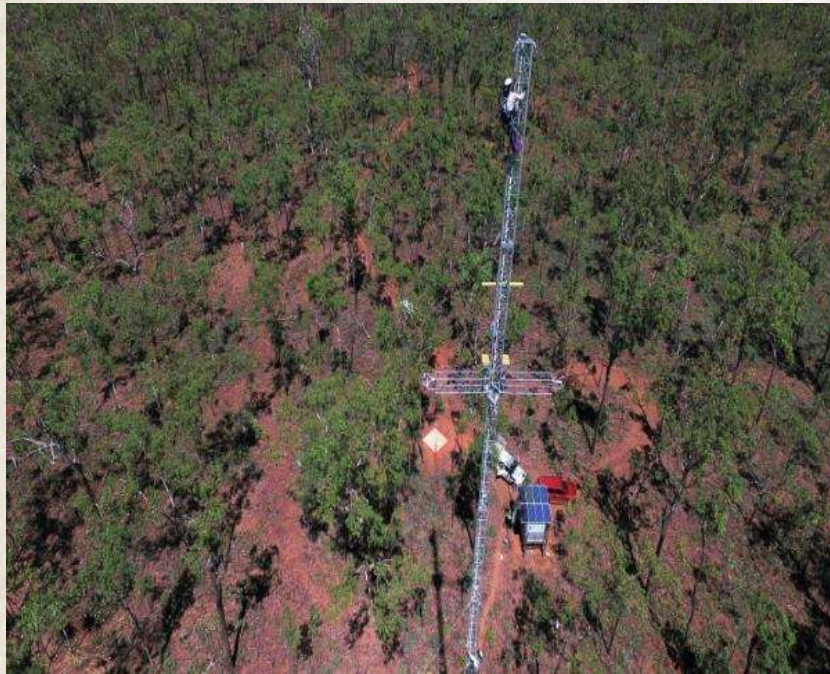


Savanna Supersite Litchfield National Park

Lindsay Hutley, Shaun Levick, Jason Beringer
Stefan Maier (Maitec)



Tropical savannas

Dominant north Australian ecosystem

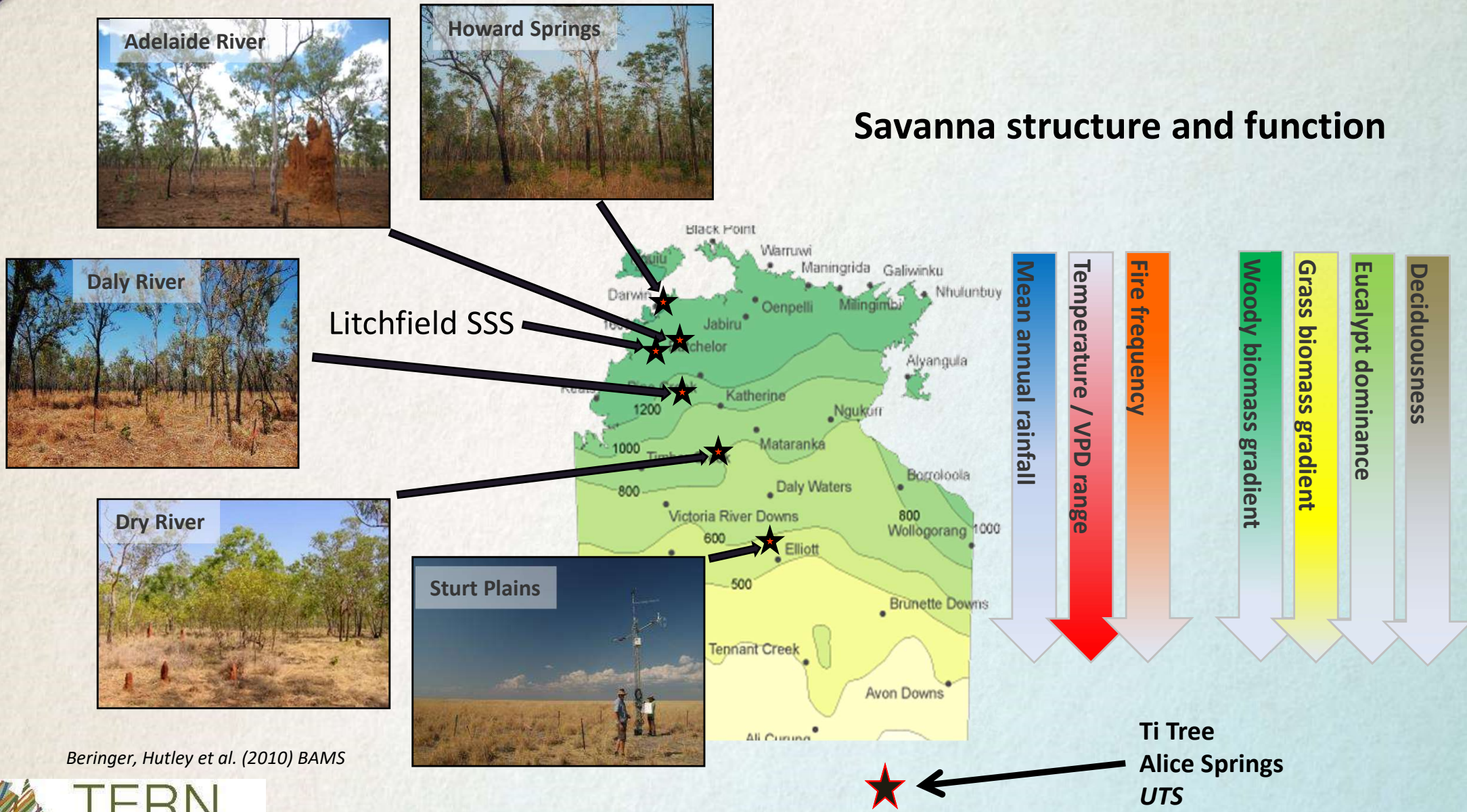


SPECIAL intensive observation sites are

Flux and structural measures at regional scales

North Tropical Flux Transect (NTFT)

Savanna structure and function



Beringer, Hutley et al. (2010) BAMS

TERN

8/5/2

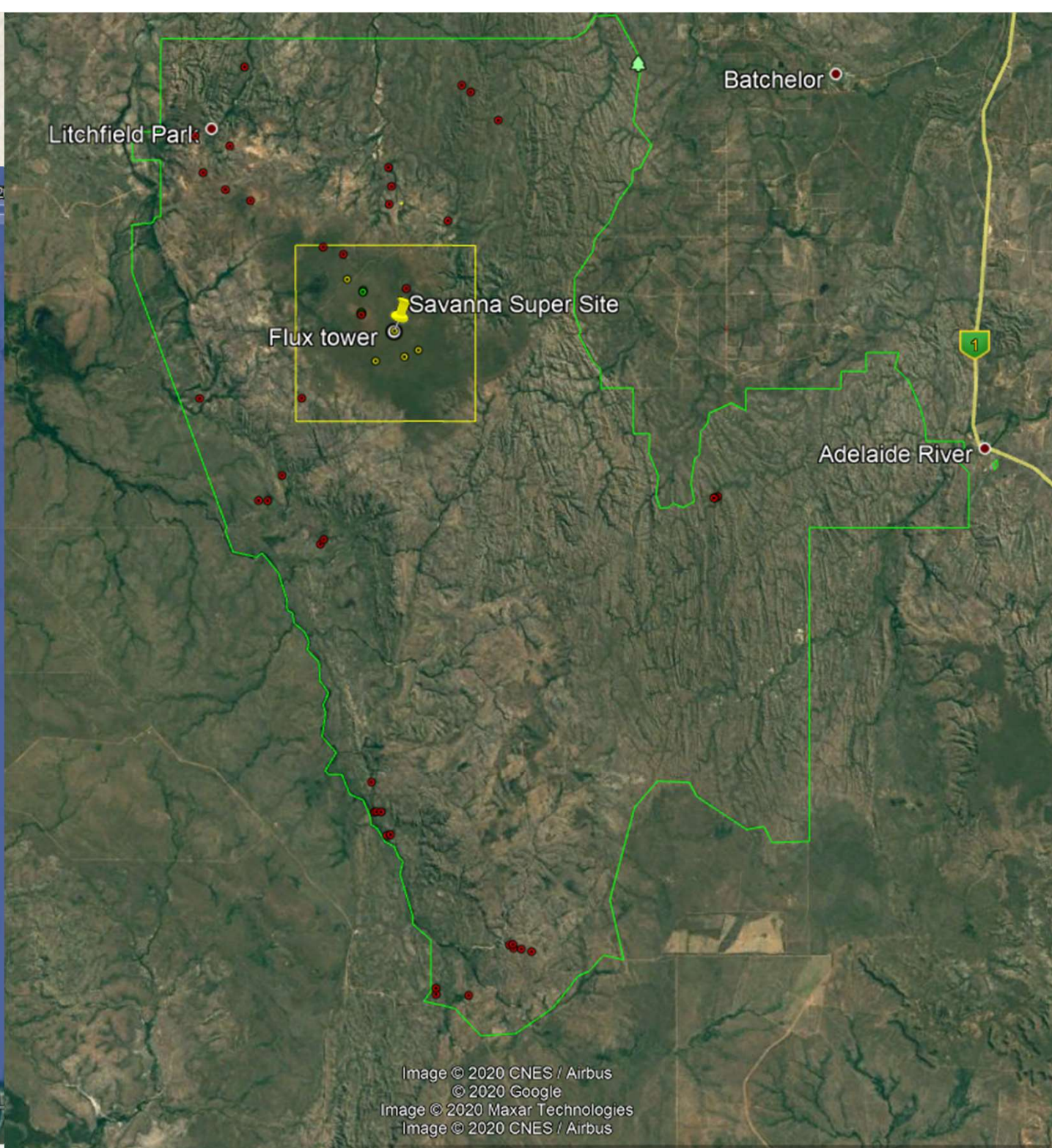


Image © 2020 CNES / Airbus
© 2020 Google
Image © 2020 Maxar Technologies
Image © 2020 CNES / Airbus

12°20'31.12" S

Litchfield Savanna Super site

- High rainfall - ~1960 mm
- Tenosol and kandosol red soils – sandy loams
- High fire frequency



Core activities

- 2 x 1 ha vegetation plots – floristics, biomass and allometry, LAI
- Faunal monitoring – field and acoustic sensors
- Plant physiological and soil/water measurements
- Phenocams
- CO₂, water and energy fluxes
- Remote sensing - TERN AusCover, Lidar



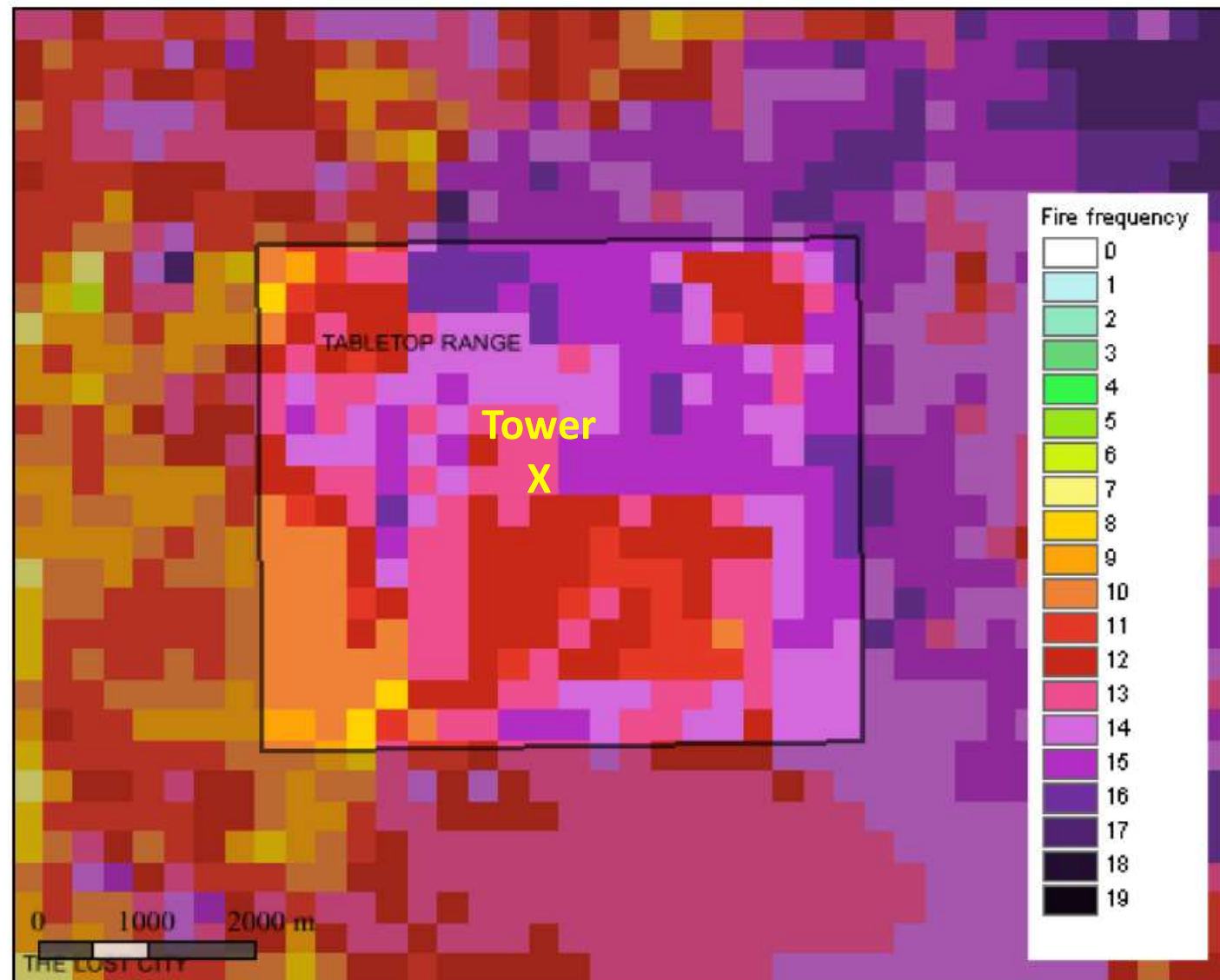
Research theme

Manipulation of fire and impact on fluxes and structure

Litchfield Savanna Super site

Fire 'management'

Fire frequency 2000-2018



The fire frequency(250m) Layer is derived from satellite imagery sourced from the Moderate Resolution Imaging Spectroradiometer (MODIS) on the NASA Terra satellite
Spatial Resolution: 250m x 250m pixels (at Nadir).

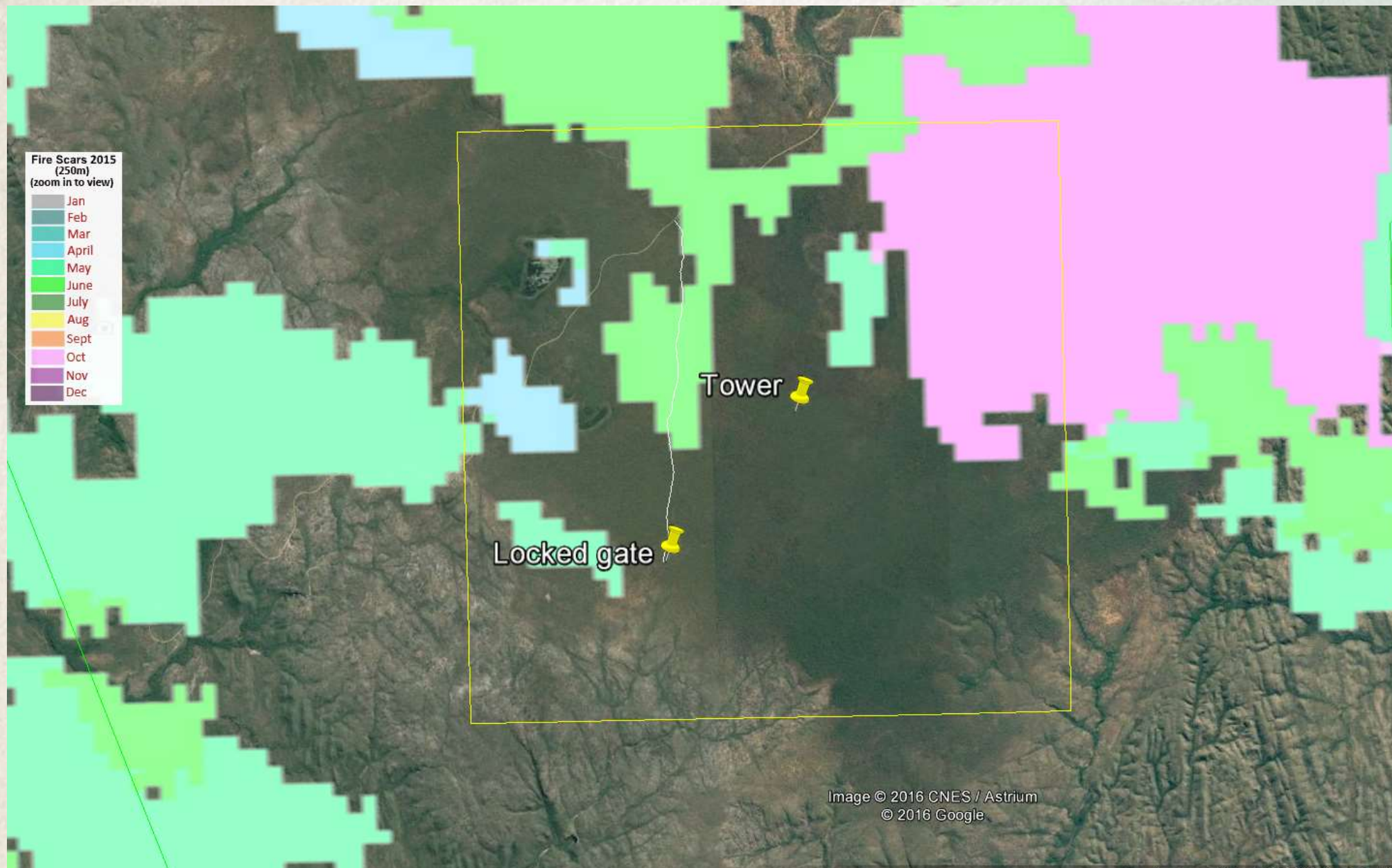
Litchfield SS – Year 1

Fire scars 2014

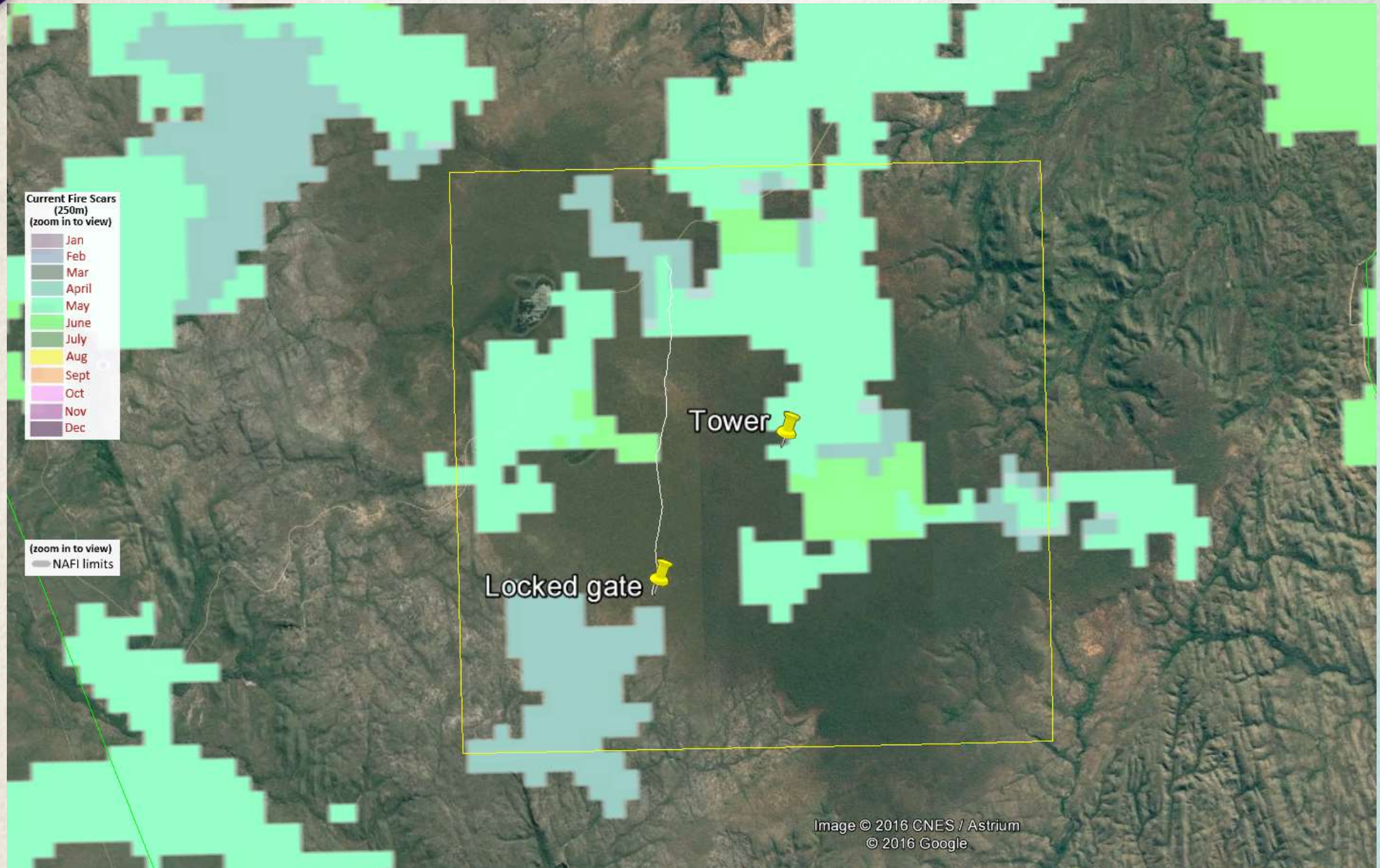


Fire management – 2015

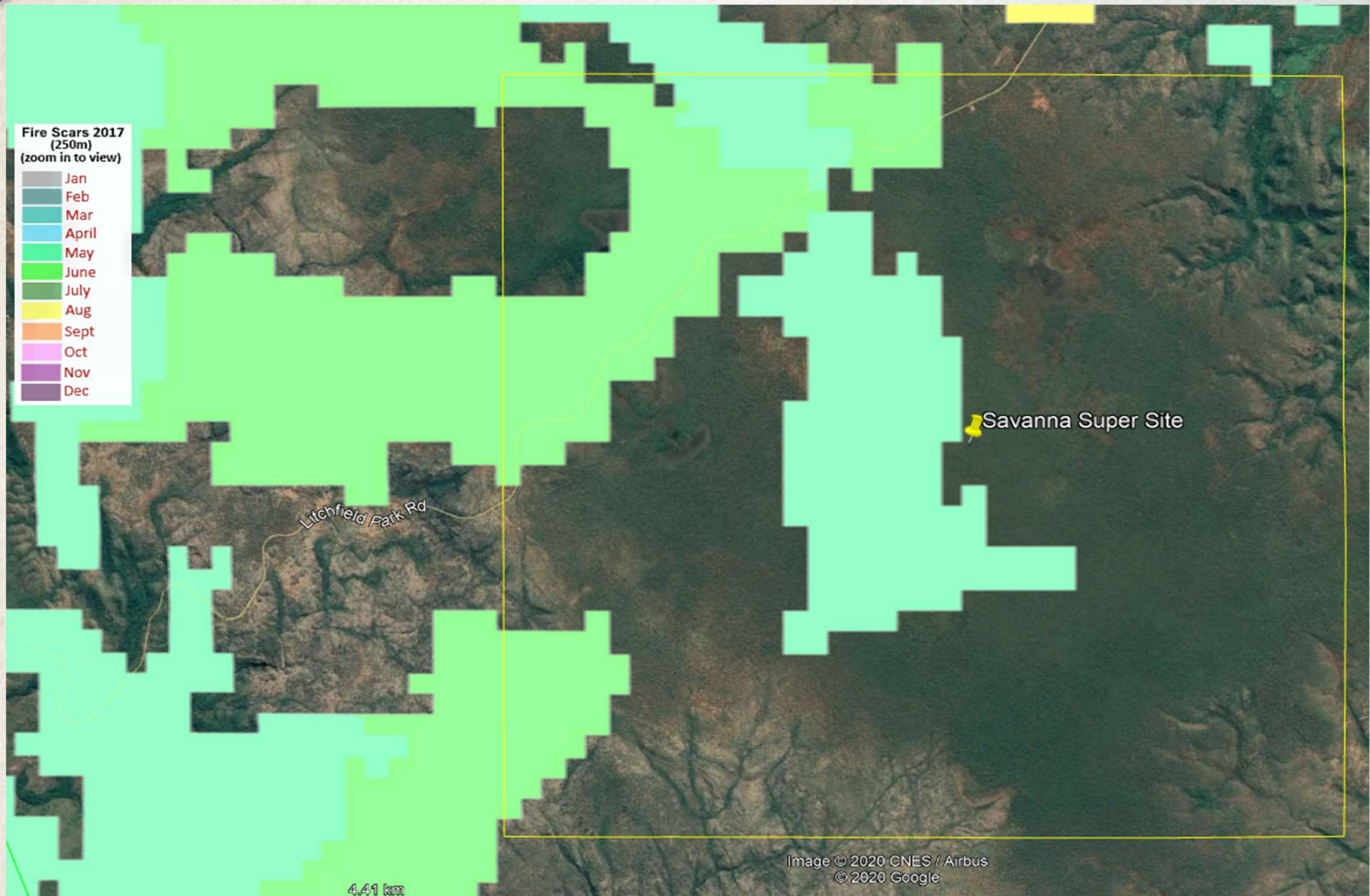
Eddy covariance system install



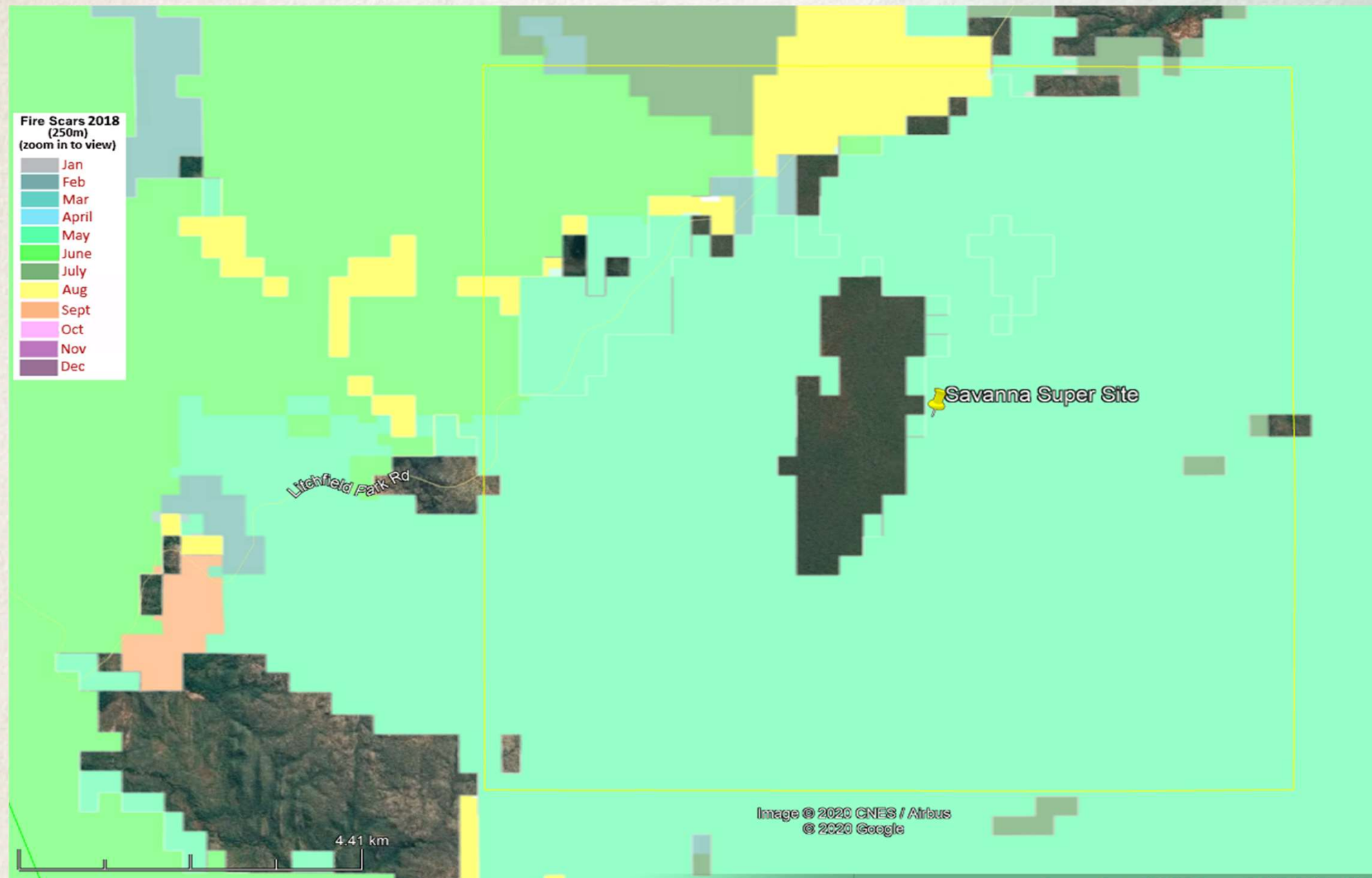
Fire management – 2016



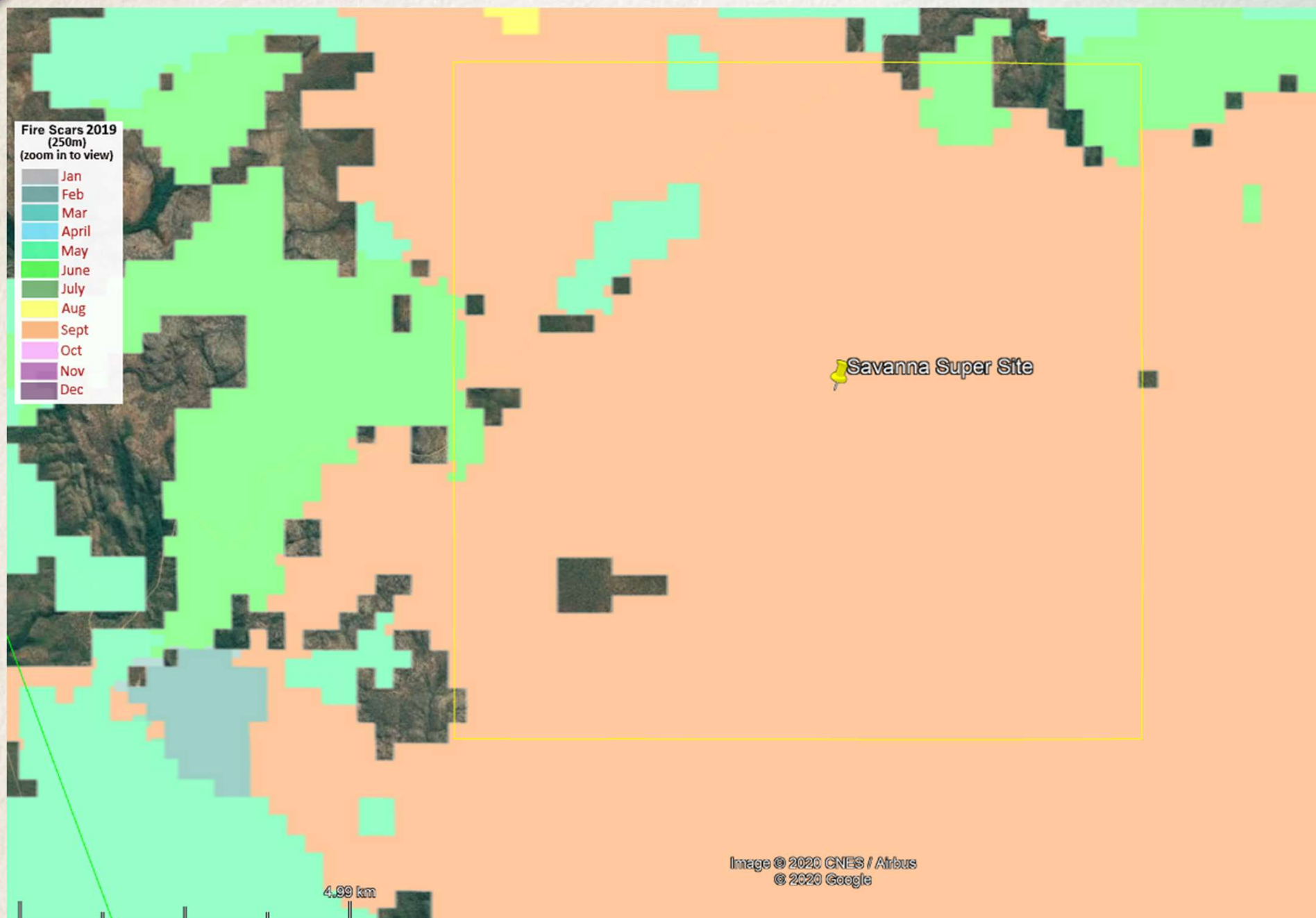
Fire management – 2017



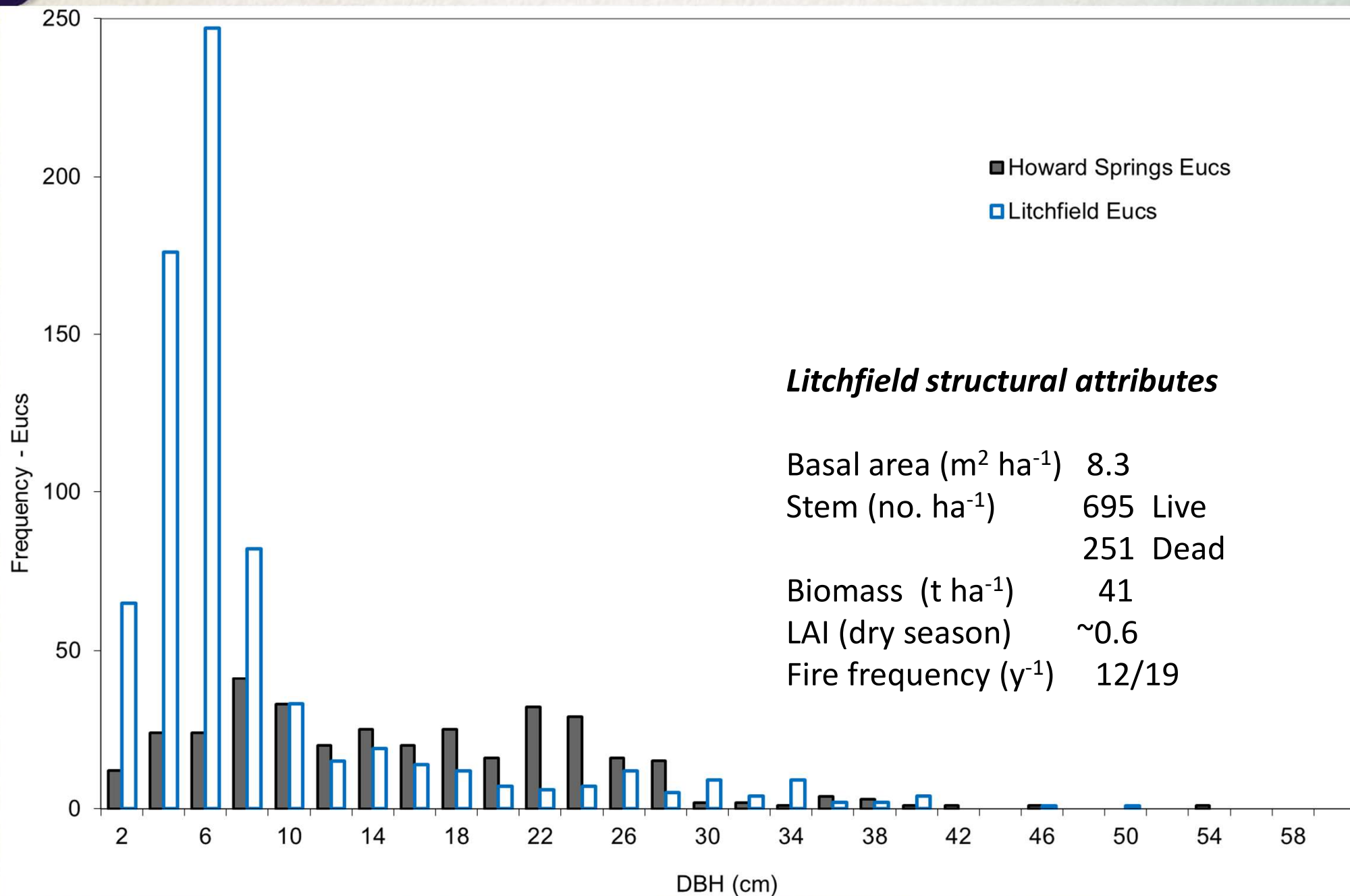
Fire management – 2018



Fire management – 2019



Vegetation survey – ‘recruitment bottleneck’?



Site campaigns to date

AusCover campaign June 2013

- AusCover star-transects established
 - LAI measurement
 - Airborne hyperspectral and Lidar data capture
 - Ground-based Lidar at star-transects, litter trap and camera locations
 - Long term fire plots (LTERN, 3 Parks plots) re-sampled by Russell-Smith et al. 2013
-
- **Vegetation dynamics**
 - 2 x 1 ha gridded plot established at tower site
 - Flora survey – floristics, woody tree biomass
 - **Sequential lidar data**
 - Stem hydraulics
 - Decomposition rates



Litchfield – remote sensing



- Photogrammetry
- Lidar – airborne and ground based
 - biomass from Lidar
 - ***biomass change from Lidar***
 - drivers of spatial distribution
- CEOS-Cal/Val