Miombo Emissions Abatement

Cameron Yates

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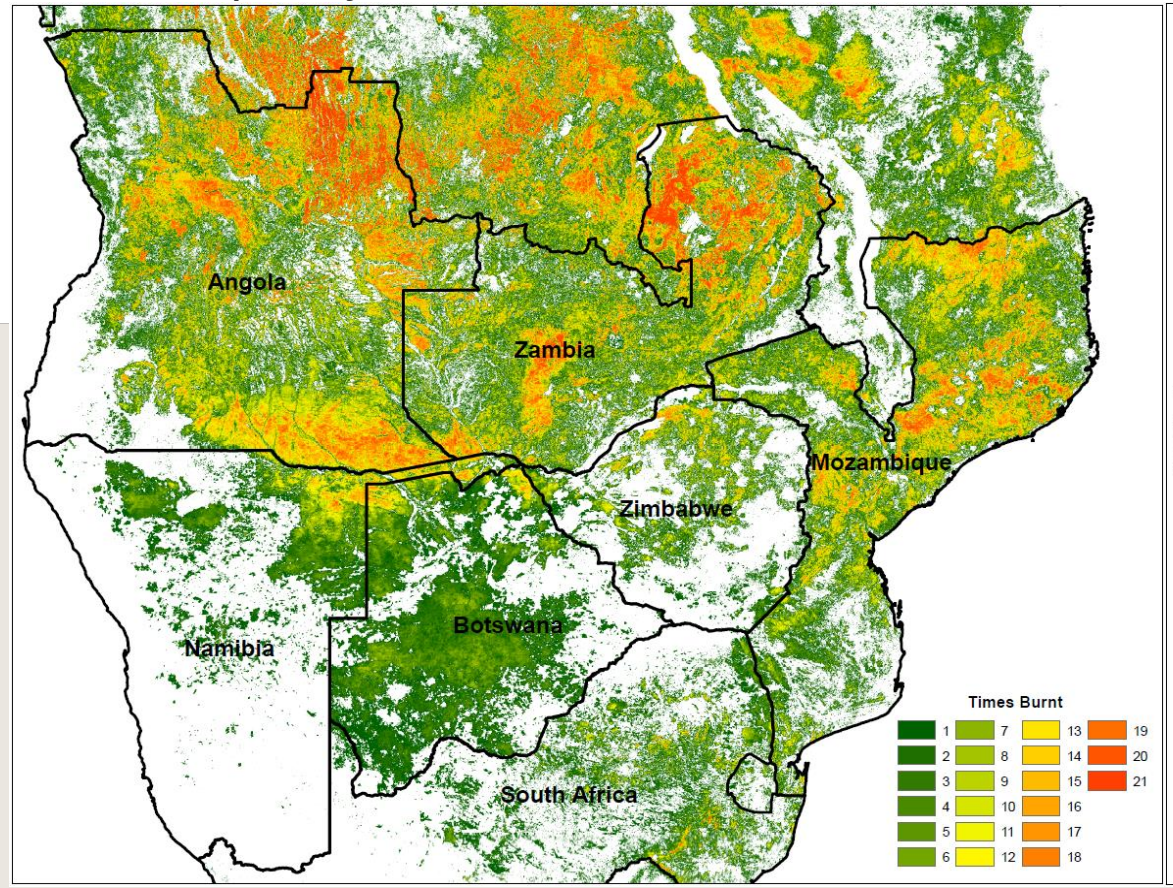
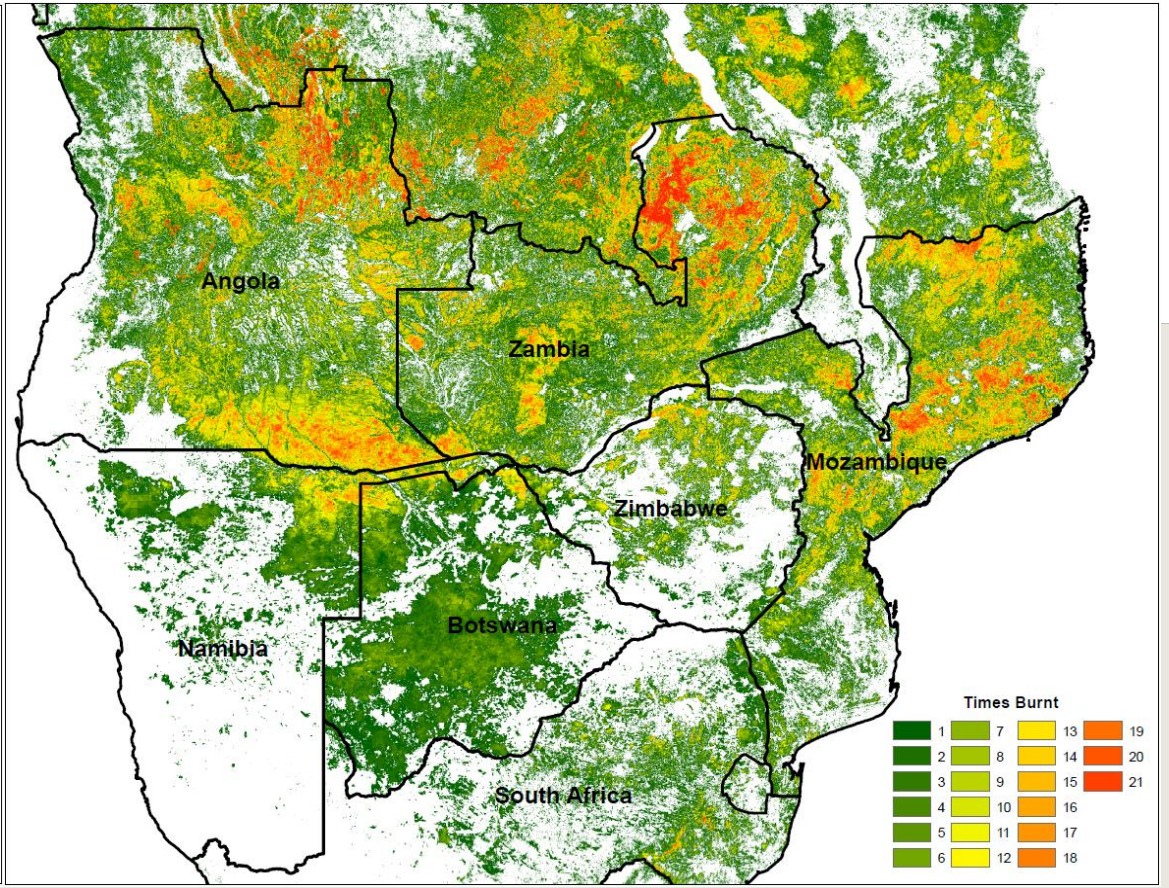
Fire frequency 2001-2021, derived from MODIS 500 m monthly automated product

Total Frequency



Late Frequency (July – December)



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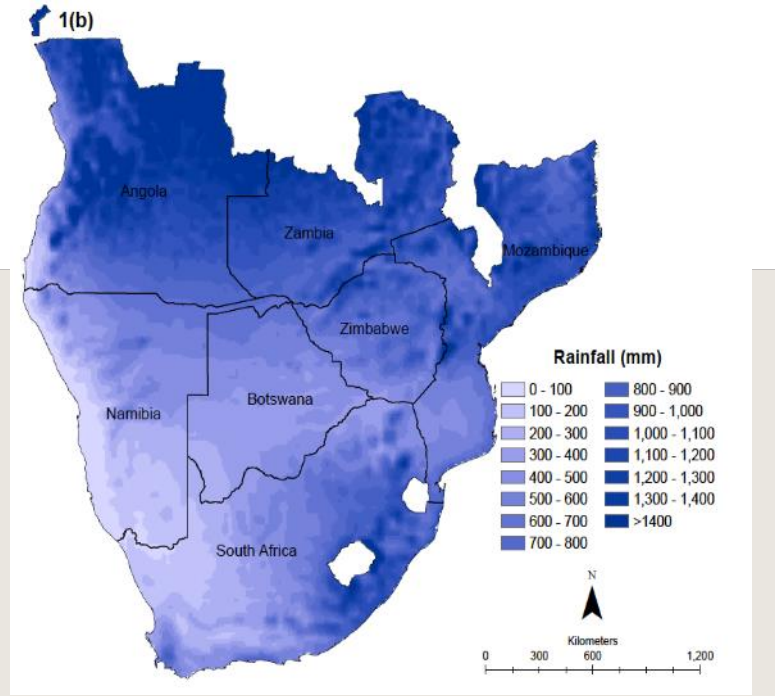
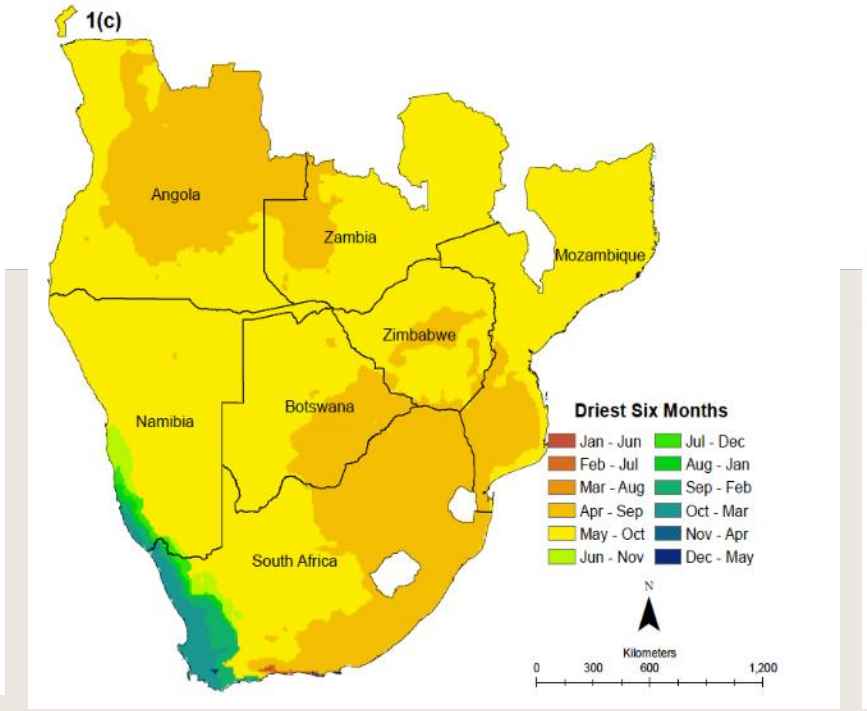
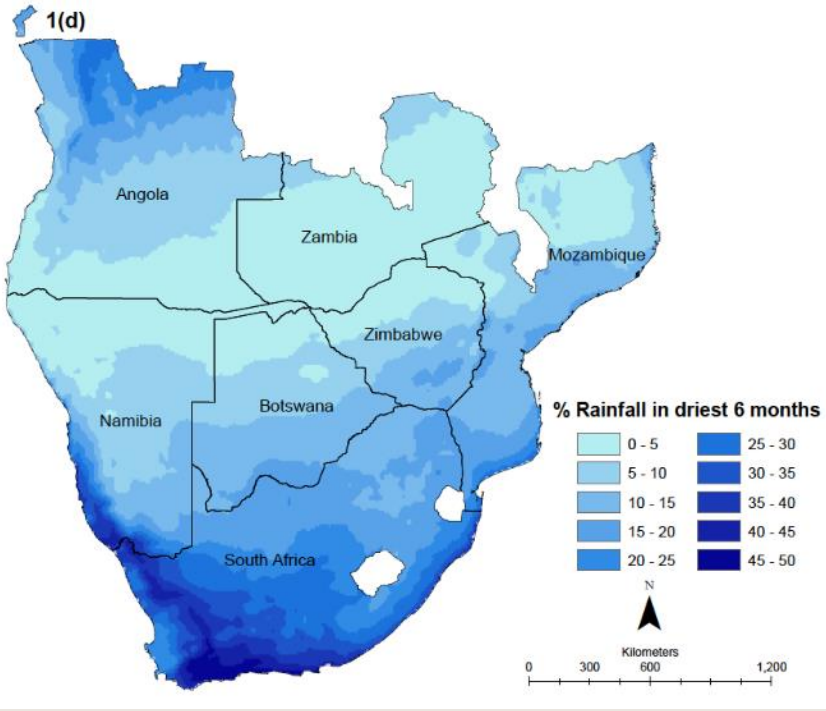
Giglio et al. 2015

Rainfall and Seasonality







Copernicus Monthly Rainfall

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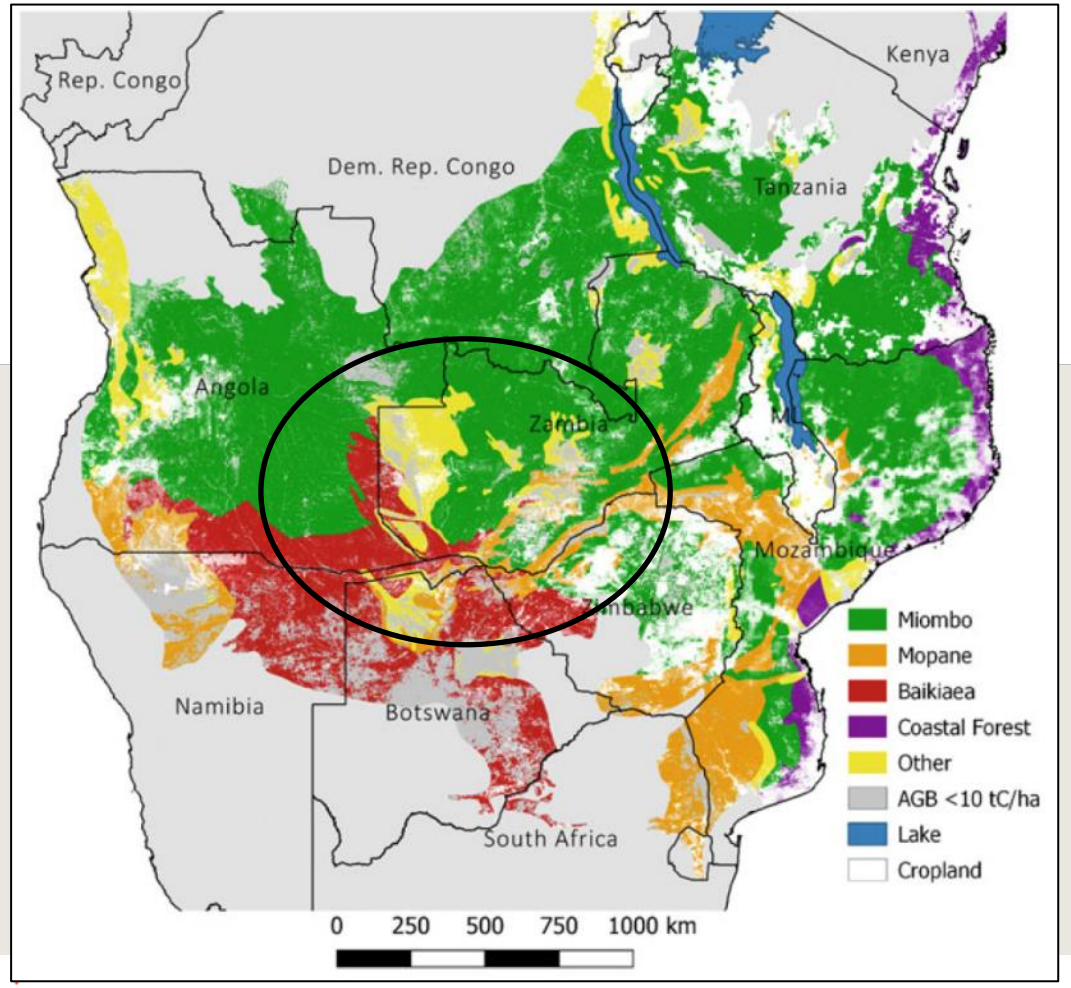
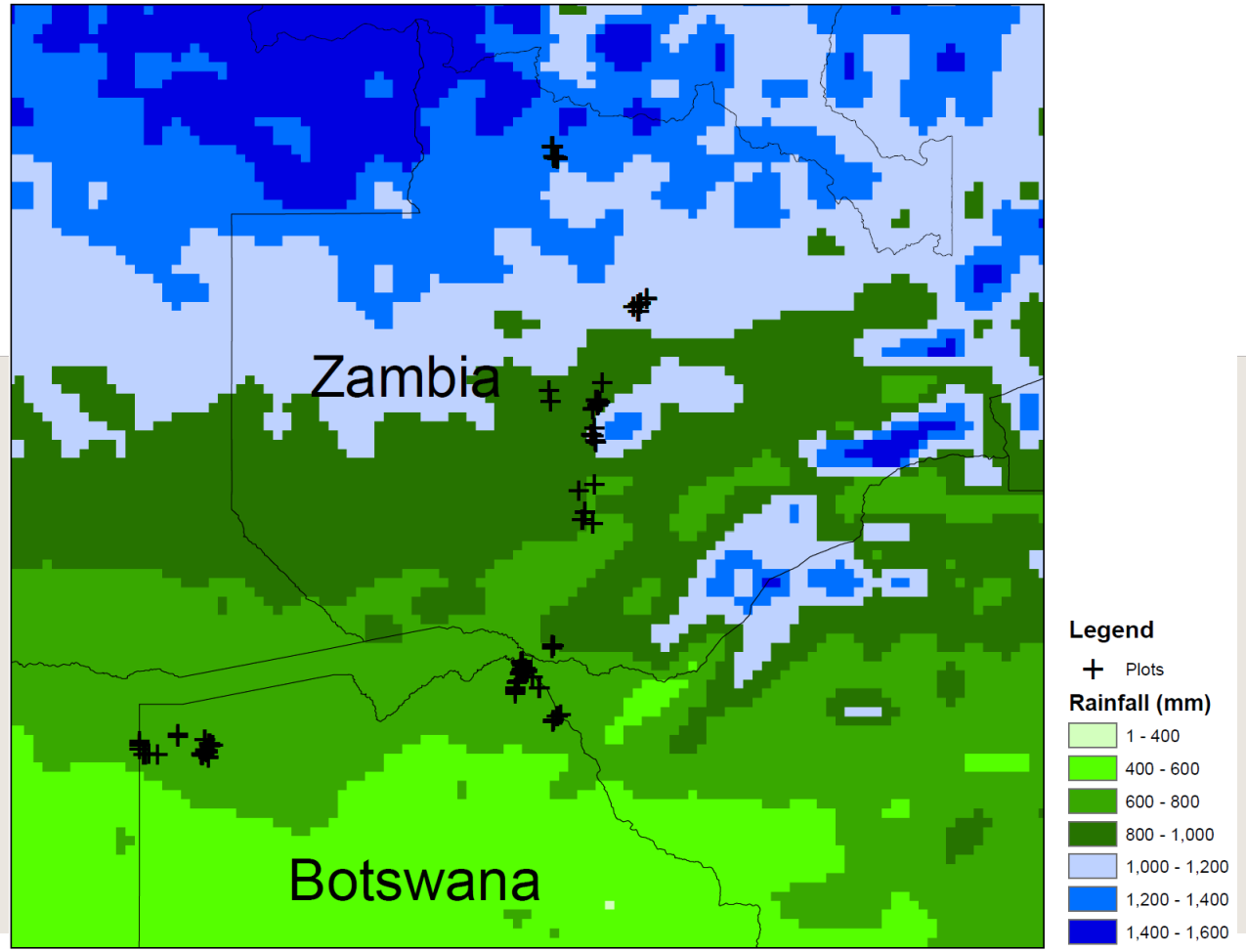
Russell-Smith et al. 2021

Field Program: Plot locations along a rainfall gradient and Distribution of Miombo and related savanna woodlands in southern Africa





Dziba et al. c2020

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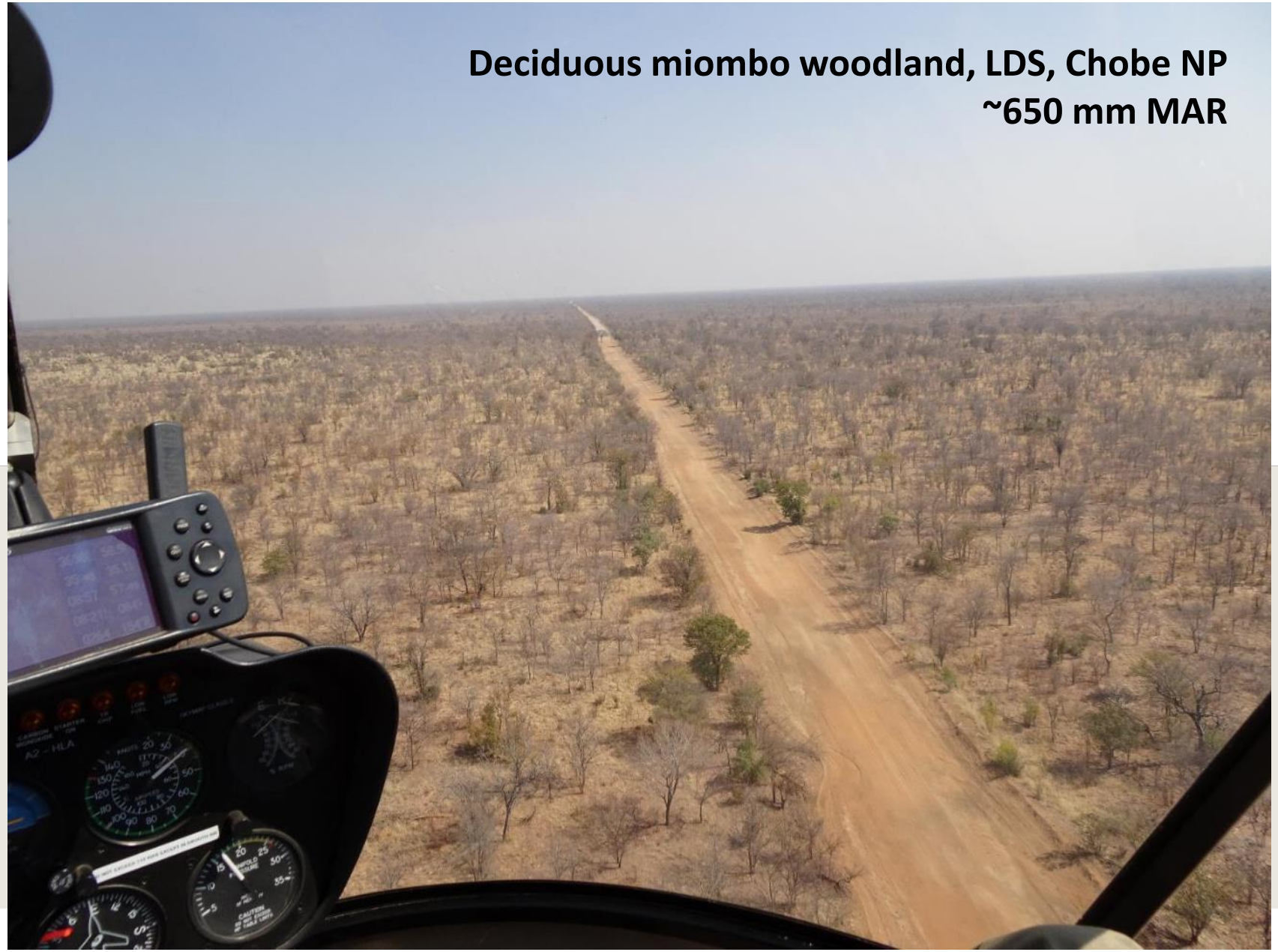

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Kafue NP: Dry Miombo
(~900 mm MAR)

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Luangwa NFReserve: Wet Miombo
(~1500 mm MAR)

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EDS patchy fire in *Baikaea* Open Woodland Chobe FR, Botswana (June 2022)

LDS fuels in deciduous miombo Woodland East Lunga NFR, Zambia (Oct 2022)

LDS complete burn in miombo Woodland East Lunga NFR, Zambia (Oct 2022)

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Ineligible classes: Dambos, Grasslands

Number of Transects Sampled

Fuel Accumulation

	Open Woodland			Woodland			Grand Total
	Early	Late	Total	Early	Late	Total	
Botswana	86	32	118	91	15	106	**224**
Zambia	3		3	108	63	171	**174**
Total	**89**	**32**	**121**	**199**	**78**	**277**	**398**

Post fire

	Open Woodland			Woodland			Grand Total
	Early	Late	Total	Early	Late	Total	
Botswana	48	17	65	27	15	42	**107**
Zambia	3		3	31	45	76	**79**
Total	**51**	**17**	**68**	**58**	**60**	**118**	**186**

Open Woodland < 10% CC
Woodland 10 -30% CC

Fuel Accumulation

Fine = Grass and litter (leaf and woody material < 6mm Diameter

Coarse = Woody material > 6mm and < 5cm

Shrubs = < 5cm DBH measured in 4 height classes

Heavy = all fallen material >5cm diameter

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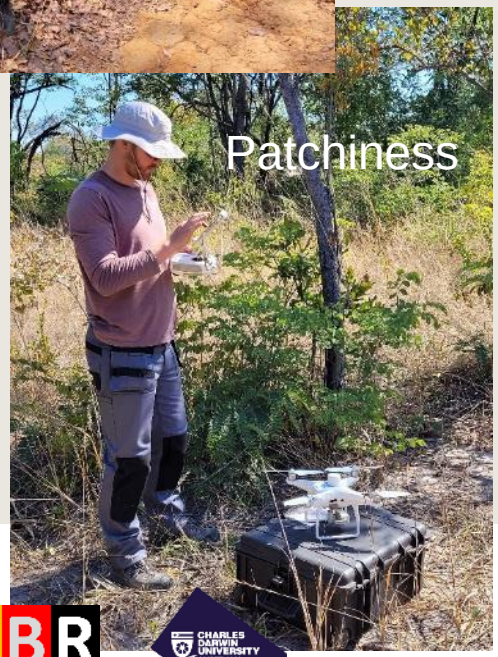
Post Fire Combustion



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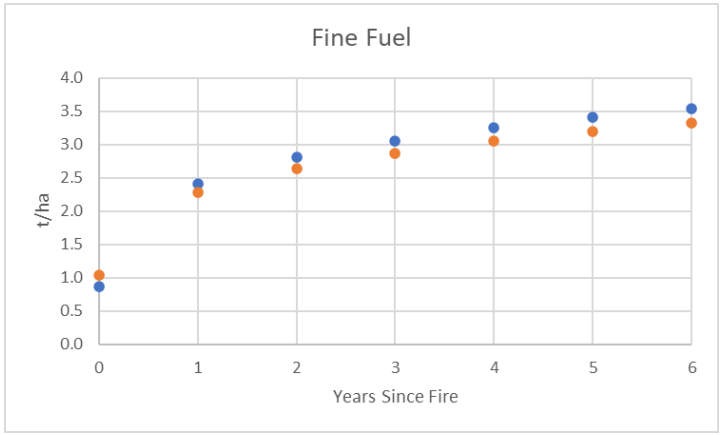
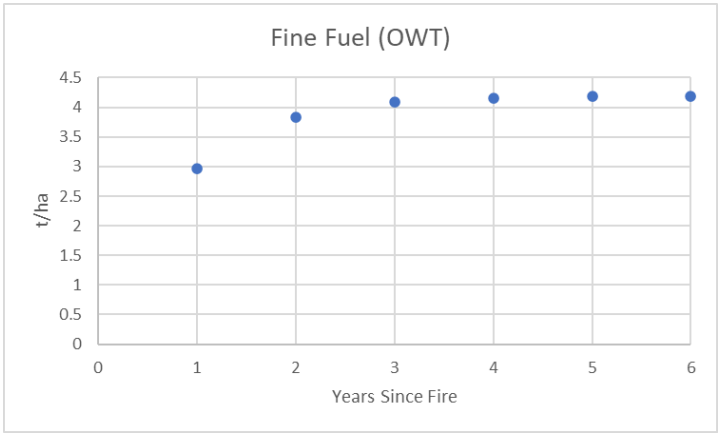
Fuel Accumulation < 1000mm

Africa



Australia



Average Fuel t/ha	Africa (OW)	Australia (OWT)
Coarse	0.55	0.76
Heavy	1.11	0.8
Shrub	3.37	1.13

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Post Fire Combustion

%	Early	Late
Patchiness	67.54	81.89
Fine	65.94	76.42
Coarse	10.18	19.23
Heavy	1.05	23.33
Shrub	4.90	16.49

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Emissions Calculations

Emissions = ***Area Burnt***

- mapped from Landsat imagery (30 m pixels), for EDS and LDS

X ***Biomass accumulation since last burnt***

- for fuel components (grass, litter, CWD, shrubs)

X ***Biomass consumed***

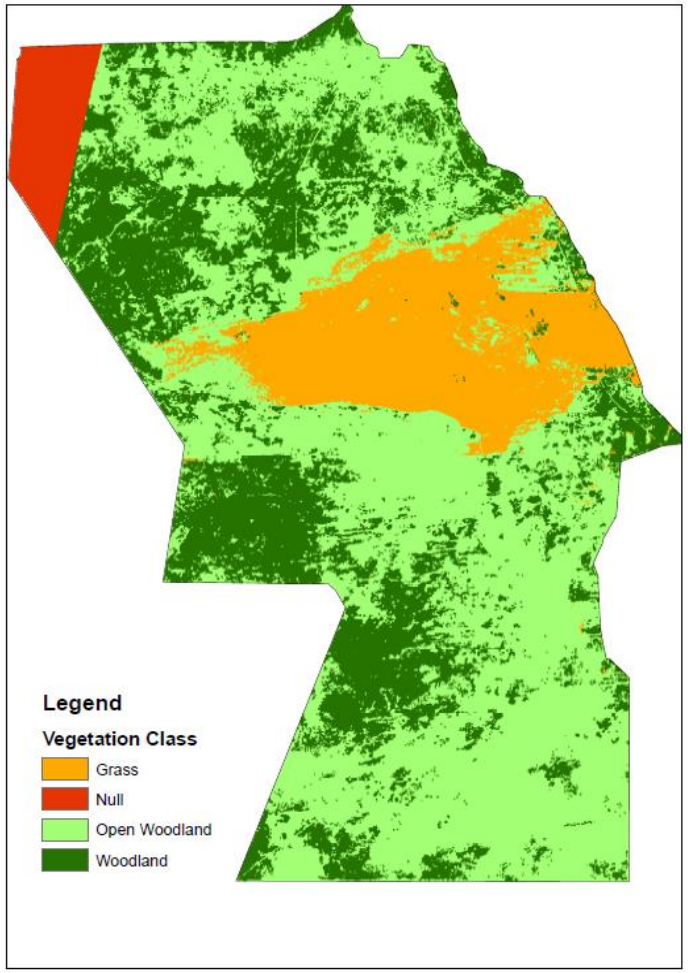
- for respective fuel components
- under typical EDS, LDS fire severity, and patchiness conditions

X ***Emission Factors (CH_4, N_2O)***

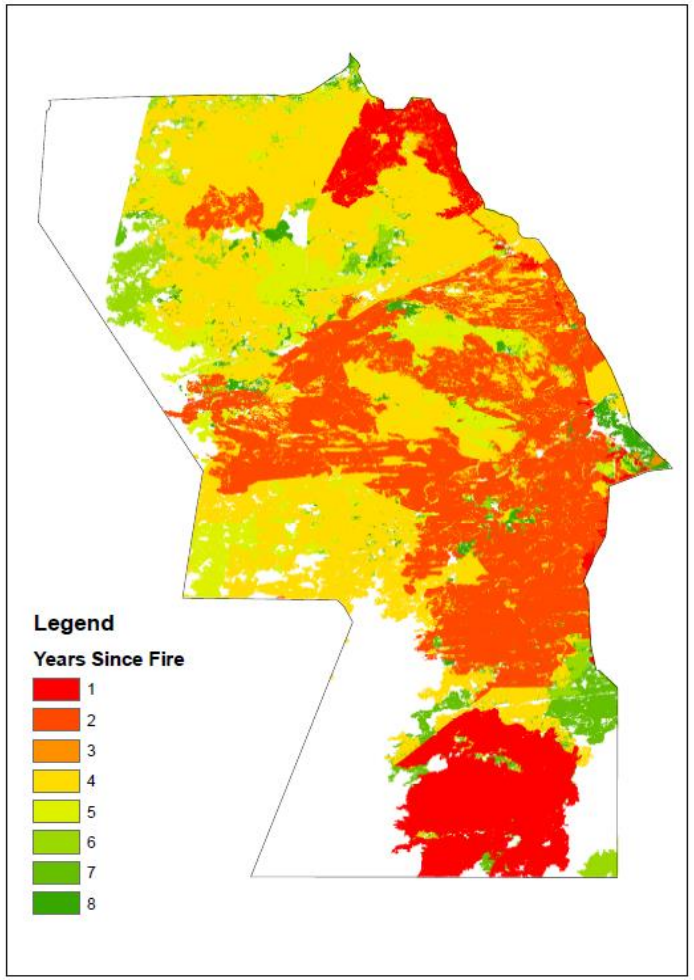
- under typical EDS, LDS fire severity conditions

Chobe Project Area

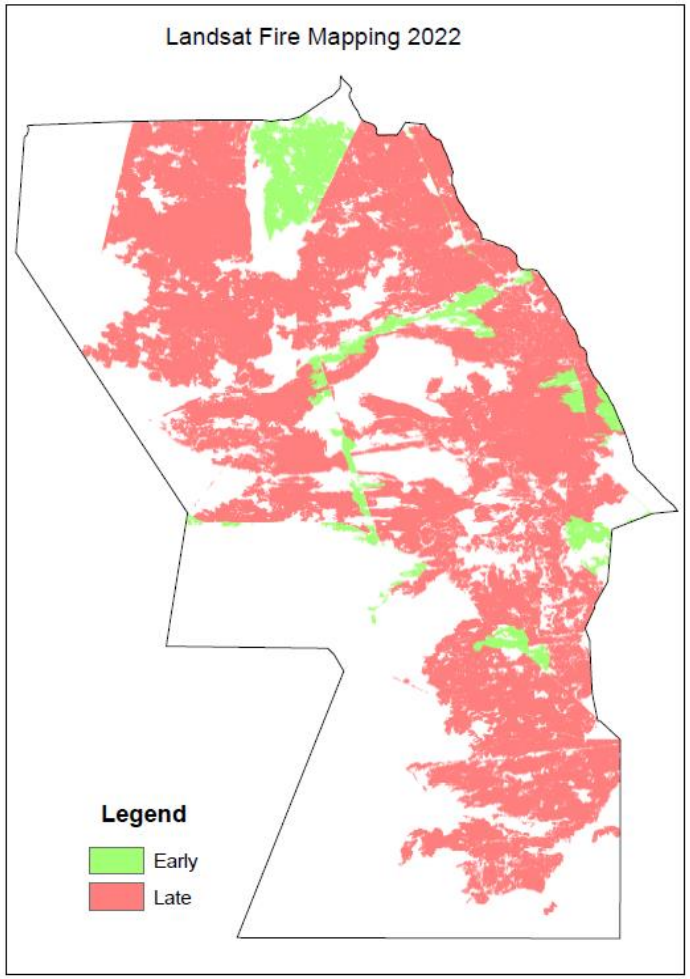
Vegetation



Years since last fire



Seasonal fire mapping



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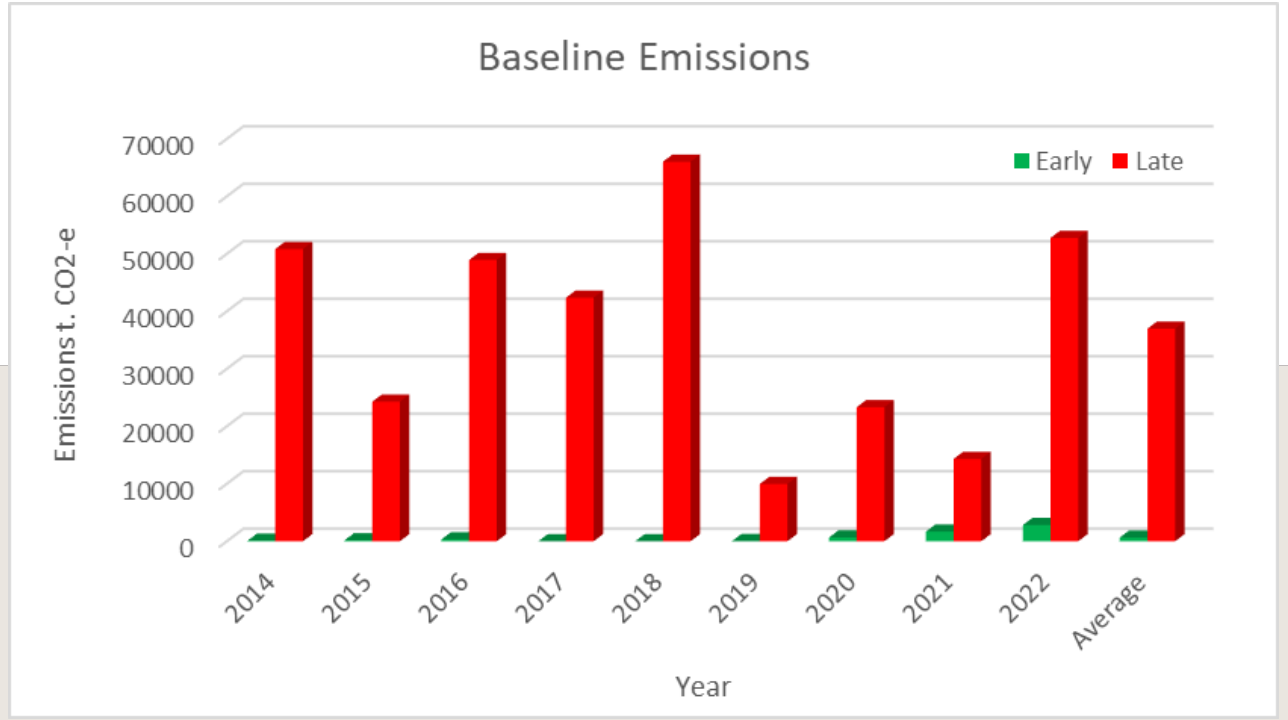
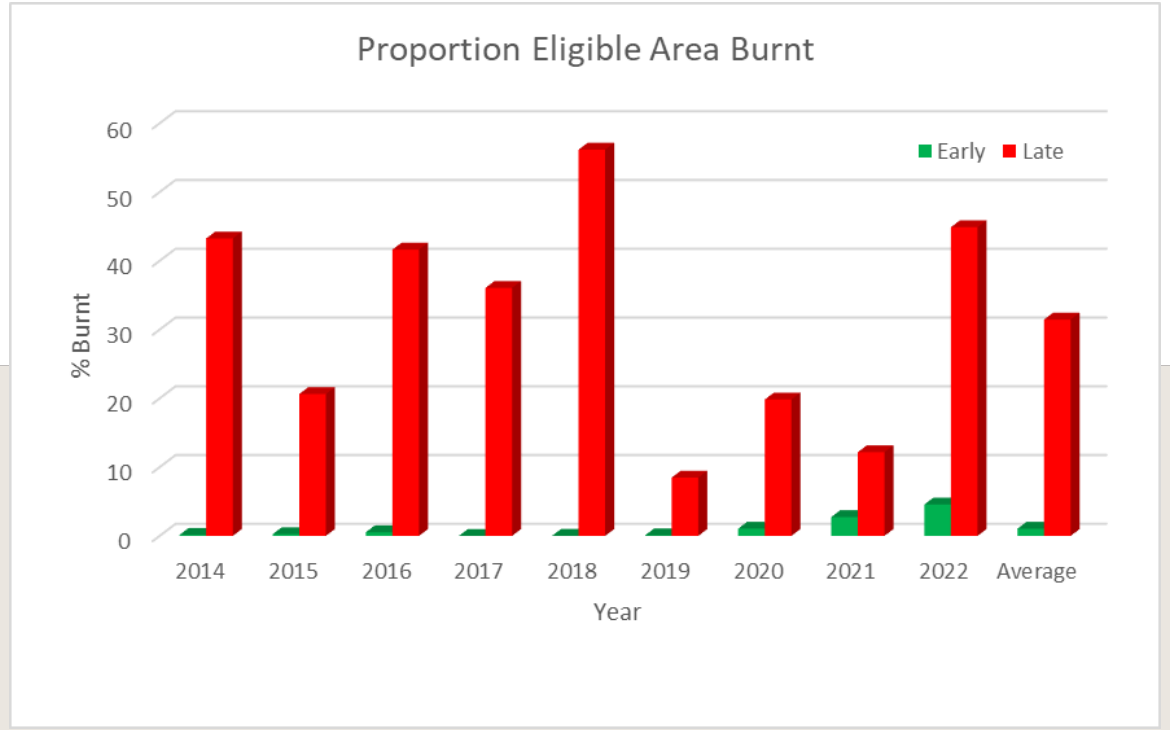
Chobe Emissions and Proportion Area Burnt





Average 37600 t GHG
Approx. 6800km² (5450km² eligible)

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Wonderful People

Photo: Chad Leavitt

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