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Productive agriculture and NRM – finding the synergy

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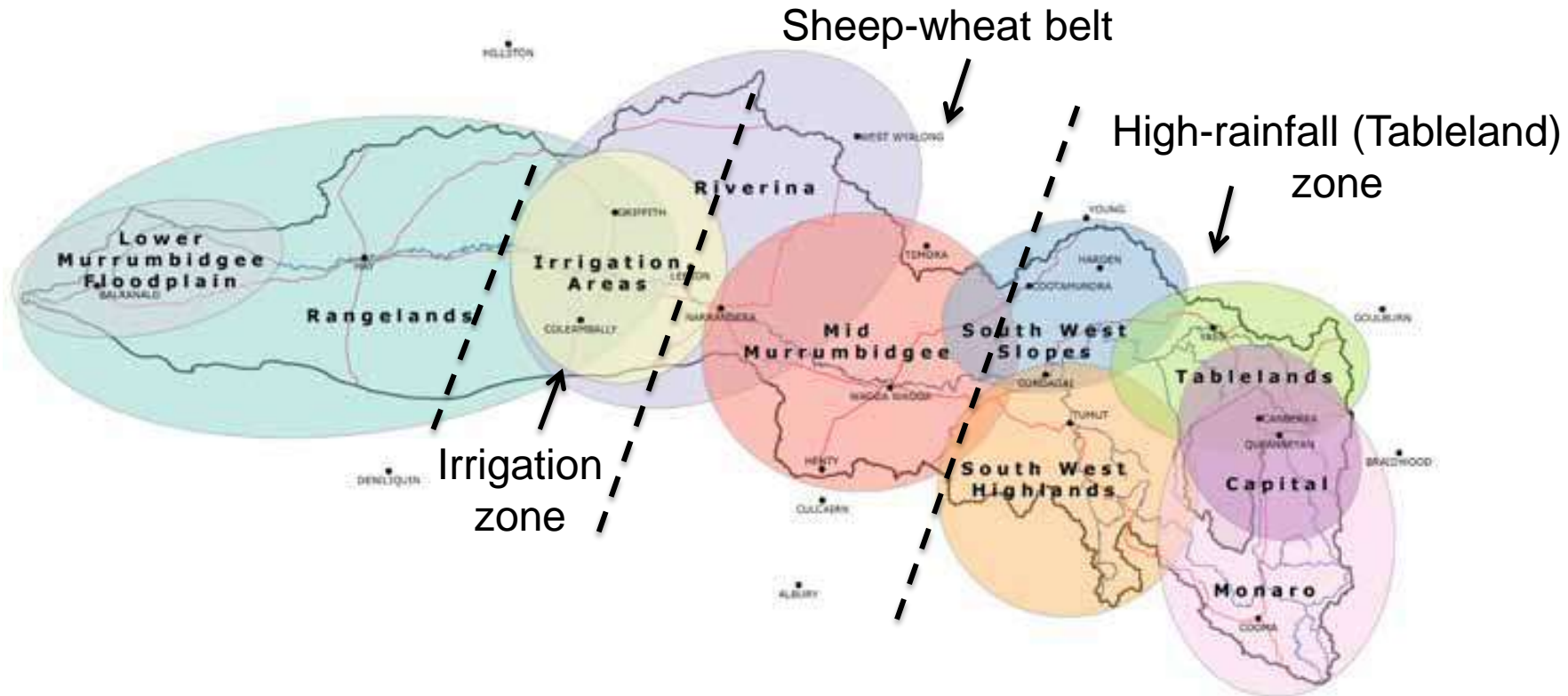
Seminar topics

Focus on three zones in the Murrumbidgee catchment:

- **Irrigation zone**
- **Sheep-wheat belt**
- **High rainfall (Tableland) zone**
- ❑ **Agro-ecosystem overview (Table) for each zone**
- ❑ **Environmental overview (NRM = grassy woodland areas) for each zone**
- ❑ **Biodiversity overview**
- **Summary of agriculture and NRM, zone by zone**
- **Work undertaken by Murrumbidgee CMA and Murrumbidgee Landcare Inc.**

Conclusions, way forward

Murrumbidgee catchment



Agroecosystem Analysis

Agroecosystem analysis – five **properties**:

- **Productivity:** e.g., food production per ha per unit of rainfall (or litre of fuel)
- **Sustainability (environmental well-being):** e.g., rate of soil erosion per ha, incidence of soil acidity or salinity
- **Economic performance:** e.g., profit or loss of the farm business, return on capital
- **Social well-being:** e.g., well-being of farmers, rural communities
- **Political acceptability:** e.g., flak rating of the carbon tax

Agroecosystem analysis – three Murrumbidgee zones

ZONE	Productivity	Sustainability	Economic	Social, political
IRRIGATION	WUE – 1.0 t of water per kg of rice	Competition for water, lack of native vegetation	Two economies – with water and without	Anxiety and frustration over water issues
SHEEP-WHEAT	WUE – 0.66 t of water per kg of wheat	Herbicide-resistant weeds, lack of biodiversity	Two business structures – farm families & corporations.	Anxiety and frustration due to complexity, low profit
HIGH RAINFALL TABLELANDS	WUE – 20.0 t of water per kg of meat	Soil acidity, perennials, some biodiversity	Two motivations – grazing & life-style (blockies)	Many farmers ‘disconnected’, graziers getting older

NRM analysis – grassy woodlands

Management principles (McIvor & McIntyre 2002)	Threshold for resilience	Actual: Irrigation zone	Actual: Sheep-wheat belt	Actual; Tableland zone
Exposure to bare ground	<30%	<30%	<30%	<30%
Native grass content	Up to 60-70%	<5%	<5%	40%
Intensive land use	<30%	97%	>95%	40-75%?
Woodland or forest cover	30%	3%	<5%	<5%
Size of woodland patches	Min. 5-10 ha	Median <5 ha, no large patches	Median <5 ha, few large patches	Median <5 ha, some large patches
Core conservation areas	At least 10% of property	0-2%	0-5%	0-10%

The concept of biodiversity?

Biodiversity refers to the number and variety of plant, animal and microbial life within a region.

Enhancing agricultural biodiversity may involve procedures or protocols that ensure a better functional combination of agricultural crops, pastures and livestock:

- Broadening the genetic base of useful agricultural species;
- Retaining a balance of traditional farming methods with corporate farming and industrialised agriculture;
- Reducing the dependence of farming on non-renewable resources;
- Balancing the commercial gain of individuals with the public good; and
- Recognising the different socio-economic motivations/needs of individuals and communities.

Resilience to biotic and abiotic stressors can be created by:

- Preserving and increasing the content of native flora and fauna in production landscapes (NRM)

Irrigation zone

- Intensive horticulture and agriculture
- Major food processing area, 45,000+ people
- Horticulture farms (~130 ha) – citrus, viticulture and vegetable production, doing it tough
- Broadacre farms (~1250 ha) have 120 ha of irrigated rice and/or cotton, 300 ha dryland crops, 1200 sheep, going well
- Ricegrowers' Association (RGA) have had an Environmental Champions program
- Cottongrowers are also environmentally aware
- Funds available for implementing farm plans, enhancing WUE and incorporating NRM



Sheep-wheat belt

- Mixed farming (crop and livestock), 2420 ha with 771 ha sown to crops, 1520 sheep + cattle
- Industry is somewhat fragmented politically with fewer, bigger farms. More debt
- Has overcome acidity, salinity and soil erosion problems
- Crop production is risky, dependent on fuel, herbicides and chemicals
- Past NRM work looks good but remnant vegetation areas are scarce, paddock trees are fragile
- “Can’t be green when you are in the red”
- Landcare has struggled, CMA has done some good work with landholders (e.g., Flanery family 80,000 trees; Lindner family 16,000 trees) but the CMA approach is cumbersome (expensive, rather inflexible)
- **Most land (~95%) is classified RU1 (primary production)**
- Broader range of NRM incentives needed



High rainfall zone (Tablelands)

- Contains some of Australia's best grazing country (e.g. Harden, Yass)
- Agricultural holdings 2,000-3,000 ha, livestock numbers have declined, now stabilising
- Large peri-urban belt around ACT – 'Capital' landscape
- Agricultural challenges are soil management, weed control, ageing farmers, 'disconnected farmers' (40%)
- Native vegetation is increasing (woodlands and grasslands), emphasis on connectivity
- Strong influence of ACT (small hobby farms, lifestyle farms, NRM policies)
- **Palerang Shire (Queanbeyan) is proposing a reduction in RU1 (primary production) from 43% to 20%, + increases in RU2 (rural landscapes) and E3 (environmental management)! RU4 (rural small holdings) already high.**
- Interest in traditional land management
- Still some barren-looking landscapes



- Servicing 12 networks & groups in M'bidgee catchment
- Good website
- Annual forum
- Solid partnerships with Murrumbidgee CMA, Ricegrowers, Farmlink, NSW DPI
- Participated in Monaro Connectivity Project
- Managing a major cross-property planning project at Kyeamba V., Humula, Junee
- Managing several small projects – wetlands in rangelands, education (2), water management, CFI, Evaluating Landcare in catchment (with M'bidgee CMA), etc.
- Supported Murrumbidgee CMA with Regional Landcare Awards





Murrumbidgee CMA

- **Over the last 4 years:**
 - ~2000 ha of native vegetation protected by way of landholder incentives;
 - ~16,000 ha of priority native vegetation managed through Property Vegetation Plans;
 - ~13,000 ha of protected habitat;
 - ~7,000 ha classified and secured as Endangered Ecological Communities;
 - The *Community Partnerships* program provided 87 grants (~\$10,000 per project) and assistance to community groups, and
 - Increasing connectivity through ~1,000 ha of newly planted vegetation.
- **Partnerships** with the Aboriginal communities in riparian areas
- During **drought**, 32 farmers were involved in a program to promote the strategic use of feedlots established on suitable farm sites to reduce grazing pressure on farm lands
- **CAP 2013 – widespread consultation**
- **Regional photo competition**



Irrigation zone



Gogeldrie



Irrigation zone

- Food bowl status, most land will remain in primary production
- Work with broadacre farms and industry groups (rice growers, cotton industry) to **promote NRM** (e.g., biodiversity in the house paddock)
- Focus on farm planning, strategic tree belts, aquatic habitats and specific wildlife

Tablelands



Braidwood



Tablelands zone

- Mixture of grazing, lifestyle, NRM, conservation. **Co-existence is important. So is community consultation.**
- Continue with NRM strategic enhancements
- Connectivity projects are important. Murrumbidgee CMA recently coordinated a Monaro Connectivity Project with Kosciuszko to Coast and MLI. Engaged over 80 landholders, signed up 13 for funding assistance, provided an Indigenous interpretation on 60 properties, 3 cool burns, 6 PlaceStories, 4 newsletters, 37 properties provided with species lists.
- Traditional land management. A useful hook, based on booklet produced by Rod Mason, Lauren Van Dyke and Geoff Robertson (K2C)
- Need to engage hobby farmers. Many are disconnected – will be an important component of SE LLS. Weed control is important for grazing lands and native vegetation areas.

Sheep-wheat belt



Illabo



“Lindoris”, Coolamon

Strategically situated astride the Malebo Hills, “Lindoris” has 66 ha planted out to native vegetation and tree belts, total area of farm = 370 ha



Sheep-wheat belt

- Primary role will be grain and sheep production, but **room for more NRM** (currently less than 5%). On some farms, the sheep population may increase at expense of high-risk cropping
- Strategic focus needed on ridgelines, waterways
- Connectivity project underway at Kyeamba V, Humula and Junee
- Paddock trees dying of old age, lack of care and corporate farming – will need to be replaced to meet animal welfare obligations.
- A plan is needed for satellite surveillance
- Existing remnant areas must be preserved – a high priority!
- Opportunities for additional shelter belt plantings. These plantings do wonders for the amenity of the area.
- Opportunities for habitat development
e.g. glossy black cockatoo.

Beckom



General

- Partnerships and alliances are vital, especially between LLS and community Landcare.
- Many other partnerships are possible with business, agribusiness, local government (role for Landcare NSW, LAL)
- Need for greater NRM community awareness and education
- Hence, more and better resource materials are needed.
- LLSs might reduce fragmented distribution of landscape knowledge amongst government agencies
- Programs need to be more flexible, less bureaucratic, and responsive to situations & landholders (contracts, ?????, ?????, workplace agreements, rate relief, Landcare/NRM awards). **A broader range of incentives is needed for NRM on productive farms.**
- Engage hobby farms
- Shift the focus **from** inputs **to** outputs (manuals, resources, services) and outcomes (attitudes, activities, achievements).



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