554



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11135E/11/10.09/2100

Refer CSIRO "Ecograge" Project results in SPELL GRAZING on 3P Native Pastures during the prevailing wet seasons.  
and  
"Effect of Trees on Grazing Herbage Biomass" (optimum spacing of trees c.f. grass) Walker J. et al, 1986 Division of Land & Water, C.S.I.R.O.

### Fires worse than ruminans

SOME back-of-the-envelope figures from CSIRO suggest that bushfires deliver a far worse greenhouse gas outcome than a cow. Tony Lovell of Soil Carbon Australia asked CSIRO scientists what the comparative greenhouse gas implications would be of feeding a tonne of dry grass through a cow's rumen and a bushfire.

The emailed response, but not published in the scientific literature,

was that a tonne of grass put through a cow would deliver around 16kg of carbon dioxide equivalents (CO<sub>2</sub>e) of emissions.

The same tonne consumed by a bushfire would produce 57.8 CO<sub>2</sub>e, or 3.6 times as much as the cow. Mr Lovell theorises that in a dry rangelands environment, an animal's rumen provides a moist, microbe-rich environment to break down dry vegetation - an ecological service that in moister environments is provided by the soil.

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11135E/11/10.09/2100

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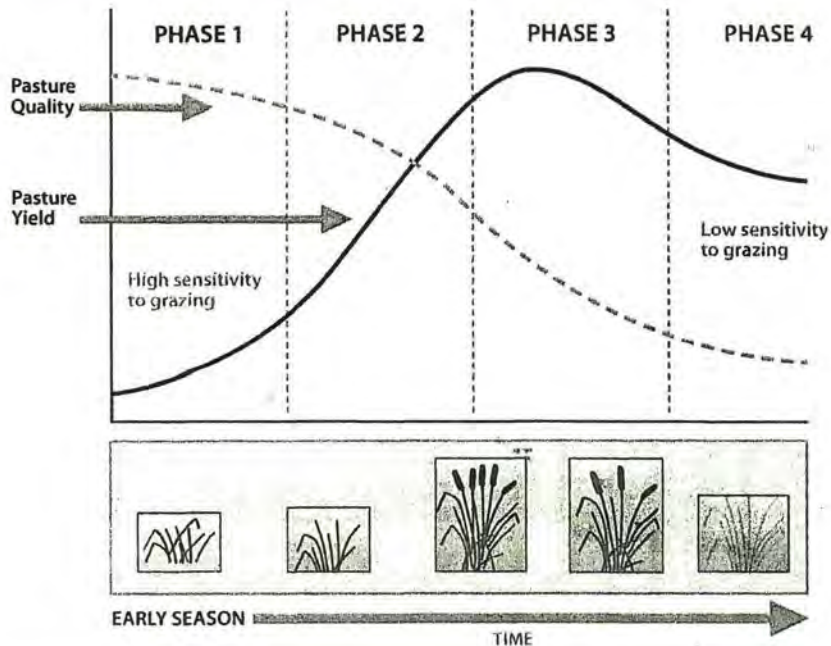
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Typically, pastures are spelled after the first significant rainfall event (more than 50mm over 3 days) until the middle (early wet) or end (late wet) of the rainy season. In cases where it is difficult to shift cattle at the break of season, paddocks can simply be spelled from the last round muster. The benefits of rest, however, will only occur with complete de-stocking of a paddock, and will not be obtained through lighter stocking rates. This is because cattle will preferentially graze the 3P (perennial, palatable, productive) grasses despite other feed on offer.

## HOW DOES WET SEASON REST WORK?

Resting pastures in the early wet season allows the pasture plants to awaken from dry season dormancy and rapidly build depleted energy reserves. The plants are very sensitive to grazing and are of the highest diet quality at this time. Once the pasture is in its green leafy stage of growth with moderate quality (phase 2), continued rest (late wet season rest) allows the plant to reach its potential leaf and stem bulk (phase 3) and move energy reserves into the roots and crowns to drive growth the following season. It is usually during this phase that a pasture plant flowers and seeds. However, this can occur at any stage of pasture growth, and is dependent on the plant species, the land type, and the way rain has fallen during the season. Allowing the pasture to store energy reserves also builds plant resilience to grazing and drought.



**“Show us the hidden costs of not allowing our land to recharge its batteries. What will it cost in lost production, soil or biodiversity, if we don’t do this? I could maybe get away with not doing this, but my kids might curse me for destroying what I want to leave them.”**

Burdekin grazier, 2006

## RECOVERING POOR CONDITION LANDSCAPES MANAGING PATCHY RECOVERY

Landscapes do not recover evenly across paddocks. Recovery in C condition landscapes will be patchy, with some areas of a paddock responding quickly in terms of increased cover, pasture yield, 3P species composition and ability to trap water and nutrients. However, other areas may remain static or continue to degrade for some time. Full wet season rest for two years in a row, combined with conservative dry season grazing, is the best way to speed up the recovery process, especially in the early years. Benefit will be seen from opportunistic wet season spelling but, in recovering landscapes, the growth of new 3P grass seedlings and formation of new patches from the initial spell will be delayed and therefore recovery will be slower.

**TO RECOVER LAND IN POOR (C) CONDITION REQUIRES THE REMOVAL OF ALL GRAZING ANIMALS OVER THE FULL LENGTH OF THE WET SEASON. FULL WET SEASON REST FOR TWO SUCCESSIVE YEARS IS NECESSARY TO SPEED UP THE RECOVERY PROCESS.**

Recovery of poor condition, Indian couch dominated country is likely to be slower and patchier than equivalent paddocks with a higher occurrence or scattering of 3P tussock grasses. 3P tussock grass patches provide the architecture necessary to trap and accumulate resources such as litter, where Indian couch pastures have the tendency to collapse during drought conditions. It is important to allow build-up and connectivity between recovering patches to slow the flow of water, capture and retain sediment and nutrients, and reduce landscape leakiness.

**MANAGE FOR THE PROPORTION OF C CONDITION PATCHES PRESENT, NOT AVERAGE Paddock CONDITION.**

Recovering paddocks remain highly vulnerable to heavy stocking and short duration, intense rainfall events, due to the patchy distribution of plant bulk, ground cover and 3P grasses. Recovering landscapes take much longer to increase the size and number of 3P pasture plants, pasture root mass, organic matter and nutrient reserves than land in fair (B) and good (A) condition.

**PREMATURE RETURN TO HIGHER STOCKING RATES COULD EASILY RE-EXPOSE RECOVERING PATCHES TO HIGH GRAZING PRESSURE AND RE-OPEN LEAKINESS PATHWAYS.**



## WHAT IS INFILTRATION?

Infiltration is the process by which water enters the soil. The higher the infiltration the faster the water moves into the soil. This means less runoff and less erosion. Different soil types have different infiltration rates, but generally the higher the ground cover, the higher the infiltration rate. 3P tussock grasses increase soil infiltration by slowing down water as it flows across the landscape. They also help to protect the soil against raindrop impact and improve the condition of the soil. If your soil has low infiltration, you need to maintain a higher cover of grasses to restrict runoff.



Recovery of C condition land VIRGINIA PARK STATION 2006

**“Nature is strong and recovery will occur providing cattle are removed.”**

PT