

Great Western Woodland Supersite

Affiliated projects summary

Date: 13/6/2013
Project title: Fire regimes and effects of fire in gimlet (<i>Eucalyptus salubris</i>) woodlands
Abstract: <p>Disturbances are important ecosystem processes affecting patterns of species diversity (including species richness, diversity and evenness) and community composition. Determining appropriate disturbance regimes for particular ecosystems is thus an important issue for natural resource management. There have been few studies of the response of plant species composition and diversity to fire in 'fire-sensitive' Mediterranean-climate woodlands, where the dominant overstorey trees are typically killed by fire, resulting in dense post-fire recruitment. The Great Western Woodlands (GWW) region of south-western Australia supports the world's largest remaining area of Mediterranean-climate woodland, which in mosaic with mallee, shrublands and salt lakes cover an area of 160 000 km². <i>Eucalyptus</i> woodlands in this region are typically fire-sensitive, and fire return intervals recorded over recent decades have been much shorter than the long-term average. This has led to considerable conservation concern regarding the loss of mature woodlands, and has highlighted a need to better understand how plant species composition and diversity changes with time since fire. We established a series of plots in gimlet woodlands within the Great Western Woodlands TERN Supersite at a range of times since fire (72 50 x 50 m plots). To estimate plot ages for this study we used satellite imagery, growth ring counts and relationships between growth ring counts and plant size.</p> <p>Expected project timeframe: 1 July 2010 to February 2014</p>
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Associated parties/collaborators (others involved in the project) <p>Name: Dr Suzanne Prober Organisation: CSIRO Ecosystem Sciences Address: Private Bag 5, Wembley WA 6913 Australia Phone: + 61 893336789 Email: Suzanne.prober@csiro.au</p> <p>Name: Dr Colin Yates Organisation: Science Division, Department of Parks & Wildlife Address: Locked Bag 104, Bentley Delivery Centre, WA 6983, Australia Phone: +61 892199079 Email: colin.yates@dec.wa.gov.au</p>
Funding sources: <ol style="list-style-type: none">1) A biodiversity and cultural conservation strategy for the Great Western Woodlands, Western Australian Department of Environment and Conservation2) Australian Supersite Network, part of the Australian Government's Terrestrial Ecosystems Research Network, a research infrastructure facility established under the National Collaborative Research Infrastructure Strategy and Education Infrastructure Fund - Super Science Initiative - through the Department of Industry, Innovation, Science, Research and Tertiary Education.
Datasets being used or collected: <p>Vegetation composition and structure. See publications for more detail.</p>

Geographic coverage of study:

The western half of the Great Western Woodlands, south-western Western Australia. Plots were established in the vicinities of Karroun Hill (30°14'S, 118°30'E); Yellowdine (31°17'S, 119°39'E) and Parker Range (31°47'S, 119°37'E).

Publications:*Journal*

Gosper, C.R., Prober, S.M., Yates, C.J. and Wiehl, G. (2013) Estimating the time since fire of long-unburnt *Eucalyptus salubris* (Myrtaceae) stands in the Great Western Woodlands. *Australian Journal of Botany* **61**, 11-21.

Gosper, C.R., Yates, C.J. and Prober, S.M. (in press) Floristic diversity in fire-sensitive eucalypt woodlands shows a 'U'-shaped relationship with time since fire. *Journal of Applied Ecology* doi: 10.1111/1365-2664.12120

Gosper, C.R., Prober, S.M. and Yates, C.J. (in review) Regenerating *Eucalyptus salubris* woodlands: caught in a flammability trap?

Other

Gosper C, Yates C and Prober S (2013) Ageing long-unburnt Gimlet woodlands. Science Division Information Sheet 65/2013. <http://www.dec.wa.gov.au/our-environment/science-and-research/publications-and-resources.html>

Gosper C, Yates C and Prober S (2013) Changes in plant diversity and vegetation composition with time since fire in gimlet woodlands. Science Division Information Sheet 68/2013. <http://www.dec.wa.gov.au/our-environment/science-and-research/publications-and-resources.html>

Gosper C, Prober S, Yates C (2013) Multi-century changes in plant diversity and composition after fire in *Eucalyptus salubris* communities of the Great Western Woodlands. P. 54 in Terrestrial Ecosystem 4th Annual Symposium, 18-20 February 2013, Canberra.

Other notes:

Data from this project are publically available, at:

Gosper C, Prober S and Yates C (2012) Time-since-fire plots. Great Western Woodlands (1) Floristic composition and diversity. Terrestrial Ecosystem Research Network (TERN) Data discovery portal. On-line: <http://portal.tern.org.au/gww-time-since-fire-plots-great-western-woodlands-1-floristic-composition-and-diversity-lloyd276-->

Gosper CR, Yates CJ and Prober SM (2013). Fire in gimlet woodlands. NatureMap, Department of Environment and Conservation. On-line: <http://naturemap.dec.wa.gov.au/Query.aspx?querytype=content&content=gimlet>

Usage Rights: These data are currently being used for research into the impacts of fires on *Eucalyptus salubris* woodlands. These data have been used to support two journal publications, with a third under review at present. These data are freely available for use; however, we request that potential users contact the project team to discuss opportunities for collaboration. Note that some data are duplicated in both repositories.