Great Western Woodlands

Research & Conservation Initiatives

Proceedings of the Great Western Woodlands Research and Conservation Initiatives Workshop, WA Ecology Centre, 26 June 2012.

BirdLife Australia gratefully acknowledges support from the State Government Department of Environment and Conservation Community Environmental Grants program and project partner The Nature Conservancy.

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Preamble

The Great Western Woodlands has recently come to the forefront as an area of local, national and international significance. As a result, research, conservation, land use and management planning have begun in the region in earnest. With the range of projects and organisations involved in the work within the Great Western Woodlands, it is important to maintain open communication to ensure information and resources can be shared and collaborations undertaken in order to result in improved outcomes for the region. These workshop proceedings, from the Great Western Woodlands Research and Conservation Initiatives Workshop, June 26 2012, aim to assist in this by providing an overview of some of the major projects currently occurring within the Great Western Woodlands.

Gondwana Link Great Western Woodlands Project

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Great Western Woodlands Program Manager, Gondwana Link Ltd and Pew Environmental Group Australia.

Other Team Members:

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Amanda Keesing, Gondwana Link Ltd; amanda@gondwanalink.org

2008 to 2011 - being the lead group responsible for getting the GWW recognised and supported by government through the development of the GWW Biodiversity Conservation and Cultural Strategy and supported by $3.8m of Government funding over four years.

For 2012 and beyond our focus is influencing and achieving improved environmental management and protection for high value conservation areas in this connected and intact landscape.

Project Duration

2008 to completion

Resources

Publications

Watson, A., S. Judd, J. Watson, A. Lam, and D. Mackenzie. 2008. The Extraordinary Nature of the Great Western Woodlands. The Wilderness Society, Perth.

Database

We have an online bibliography database for books and articles relevant to all of Gondwana Link. Some hardcopy, many are online downloadable pdf's. They can be searched on geographic area as well as keywords, author etc. The bibliography can be shared, a login needs to be applied for through Amanda Keesing.

Image library database for all of Gondwana Link. The library can be shared, please contact Amanda Keesing.

Spatial Data

Large amount of spatial data available, and able to be shared as long as not bound by licensing agreements.

Other Resources

Some equipment such as remote cameras, spotlights.

A Biodiversity and Cultural Conservation Strategy for the Great Western Woodlands

Aminya Ennis; aminya.ennis@dec.wa.gov.au

Project Coordinator, Great Western Woodlands, Department of Environment and Conservation.

As part of the Western Australian Government's election commitment to better protect and manage the Great Western Woodlands, A Biodiversity and Cultural Conservation Strategy for the Great Western Woodlands was released in November 2010.

The strategy was prepared with the help of a stakeholder reference group that included representation from conservation groups, Indigenous people, miners and explorers, pastoralists, timber harvesters, tourists and local governments. Key government agencies also contributed to the development of the strategy.

The seven initial key priorities identified under the conservation strategy are:

- Creating greater public awareness of the Great Western Woodlands
- Creating voluntary partnerships to co-ordinate on-ground activities across the many tenures of the region
- Establishing a Great Western Woodlands Reference Group to provide advice on the management of the Great Western Woodlands and implementation of the strategy
- Implementing an integrated fire management program
- Joint management of conservation reserves and creating training and employment opportunities for local Indigenous people
- Better control of weeds and pest animals including wild dogs, foxes, cats, camels and goats
- Research to increase the knowledge base to guide management and use of the woodlands and their resources.

A funding commitment of $3.8 million over three years by the Western Australian Government has initiated implementation of the strategy to better manage and protect this important area. A Great Western Woodlands reference group has been established to provide advice to the state government on implementation of the strategy.

Project Duration

The State Government's current funding commitment towards initial implementation of priorities identified in the 10 year conservation strategy ends 30 June 2013.

Resources

Publications

Department of Environment and Conservation (2010) A Biodiversity and Cultural Conservation Strategy for the Great Western Woodlands. Government of Western Australia, Perth.

Great Western Woodlands Land Use Planning Scoping Study

Andrew Del Marco, Ironbark Environmental; delmarco@iinet.net.au

Andrew Huffer, Huffer and Associates; ahuffer@bigpond.net.au

The study was commissioned by the Woodlands Initiative. The initiative included representatives of major stakeholders interested in the future of the Woodlands, including mining, conservation Traditional Owner, pastoralist, local government and others.

The Study was a scoping study or Stage One of a larger process and had four main objectives:

1. Explore and document the views and preferences of stakeholders with respect to land use and management across the Woodlands.

2. Identify areas of consensus and potential conflict throughout the Region; and

3. Propose land use model(s) which can address the particular characteristics of the Region, including its broad range of values and stakeholders (e.g. conservation, mining, pastoral, indigenous cultural significance, scientific, government).

4. Provide recommendations for further work.

This report scopes out a land use planning process for the Great Western Woodlands (the GWW or area) based on the views and preferences of those that have financial, environmental, social, or cultural interests in the land. Underpinning the project is the widely accepted view that the GGW is of special environmental significance and would benefit from land use planning that balances social and economic development with environmental protection.

The report recommends a three-phased planning approach to the development of a land use plan:

Phase One: Woodlands land use policy development

Phase Two: Clarification of priorities and standards for land use and conservation;

Phase Three: Development of a comprehensive plan with zones.

Key themes of the approach are to firstly build the plan on common interests and opportunities and keep stakeholders focused on the plan's long-term objectives.

A sub-regional planning approach was suggested as part of the above approach to better engage stakeholders, and encourage collection of more detailed (mid-scaled) information.

At each phase of the process there should be a clearer statement of each stakeholder group's priorities, what is to be achieved through the plan and where it is to be achieved. Efforts should be made in each phase to pursue collaborative projects between stakeholders, especially where these can help achieve constructive changes on the ground and further long-term plan implementation.

Project Duration

September 2010 – July 2011

Resources

Publications

Ironbark Environmental (2011) Towards a land use plan for the Great Western Woodlands, Stage One: Scoping Study, Main report and summary document, A report to the Woodlands Initiative, Albany, Western Australia.

The report is the property of the Woodlands Initiative. Please contact Keith Bradby or Peter Price for further information.

Spatial Data

The only new GIS data generated by the project was the broad definition of four suggested sub-regions for land use planning purposes.

Spatial and temporal patterns of wildfires in semi-arid south-western Australia

Dr Alison O'Donnell; alisonjodonnell@gmail.com

The University of Western Australia; Bushfire CRC; Dept. Of Environment and Conservation (WA).

Other Team Members:

Dr Pauline Grierson, Associate Professor UWA, Pauline.Grierson@uwa.edu.au

Dr Lachie McCaw, Senior Research Scientist DEC, Lachie.McCaw@dec.wa.gov.au

Dr Matthias Boer, Research Associate, UWA (now at the University of Western Sydney), M.Boer@uws.edu.au

The objective of this PhD research was to characterise the role of vegetation, topography and climate as drivers of variation in the frequency and extent of wildfires in semi-arid south-western Australia.

Fire intervals varied significantly among vegetation types. Shrublands typically burnt more frequently (i.e., 50% of fire intervals < 40 years) than mallee and thickets, and open woodlands which are characterised by a sparse understorey experienced much longer fire intervals than the other vegetation types (i.e. 96% of fire intervals > 40 years).

Wildfires generally occurred during extremely dry and hot conditions typically associated with El Niño. Major fire events (>100,000ha burnt in a season) in particular, occurred during extreme drought conditions preceded by wet and cool conditions in the previous year. However minor fire events (<25,000 ha burnt in a season) were not associated with anomalous climatic conditions, and non-fire years were generally cooler and wetter than average.

The spatial distribution of past fires (i.e., fuels <20 years old) strongly limited the spread of wildfires in the landscape regardless of fire size. The spatial distribution of woodland vegetation however, was important for limiting the spread of smaller fires (<41,000 ha) but had little influence on the spread of larger fires.

Fire size and spread is generally limited by fuel availability (i.e., young fuels and sparse vegetation), but occasionally fires may reach a much greater size when climatic extremes create fuel conditions conducive to fire spread. Above average rainfall in spring and summer may favour the growth of shrubs and ephemeral grasses resulting in well-connected fuel beds, even in woodland vegetation. These fuel beds are likely to become highly flammable if extreme drought conditions are experienced in the following year and may lead to the occurrence of large fires. Hence, forecast increases in the frequency and intensity of both rainfall and drought events in south-western Australia may drive increases in the frequency and extent of wildfires and subsequent ecosystem changes.

Project Duration

Feb 2006 to Dec 2010

Resources

Publications

O'Donnell AJ, Boer MM, McCaw L, Grierson PF, (2011) 'Climatic anomalies drive wildfire occurrence and extent in semi-arid shrublands and woodlands of southwest Australia', Ecosphere, vol.2, no.11, Article 127

O'Donnell AJ, Boer MM, McCaw L, Grierson PF, (2011) 'Vegetation and landscape connectivity control wildfire intervals in unmanaged semi-arid shrublands and woodlands in Australia', Journal of Biogeography, vol.38, no.1, pp 112-124

O'Donnell A, Cullen LE, McCaw WL, Boer MM, Grierson PF, (2010) 'Dendroecological potential of Callitris preissii for dating historical fires in semi-arid shrublands of southern Western Australia', Dendrochronologia, vol.28, no,1, pp 37-47

Spatial Data

ArcGIS (.shp) files of fires between 1940 and 2006 in the Lake Johnston Region.

Fire regimes and impacts in transitional woodlands and shrublands

Dr Carl Gosper; Carl.gosper@dec.wa.gov.au

Science Division, Department of Environment & Conservation; CSIRO Ecosystem Sciences

Other Team Members:

Dr Colin Yates, Science Division, Department of Environment & Conservation; Colin.yates@dec.wa.gov.au

Dr Suzanne Prober, CSIRO Ecosystem Sciences; Suzanne.prober@csiro.au

This project is addressing fire ecology and management in the GWW. Space-for-time surveys are being used to investigate the effects of time since fire on assembly and recovery of plant community composition, development of ecosystem structure and fuel dynamics in gimlet (Eucalyptus salubris) woodlands. 72 sites have been sampled across the western part of the GWW, ranging from 2 yrs post-fire to long-unburnt. Dendrochronology and plant size-age relationships are being used to estimate the time since fire of long-unburnt woodlands. Work on investigating pathways of weed invasion in the GWW is just commencing. This project follows on from similar studies conducted in mallee and shrubland communities in the eastern wheatbelt, which has largely been completed (see publications below).

Project Duration

July 2010-June 2013

Resources

Publications

Gosper, C.R. (2012) Birds of two Important Bird Areas – Lake Magenta and Dunn Rock & Lake King. Australian Field Ornithology 29, 1-14.

Gosper, C.R., Prober, S.M. and Yates, C.J. (2010) Chaining and burning modifies vegetation structure, fuel, and post-disturbance sprouting capacity. Rangeland Ecology and Management 63, 588-592.

Gosper, C.R., Prober, S.M. and Yates, C.J. (2010) Repeated disturbance through chaining and burning differentially affects recruitment among plant functional types in fire-prone heathlands. International Journal of Wildland Fire 19, 52-62.

Gosper, C.R., Yates, C.J. and Prober, S.M. (2012) Changes in plant species and functional composition with time since fire in two Mediterranean-climate plant communities. Journal of Vegetation Science Doi: 10.1111/j.1654-1103.2012.01434.x

Gosper, C.R., Yates, C.J., Prober, S.M. and Parsons, B.C. (2012) Contrasting changes in vegetation structure and diversity with time since fire in two Australian Mediterranean-climate plant communities. Austral Ecology 37, 164-174.

Gosper, C.R., Yates, C.J., Prober, S.M. and Williams, M.R. (2011) Fire does not facilitate invasion by alien annual grasses in an infertile Australian agricultural landscape. Biological Invasions 13, 533-544.

Parsons, B.C. and Gosper, C.R. (2011) Contemporary fire regimes in a fragmented and an unfragmented landscape: implications for vegetation structure and persistence of the fire-sensitive malleefowl. International Journal of Wildland Fire 20, 184-194.

Prober, S.M., Thiele, K.R., Rundel, P.W., Yates, C.J., Berry, S.L., Byrne, M., Christidis, L., Gosper, C.R., Grierson, P.F., Lemson, K., Lyons, T., Macfarlane, C., O'Connor, M.H., Scott, J.K., Standish, R.J., Stock, W.D., van Etten, E.J.B., Wardell-Johnson, G.W. and Watson, A. (2012) Facilitating adaptation of biodiversity to climate change: a conceptual framework applied to the world's largest Mediterranean-climate woodland. Climatic Change 110, 227-248.

Database

Floristic composition, soil composition and vegetation structure of gimlet woodlands

Spatial Data

Location of sample sites

Great Western Woodlands Pest Management Plan (part of the Biodiversity & Cultural Strategy for the Great Western Woodlands)

Megan Muir; Megan.Muir@dec.wa.gov.au

Conservation Officer (Great Western Woodlands), WA Department of Environment and Conservation, Kalgoorlie

Other Team Members:

Aminya Ennis, GWW Project Coordinator, Bunbury; Aminya.Ennis@dec.wa.gov.au

Neville Hague, Regional Operations Manager, Kalgoorlie; Neville.Hague@dec.wa.gov.au

This project will develop a weed and pest animal management plan for the GWW.

OBJECTIVES

- Identify priority weed and pest fauna species within the GWW.

- Map priority weeds and pest fauna occurrences.

- Identify priority weed infestations / sites for control.

- Produce GWW Pest Management Plan documenting pest management strategy.

WEEDS

- A desktop study has been conducted to identify existing weed spatial data and information regarding weeds the GWW.

-Relevant stakeholders have been contacted to establish communication and source weed info.

-Priority weed species are being identified – ideally will focus on 10 or so species.

- Existing weed data/knowledge has shown to be insufficient to produce a weed management plan – further survey work will be conducted.

-Due to the large size of the GWW, the Plan will take an 'asset'-based approach. GWW assets include DEC reserves, threatened flora & fauna, priority ecological communities, waterbodies, aboriginal and cultural heritage sites.

- Survey will target assets, focusing on disturbed areas in/near those assets. Survey commenced in May 2012 and will continue over the next few months.

- Control of some known, isolated infestations of Prickly Pear (Opuntia spp.) has commenced.

- The distribution of each priority species will be mapped within the GWW.

- Priority control sites will be identified. These will be where weeds threaten the biodiversity/cultural values of an asset or serious infestations where eradication/containment is identified as beneficial.

PEST FAUNA

- Current pest fauna management programs operating within the GWW will be identified.

- Opportunistic survey will be conducted throughout the year, targeting assets.

- General mapping of pest fauna.

- The effectiveness of current control programs will be assessed. The pest strategy will incorporate current control programs if effective and make recommendations for additional programs if required.

Project Duration

One year (Mar 2012 – Feb 2013)

Resources

Publications

A Biodiversity and Cultural Conservation Strategy for the Great Western Woodlands (DEC) http://www.dec.wa.gov.au/content/view/6115/2391/

Environmental Weed Strategy for WA (DEC) http://www.dec.wa.gov.au/content/view/847/2275/

A Weed Plan for Western Australia (State Weed Plan Steering Group) http://www.agric.wa.gov.au/objtwr/imported_assets/content/pw/weed/bull4490.pdf

Invasive Plant Prioritisation Process for DEC http://www.dec.wa.gov.au/content/view/6295/2358/

Standard Operating Procedure 22.1 Techniques for mapping weed distribution and cover in bushland and wetlands (DEC) http://www.dec.wa.gov.au/content/view/5389/2363/

WA Agriculture and Related Resources Protection Act 1976 (being replaced by the BAM Act in July 2012)

Biosecurity and Agriculture Management (BAM) Act 2007 http://www.agric.wa.gov.au/PC_93122.html?s=1448721099

Western Weeds: A Guide to the Weeds of Western Australia. Hussey et al 1997.

Great Western Woodlands Pest Management Plan. Available 2013.

Database

A stakeholder database has been created

Spatial Data

A weeds spatial database will be created for GWW. Available 2013.

Fire behaviour in semi-arid woodland and shrubland communities of the Great Western Woodlands

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Science Division, Department of Environment and Conservation

Other Team Members:

Bruce Ward, Principal Technical Officer; bruce.ward@dec.wa.gov.au

The purpose of this project is to document and understand fire behaviour and fire spread processes in the mosaic of woodlands and shrublands that comprise the Great Western Woodlands. This information is needed to give fire managers the ability to better predict the behaviour of planned fires used for fuel management and ecosystem management, and to predict the behaviour of bushfires. The study involves collection of field data during fires, and reconstruction of past fire events using remotely sensed data and weather observations. Fire behaviour will be examined in relation to: vegetation, fuel and topographic factors; ignition sources; weather conditions at surface level; and upper atmospheric processes including stability and convergence.

Project Duration

July 2011 to June 2013 with a likelihood of extension

Resources

Publications

Cruz MG, McCaw WL, Anderson WR, Gould JS (in review) Fire behaviour modelling in semi-arid mallee-heath shrublands of southern Australia.

Sullivan AL, McCaw WL, Cruz MG, Matthews S, Ellis PF (2012) Fuel, fire weather and fire behaviour in Australian ecosystems. In: Flammable Australia – fire regimes, biodiversity and ecosystems in a changing world, pp 51-77 (RA Bradstock, AM Gill, RJ Williams eds), CSIRO Publishing.

The cryptic and the cumulative: strategic ecological mitigation and offsetting for mineral exploration and mining in south-western Australia's Great Western Woodlands

Keren Raiter, PhD candidate; Keren.Raiter@grs.uwa.edu.au

School of Plant Biology, University of Western Australia; ARC Centre of Excellence in Environmental Decisions

Supervised by:

Prof Richard Hobbs, Australian Laureate Fellow, School of Plant Biology, University of Western Australia

Dr Suzanne Prober, Senior Research Scientist, CSIRO Ecosystem Sciences

Prof Hugh Possingham, ARC Federation Fellow / Director ARC Centre of Excellence for Environmental Decisions, University of Queensland

Dr Kerrie Wilson, ARC Future Fellow, University of Queensland

The cumulative impacts of mineral exploration and mining on the relatively intact ecosystems of the Great Western Woodlands are not well understood, despite being potentially major factors shaping the landscape; with more than 60% of the region under current mineral tenements, booming commodity prices, and strong government support for the development of the state's mining industry.

Strategic assessment and mitigation could provide improved environmental and land-use planning outcomes while potentially benefitting development proponents by providing greater upfront guidance and certainty of access and protecting their social licence to operate.

The recent upsurge of interest from both government and private stakeholders in environmental offsetting provides a significant opportunity to support regional conservation actions, if offsets are implemented wisely and within a strategic conservation planning context.

The objectives of this research are under ongoing development and include:

- review of cumulative diffuse, cryptic, and secondary ecological impacts in intact systems
- spatial analysis of values impacted by mining and exploration activities
- ecological field work investigating impacts of mining and exploration infrastructure on a range of environmental variables
- modelling scenarios for mitigation and offsetting in the Great Western Woodlands

Project Duration

Mid 2011 - mid 2014

Resources

Spatial Data

Merged roads and digitised road/track data for selected areas. Able to be shared. Available in coming months.

Proposed Esperance Barrier Fence

Various stakeholders.

For more information contact:

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Keith Bradby, Gondwana Link; bradby@gondwanalink.org

Peter Price, Gondwana Link; peter.price@greatww.org

There is a proposal to build a 490 kilometre long extension, the Esperance Extension, to the existing State Barrier Fence from Ravensthorpe to Cape Arid, around the southern interface between farmland and the Great Western Woodlands.

The four native and one invasive species that are to be explicitly targeted by the proposed extension to the barrier fence are the Dingo, Western Grey and Red Kangaroos and Emu, and feral dogs. Numerous other native species will also be affected.

The proposal stems from targeted lobbying by farmers adjoining the interface (Northern Mallee Declared Species Group) directly to National Party politicians who have made funds available through various programs. The WA Department of Food and Agriculture (DAFWA) has funded and commissioned a consultant's report, outlining the economic argument for agriculture (URS 2007). South Coast NRM and the Departments of Agriculture and Environment have been the primary funders for implementation of a 'Wild Dog Management Plan' for the area (NMDSG, 2008) and various works and we believe NRM funds are still being used for dingo control. There are no parallel publicly funded reports examining the implications for the area's wildlife and ecology, impact on the Great Western Woodlands, or putting the cultural perspective of Traditional Owners or others in the community.

DEC (which convenes a Great Western Woodlands Stakeholder Reference Group) has not brought the proposal to the attention of Reference Group members, despite the impact on the Great Western Woodlands.

Resources

Publications

URS (2007) Benefit-cost analysis of the State Barrier Fence Report prepared for the Department of Agriculture and Food WA, Perth.

Northern Mallee Declared Species Group (2008) Northern Mallee Wild Dog Management Plan 2008-2011.

Southern Goldfields Rangeland Survey

Peter-Jon Waddell; pjwaddell@agric.wa.gov.au

Landscape Ecologist, Department of Agriculture and Food, WA (DAFWA)

Other Team Members

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Paul Galloway, Research Officer; paul.galloway@agric.wa.gov.au

Ted Griffin, Research Officer; ted.griffin@agric.wa.gov.au

The Southern Goldfields DAFWA rangeland survey area joins and edge matches with previously completed DAFWA rangeland and land resource surveys. The total survey area is approximately 145,550 km2 and will overlap a significant portion of the area termed 'The Great Western Woodlands'.

With the completion of the Southern Goldfields rangeland survey nearly all land presently and formerly held under pastoral lease tenure will be mapped at a land system scale, providing near-complete state-wide coverage. Land systems are defined as areas with a recurring pattern of topography, soils and vegetation. These recurring patterns can be seen using aerial photography or other remotely sensed images. It is assumed areas with a similar pattern represent the same land system. Land systems are ground-truthed during fieldwork.

The southern margin of the Southern Goldfields rangeland survey area will correspond with cropped areas and the southern extremities of the Lake Johnston and Norseman 1:250,000 map sheets. Land systems along the southern margin will be edge matched with up-scaled soil groups identified from the Esperance, Mount Beaumont, Ravensthorpe and Salmon Gums DAFWA Land Resource Series.

The vermin proof fence and cropped areas in the west will form the western margin (Jackson, Southern Cross and Hyden 1:250,000 map sheets). Land systems along the western margin will be edge matched with up-scaled soil groups identified from the Southern Cross and Hyden DAFWA Land Resource Series.

The other boundaries will edge match with existing DAFWA rangeland surveys along the northern edges of the Jackson, Kalgoorlie, Kurnalpi, Cundeelee and the eastern edges of Cundeelee, Zanthus and Balladonia 1:250,000 map sheets. Land systems along the northern margin will be edge matched with land systems identified from the Sandstone-Yalgoo-Paynes Find area and the North-eastern Goldfields rangeland surveys. Land systems along the eastern margin will be edge matched with land systems identified from the Western Nullarbor rangeland survey.

Project Duration

2010-2017

Resources

Publications

Overhue, TD, Muller, PG, Gea, ST and Moore, GA (1993), Esperance Land Resource Survey (1:50,000), Land Resources Series No. 8, Department of Agriculture, Western Australia

Payne, AL, Van Vreeswyk, AME, Pringle, HJR, Leighton, KA and Hennig, P (1998), An inventory and condition survey of the Sandstone-Yalgoo-Paynes Find area, Western Australia, Agriculture Western Australia, Technical Bulletin No. 90.

Pringle, HJR, Van Vreeswyk, AME and Gilligan, SA (1994), An inventory and condition survey of the north-eastern Goldfields, Western Australia, Department of Agriculture Western Australia, Technical Bulletin No. 87.

Scholz, GGH and Smolinski, HJ (1996), Soils of the Mount Beaumont area (1:50,000), Land Resources Series No. 7, Department of Agriculture, Western Australia

Waddell, PA, Gardner, AK and Hennig, P (2010), An inventory and condition survey of the Western Australian part of the Nullarbor region, Department of Agriculture and Food Western Australia, Technical Bulletin No. 97.

Database

Rangeland monitoring site and survey inventory site information. Can be shared once licence agreements have been satisfied.

Spatial Data

Previous Rangeland survey land system boundaries; Pastoral/cadastral boundaries; DEM derivatives; GAMMA radiometrics; ASTER interpretations.

Can be shared once licence agreements have been satisfied. All currently available except GAMMA radiometrics which is only partially available.

Great Western Woodlands Supersite

Dr Suzanne Prober; Suzanne.prober@csiro.au

CSIRO, DEC WA and others.

Other Team Members:

Dr Craig Macfarlane

Dr Colin Yates

Dr Kevin Thiele

Dr Carl Gosper

Mr Georg Wiehl

Dr Richard Silberstein

Dr Steve van Leeuwen, and others.

The Great Western Woodlands Supersite supports a suite of projects focusing on long term ecological monitoring, understanding ecological processes and informing ecological management of the GWW. In partnership with DEC WA a field studies centre is currently being built on Credo Station, 1.5 hours from Kalgoorlie. This will offer accommodation for researchers and we would welcome new projects and students.

Current and recent projects in GWW include:

- Flux tower installation (CO2 and water fluxes)
- Establishment of standardized supersite core biological monitoring (1 ha plots – floristics, soils, acoustics, plant physiology, hydrology)
- Adaptation of FLAMES model to predict climate and fire effects on woodland vegetation in GWW (Liedloff, Prober, Cook, MacFarlane, Yates)
- Isotope investigation of where woodland trees get their water from (MacFarlane, Prober, Silberstein)
- Space-for time study of fire interval effects on structure, fuels, floristics and ants in gimlet woodland (Gosper, Prober, Yates, Andersen)
- Analysis of pathways to weed invasion in GWW (Gosper, Prober, Yates)
- Ngadju seasonal calendar (O'Connor, Prober)
- Indigenous fire management in GWW (Prober, Yuen)
- Floristic variation in Salmon gum woodland across GWW (Judith Harvey Masters project)

- Cumulative impacts of mining (Keren Raiter PhD project)
- Adaptive variation in widespread eucalypts (gimlet, York gum) (McLean, Byrne, Prober, Stock, Potts, Steane, Vallaincourt)

Project Duration

Various

Resources

Publications

Prober SM, Thiele KR, Rundell P, Yates CJ, Berry SL, Byrne M, Christidis L, Gosper CR, Grierson PF, Lemson K, Lyons T, Macfarlane C, O'Connor MH, Scott JK, Standish RJ, Stock WD, van Etten EJB, Wardell-Johnson GW, Watson A (2012). Climate adaptation in intact landscapes: a framework for managing change and resilience applied to the world's largest Mediterranean-climate woodland. Climatic Change 110:227–248. DOI: 10.1007/s10584-011-0092-y

O'Connor MO, Prober SM (2010) A calendar of Ngadju seasonal knowledge. A report to the Ngadju Community and Working Group. CSIRO Ecosystem Sciences, Perth.

Database

Data will be uploaded to TERN Supersite data base. Data will be available incrementally.

Other Resources

Flux tower

Field Studies Centre

Regional Variation in Salmon Gum Communities in the GWW

Judith Harvey, Masters student; Judith.Harvey@dec.wa.gov.au

Curtin University with support from DEC, WSWA and the Dahl Trust.

Supervisors:

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Stephen Van Leeuwen (DEC), Program leader Biogeography DEC Science; Stephen.VanLeeuwen@dec.wa.gov.au

Wildflower Society of WA survey Team

The objective of this project is to explore a variety of analytical methods to classify and interpret the regional variation in vegetation composition and structure and develop vegetation mapping tools. Techniques will be applied to in Salmon Gum communities in the GWW and adjacent Wheatbelt.

Aim 1. Develop a vegetation sampling protocol for the GWW through the collation of existing literature, data, and GIS layers to stratify the region and implement a stratified and representative distribution of sampling sites.

Aim 2. Produce an ecologically sound vegetation classification system for SG woodland communities, using new and existing floristic and structural data.

Aim 3. Indicate the major ecological and anthropogenic correlations underpinning the classification of SG woodland communities, with special emphasis on climate, soil, topography, disturbance gradients and ecological characteristics of diagnostic species.

Aim 4. Compare the Salmon Gum Woodlands communities with those in the WA Wheatbelt using mainly existing data. This will inform the current nomination of Wheatbelt Eucalypt Woodlands as a Threatened Ecological Community under the federal Environmental Protection and Biodiversity Conservation Act.

Aim 5. To model the distribution of Salmon Gum Woodland communities across the Wheatbelt and GWW using available relevant spatial layers and investigate recent developments in remotely sensed data for inclusion in the model

Full proposal attached all information available for circulation.

46 sites sampled out of a desired 100. Limited results to date.

Project Duration

July 2012 – June 2012

Resources

Publications

Presentation on Assessing vegetation condition in the GWW to ACEAS workshop Spatial Prioritization for Conservation and Management: Integrating Vegetation Condition into Conservation Planning (November 2011)

Database

Floristic, vegetation structure and site variables, Endnote reference database. Ability to share data depends on purpose and availability of final datasets. Available on application. All available once published late 2013.

Birds in the Great Western Woodlands

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Great Western Woodlands Project Coordinator, BirdLife Australia

Other Team Members:

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The Great Western Woodlands is relatively poorly surveyed for birds, and much of the region has been under-surveyed. Surveys have typically concentrated around roadsides and the more accessible south-western areas. BirdLife Australia, in partnership with The Nature Conservancy, will undertake a large-scale bird survey research program to meet a number of project and research objectives.

Project outcomes include:

- Establishment of a long-term (decadal or longer) bird monitoring project across the GWW designed to detect baseline population change, and eventually assessments of population/species status
- Capture of key baseline bird and ecological data geared to production of accurate habitat-specific maps for the GWW
- Assessment of a wide range of bird species population and status
- Technical recommendations for the formulation of best-practice conservation
- Engagement and ownership within local community supported by material to encourage involvement
- Management recommendations for threatened and declining woodland birds species including future landuse.

Project Duration

November 2011 – November 2014

Resources

Database

All previous bird records from the GWW. Able to be shared and currently available.

MK Project Explore

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Millennium Kids Inc.

A Citizen Science project directed by young people, exploring woodland, creating opportunities for young people to partner with research institutions and woodland stakeholders to assist with data collection and promotion of special woodland features to wider community through annual exhibition and publication of a woodland coffee table book outlining citizen science opportunities.

Project Duration

2011 – 2013