

# SHaRED Submission Summary

07 March 2022

Overview	
SHaRED Submission Description	
Submission Name	Shruburn
Dataset Citation Name	Kidman Springs fire experiment 1993-2013.
Dataset Alternative Name	Shruburn
Dataset Summary	<p>This dataset provides understorey herbaceous biomass, ground cover and overstorey woody cover response to different fire regimes over a twenty year period at a grassland and open woodland in the tropical savannas of northern Australia.</p> <p>BOTANAL was used to assess understorey herbaceous biomass. Woody canopy cover was derived from digital analysis of oblique aerial imagery taken from a helicopter at the site in 1995 and again in 2013. Woody cover (tree basal area and canopy cover) was also assessed using a bitterlich gauge on BOTANAL ground based transects in 2009.</p> <p>The data could be used to calibrate models of herbaceous growth and woody cover change in response to long term fire. It may be useful for assessing climate change impacts on aboveground carbon sequestration.</p> <p>The fire regimes tested were of varying frequency (every 2, 4 and 6 years) and season (June vs. October) of fire compared to unburnt controls on woody cover and pasture composition. Sites were open to grazing by cattle.</p>
Dataset Version	1
Submitting Username	RCowley
SHaRED Submission ID	152559
Submission Publication Date	2014-08-08 05:33:50.473
Submission DOI	<a href="http://doi.org/10.4227/05/53E811AF9BDCF">http://doi.org/10.4227/05/53E811AF9BDCF</a>
Usage Guide	This data may be useful to calibrate models to estimate carbon sequestration in tropical grazed savannas; in global meta-analyses of woody cover change with increasing carbon dioxide; in global meta-analyses of fire response of tropical savanna grasslands and open woodlands.
Submission Image	grassland site_25ppi.jpg
Number of Study Locations	2
Repeat Visits	Y
Dataset Author	
Author Given Name(s)	NTDPIF
Author Surname or Organisation	Northern Territory Department of Primary Industry and Fisheries
Affiliation	Northern Territory Government
Project Metadata	
Project Name	Shruburn
Project Abstract	Woody trees and shrubs are increasing in the grazed savannas of northern Australia. This project tested if fire could be used to manage woody cover in grazed savannas. It aims to provide recommendations on the frequency and

seasonal timing of burning for effective management of woody cover and pasture composition.

## Scope

### Dataset Temporal Metadata

First Visit Date 04/10/1993

Last Visit Date 17/10/2013

### Dataset Spatial / Location Metadata

Spatial Scale Local

Study Area Description The sites are located on the NT Department of Primary Industry and Fisheries' Victoria River Research Station, also known as Kidman Springs, 400 km south of Darwin, Northern Territory Australia, in the semi-arid tropical savannas.

The study sites are in 2 paddocks - Conkerberry (open woodland) and Rosewood West (grassland).

Study Area Geometry { "questionId" : "5.3.1", "srs":"EPSG:4283", "features" : [ {"id":"PLY\_4","geometry":"POLYGON((130.9871631 - 16.0716554,130.9931283 -16.0722327,130.9926133 - 16.0780472,130.9865623 -16.0775936,130.9871631 - 16.0716554))","description":"Grassland site"}, {"id":"PLY\_5","geometry":"POLYGON((130.9443336 - 16.0703770,130.9505134 -16.0707894,130.9501271 - 16.0767688,130.9439044 -16.0763977,130.9443336 -

iso19139 DCMI Box northlimit=-16.07038; southlimit=-16.07805; eastlimit=130.99313; westlimit=130.94390; projection=GDA94

IBRA Region Ord Victoria Plain

### Subject Metadata

ANZSRC FOR Codes 501

602

60208

502

ANZSRC SEO Codes Land And Water Management (9609)

Ecological Theme Disturbances

Ecosystem Modelling

Fire Ecology

Herbivory

Threats and Pressures Fire Regimes

Natural Resource Use

Conservation Management Themes Fire Management

Environmental Features Fire

Grazing Land Management

Eucalypt Open Woodlands

Tussock Grasslands

Ground Cover	
Shrubs	
Trees	
<b>Species Metadata</b>	
Flora Species File Name	Kidman_Springs_Shruburn_spp_List_2014.txt
Flora Group	Forbs
Grasses	
Shrubs	
Trees	
<b>Curation Status</b>	
Curation Activities	Plausibility Review
Other Curation Activities	Data were checked for errors in labelling of species, transects, plots and corrected. Data have been averaged for each replicate, which is each plot.
Latest Update	15/12/2013
<b>Project Status</b>	
Project Status	Active
<b>Methods</b>	
<b>Sampling and Methods</b>	
Sampling Design	Completely Randomised
Factorial Designs	
Photo Data Capture	
Repeated Measures	
Systematic Sampling	
Flora Sampling Technique	Quadrat/Plot/Grid
Oblique aerial photography	
Measurements	Derived - Continuous Data
Raw Observations - Categorical Data	
Raw Observations - Continuous Data	
Measured Attributes	Biomass
Cover	
Method Name	BOTANAL for herbaceous biomass, Bitterlich gauge for woody cover 2009, aerial image analysis for woody cover 1995 and 2013
Method Abstract	Tothill, J.C., Hargreaves, J., and Jones, R.M. (1978). 'BOTANAL - a comprehensive sampling and computing procedure for estimating pasture yield and composition 1. Field sampling.' (CSIRO: Brisbane, Australia.)  Cowley, R.A., Hearnden, M., Joyce, K., Valencia, M., Cowley, T.M., Pettit, C.,

and Dyer, R.M. (2014 in press). How hot? How often? Getting the fire frequency and timing right for optimal management of woody cover and pasture composition in northern Australian grazed tropical savannas. Kidman Springs Fire Experiment 1993-2013. The Rangeland Journal.

Dyer, R.M. (2001). Fire and vegetation management in pasture lands of the Victoria River District, Northern Territory. Masters Thesis, The University of Queensland, Australia.

#### Method Drift Description

The BOTANAL method has changed through time

1. Species % yield estimation has altered during the trial.
  - i. Originally up to 5 species were listed, but in 1997 and from 2000 to 2011 up to 6 species were listed. How these species were ranked has evolved through time.
  - ii. From 1993-2005, usually only the top 3 species were ranked for % yield (not direct estimates). The options for ranking for the 1st, 2nd and third largest yielding species were as follows:
    1. 100, 0, 0
    2. 77, 23, 0
    3. 70, 21, 9
    4. 45.5, 45.5, 9
    5. 34, 33, 33
    6. Or very occasionally the 4th spp was also ranked 70, 21, 4.5, 4.5
  - iii. From 2007, the top three species % yields were directly estimated.
  - iv. In 2009 direct estimates of % spp yield were made on up to 4 species
  - v. In 2011 direct estimates of species yields were made on up to only three species
  - vi. in 2013 direct estimates of % spp yield were made on up to 4 species

The direct estimate of % yield is more accurate than ranking yield. Estimating % yield for 4 species will tend to mean more species are individually assessed for yield, but this should not affect statistics through time, as minor species tend to be grouped into functional groups for analysis.

2. Yield was initially estimated (1994 - 2007) as a score between 0 and 60, but is now directly estimated.

Grazing score has only been collected since 2007.

Related publications with methods listed  
 Cowley, R.A., Hearnden, M., Joyce, K., Valencia, M., Cowley, T.M., Pettit, C., and Dyer, R.M. (2014 in press). How hot? How often? Getting the fire frequency and timing right for optimal management of woody cover and pasture composition in northern Australian grazed tropical savannas. Kidman Springs Fire Experiment 1993-2013. The Rangeland Journal.

Dyer, R.M. (2001). Fire and vegetation management in pasture lands of the Victoria River District, Northern Territory. Masters Thesis, The University of Queensland, Australia.

#### Associated Materials

##### Associated Material Description

Cowley, R.A., Hearnden, M., Joyce, K., Valencia, M., Cowley, T.M., Pettit, C., and Dyer, R.M. (2014 in press). How hot? How often? Getting the fire frequency and timing right for optimal management of woody cover and pasture composition in northern Australian grazed tropical savannas. Kidman Springs Fire Experiment 1993-2013. The Rangeland Journal.

Hunt, L.P. (2014 in press). Aboveground and belowground carbon dynamics in response to fire regimes in the grazed rangelands of northern Australia: initial results from field studies and modelling. The Rangeland Journal.

Allen, D.E., Bloesch, P.M., Cowley, R.A., Orton, T., Payne, J.E., and Dalal, R.C. (2014 in press). Fire impacts on soil organic carbon stocks in a grazed semi-arid tropical Australian savanna: accounting for landscape variability The Rangeland Journal.

Beyer, S., Kinnear, A., Hutley, L.B., McGuinness, K., and Gibb, K. (2011). Assessing the relationship between fire and grazing on soil characteristics and mite communities in a semi-arid savanna of northern Australia. *Pedobiologia* 54, 195-200.

Woinarski, J.C.Z., Brock, C., Fisher, A., Milne, D., and Oliver, B. (1999). Response of Birds and Reptiles to Fire Regimes on Pastoral Land in the Victoria River District, Northern Territory. *The Rangeland Journal* 21, 24-38.

Hoffmann, B.D. (2003). Responses of ant communities to experimental fire regimes on rangelands in the Victoria River District of the Northern Territory. *Austral Ecology* 28, 182-195.

Cobiac, M. (2006). Predicting native pasture growth in the Victoria River District of the Northern Territory. Doctor of Philosophy Thesis, The University of Adelaide, Australia.

Dyer, R.M. (2001). Fire and vegetation management in pasture lands of the Victoria River District, Northern Territory. Masters Thesis, The University of Queensland, Australia.

Associated Material Type	Published Paper
Suggested Associated Material Type	
Associated Material Identifier	
Associated Material Identifier Type	
Other Related Artefacts	
Other Artefacts	Aerial
	Still
Conditions Of Use	
Embargo	
Embargo Date	01/10/2014
Licensing and Acknowledgement	
License Type	CC-BY 3.0 Australia
Acknowledgement	Meat and Livestock Australia provided funding for the study from 1993 to 2000.
Citation	Northern Territory Department of Primary Industry and Fisheries, NTDPPIF (2014). Kidman Springs fire experiment 1993-2013., Version 1. <a href="http://doi.org/10.4227/05/53E811AF9BDCE">http://doi.org/10.4227/05/53E811AF9BDCE</a> . ÆKOS Data Portal, rights owned by The Northern Territory Government, represented by the Northern Territory Department of Primary Industry and Fisheries. Accessed 07 Mar 2022.
Rights Statement	(C)2014 The Northern Territory Government, represented by the Northern Territory Department of Primary Industry and Fisheries. Rights owned by The Northern Territory Government, represented by the Northern Territory Department of Primary Industry and Fisheries. Rights licensed subject to CC-BY 3.0 Australia.
Access Statement	These data can be freely downloaded via the Advanced Ecological Knowledge and Observation System (ÆKOS) Data Portal and used subject to the CC-BY 3.0 Australia. Attribution and citation is required as described under License and Citation. We ask you to send citations of publications arising from work that use these data to TERN Eco-informatics at <a href="mailto:data cited@aekos.org.au">data cited@aekos.org.au</a> and

## Custodian Organisation

Legal Dataset Custodian Organisation The Northern Territory Government, represented by the Northern Territory Department of Primary Industry and Fisheries

Legal Dataset Custodian Organisation Type State Agency

## Dataset Contact

Dataset Contact Role Senior Rangeland Scientist

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Dataset Contact Organisation Northern Territory Department of Primary Industry and Fisheries

## Submission Files

### Submission Files

File Name woody\_cover\_95\_\_2013.xlsx

File Size 19.3 kB

File Description Woody cover 1995 and 2013

SHaRED File Type DATA

File Format excel

File Format Version 2010

SHaRED File ID 152679

File Name Kidman\_Springs\_Shruburn\_spp\_List\_2014.txt

File Size 2.7 kB

File Description Herbaceous spp. latin and common names contributing most to herbage mass.

SHaRED File Type SPECIES\_LIST

File Format null

File Format Version null

SHaRED File ID 152689

File Name TREATMENT\_MAP.docx

File Size 18.1 kB

File Description Map of treatment plots

SHaRED File Type RELATED\_DOC

File Format doc

File Format Version 2010

SHaRED File ID	152681
File Name	2009_woody_cover_yld_and_grnd_cover.xlsx
File Size	17.4 kB
File Description	2009 woody cover and associated understorey cover and herbaceous DM
SHaRED File Type	DATA
File Format	excel
File Format Version	2010
SHaRED File ID	152682
File Name	Kidman_shruburn_management_history.xlsx
File Size	22.9 kB
File Description	Experimental site fire and stocking rate history
SHaRED File Type	RELATED_DOC
File Format	excel
File Format Version	2010
SHaRED File ID	152683
File Name	Shruburn_botanal_averaged_by_plot.xlsx
File Size	410.1 kB
File Description	1993-2013 Understorey herbaceous DM, ground cover and grazing score
SHaRED File Type	DATA
File Format	excel
File Format Version	2010
SHaRED File ID	152684
File Name	Plot_22_T1.jpg
File Size	4.7 MB
File Description	Woodland ground transect image June 2011
SHaRED File Type	RELATED_DOC
File Format	image
File Format Version	jpg
SHaRED File ID	152685
File Name	Plot_4_T2.jpg
File Size	4.0 MB
File Description	Grassland ground transect image June 2011
SHaRED File Type	RELATED_DOC
File Format	image
File Format Version	jpg

SHaRED File ID	152686
File Name	grassland_site_25ppi.jpg
File Size	2.1 MB
File Description	Aerial image from June 2013 of all grassland plots
SHaRED File Type	RELATED_DOC
File Format	image
File Format Version	jpg
SHaRED File ID	152687
File Name	woodland_site_25ppi.jpg
File Size	2.2 MB
File Description	Woodland aerial image of all plots June 2013
SHaRED File Type	RELATED_DOC
File Format	image
File Format Version	jpg
SHaRED File ID	152688

*SHaRED (Submission Harmonisation and Retrieval of Ecological Data) is an online data submission service for ecologists to upload their research datasets and enable them to be published via ÆKOS data portal. ÆKOS is an online ecological data service providing free and open access to rich, ecological data collected using plot-based research methods.*



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