



Conservation and management of the bilby (*Macrotis lagotis*) in the Pilbara



Photo: M. Dziminski



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Martin Dziminski

Scope

- Update on research on techniques of population monitoring
- Site visit to Nifty and Kintyre
- Photos

How to monitor bilby numbers?

- No reliable methods to monitor numbers
- Scats are distinctive and easy to find
- Dung surveys used very successfully for monitoring other animals



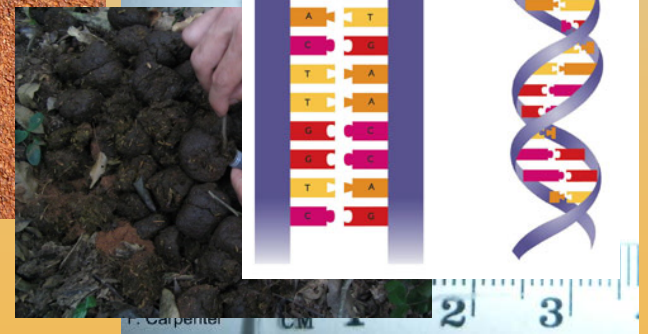
- Investigate distance sampling transects for bilby scats



- Coupled with genotyping or “DNA Fingerprinting” can be a powerful technique for censusing



- Trial at Lorna Glen

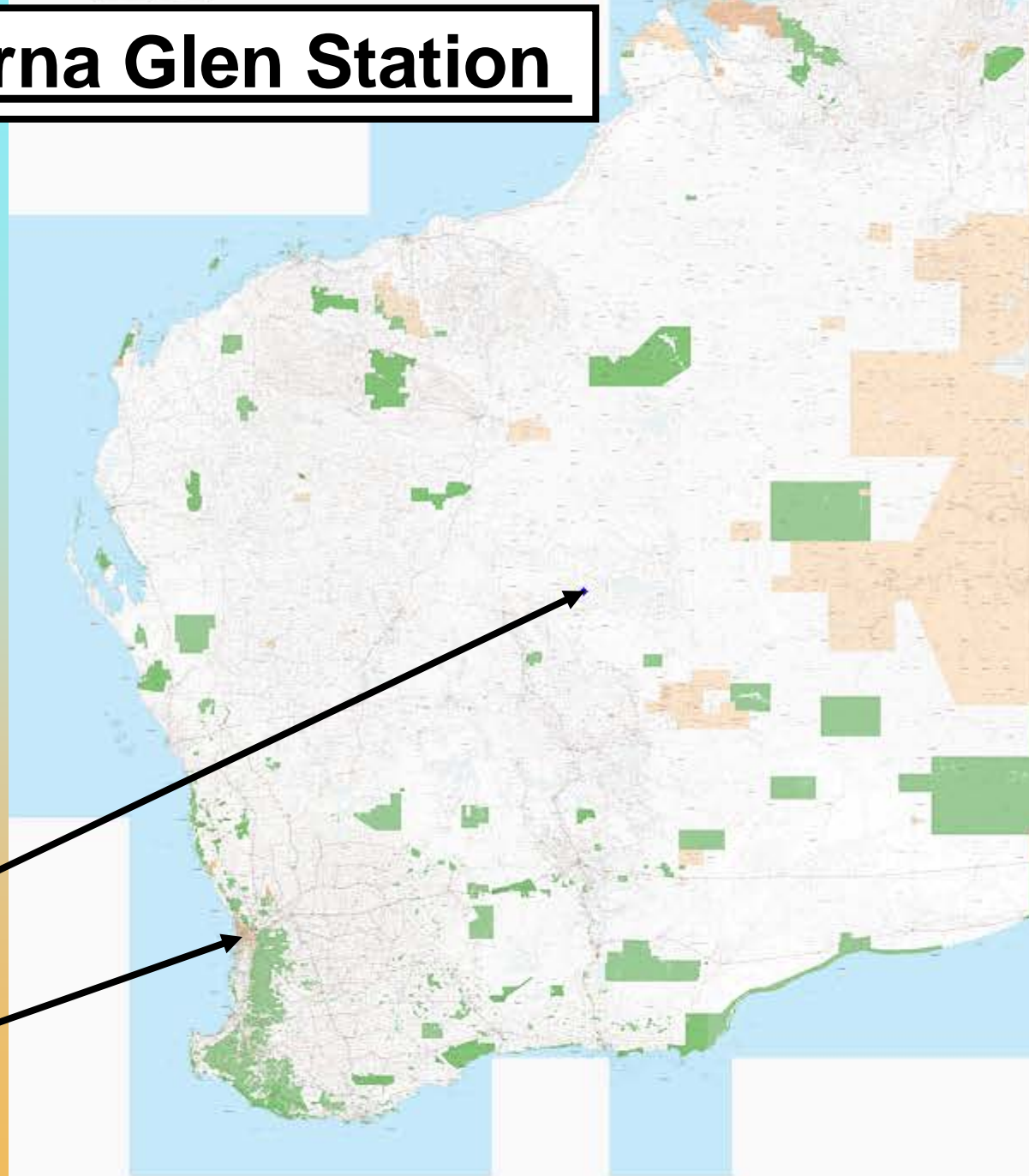


Lorna Glen Station

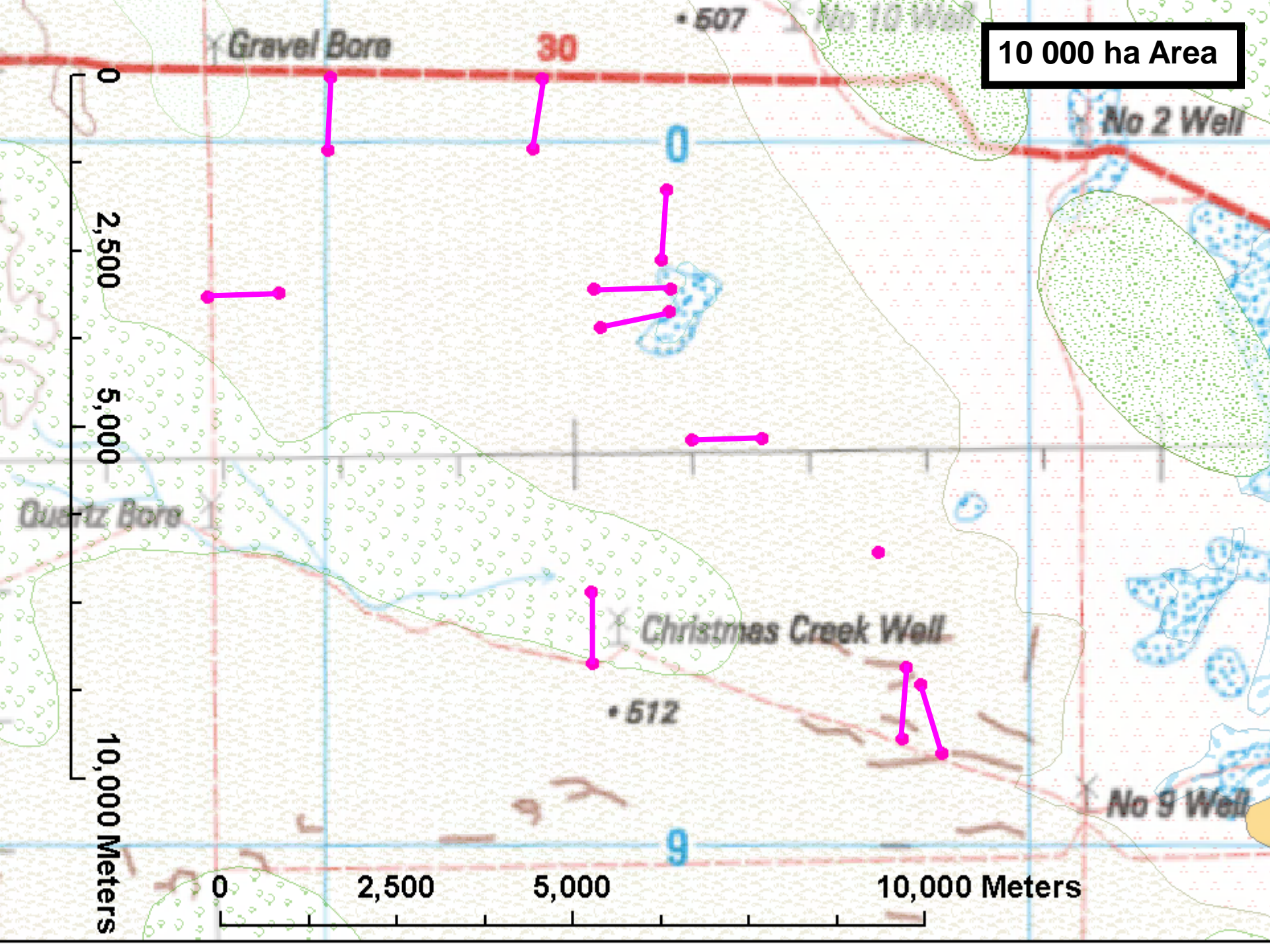
- 250 000 ha
- Purchased by the WA Government in 2000
- Co-managed with the Martu Aboriginal people for conservation
- Managed for predators by aerial baiting
- Stock excluded
- 2007 to 2009 - 128 bilbies released

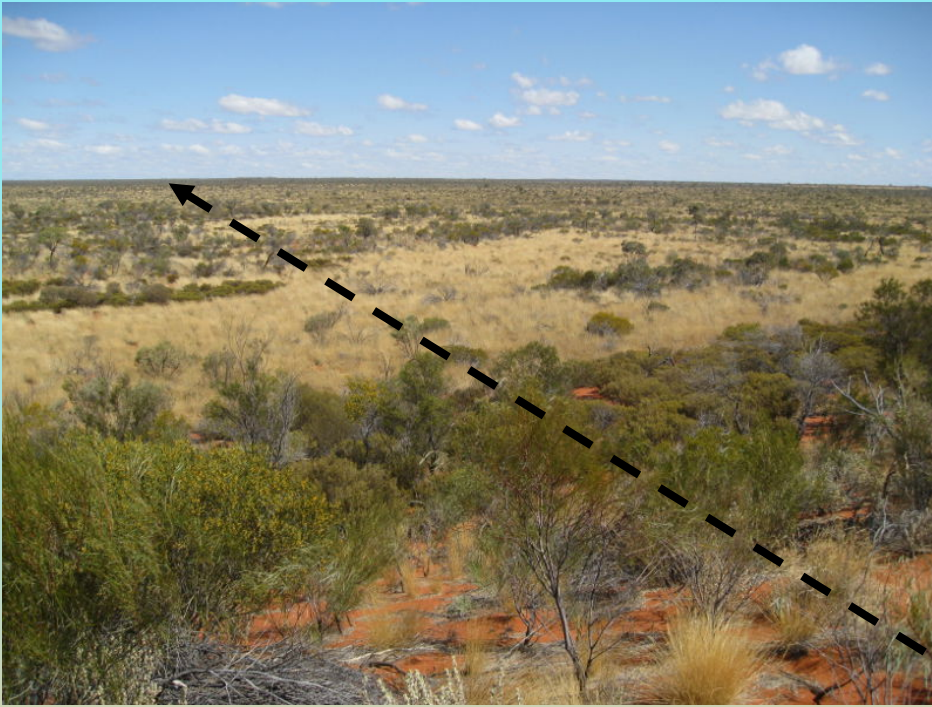
Lorna Glen

Perth



10 000 ha Area

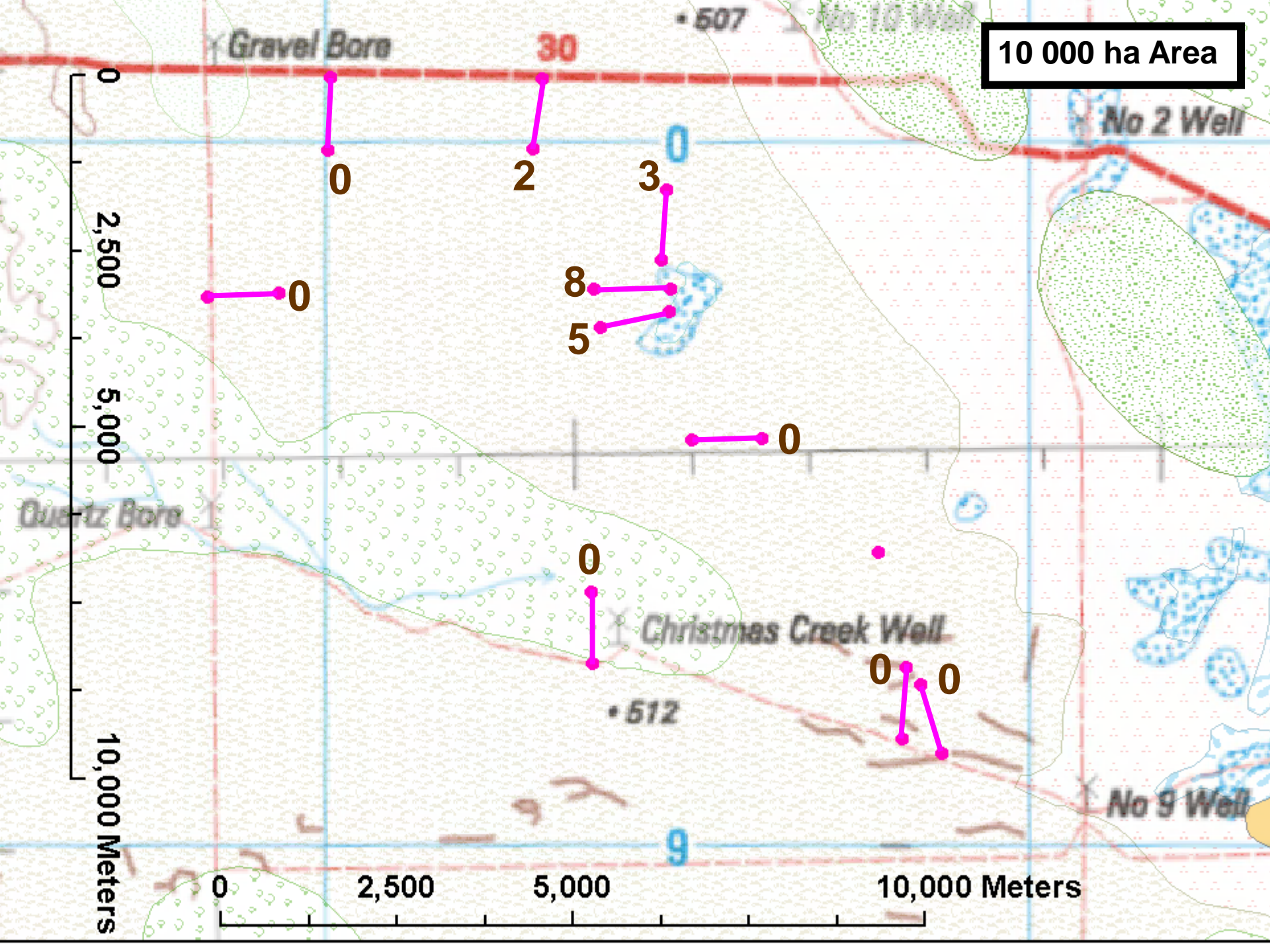




- 10x 1 km transects walked
- Scat samples collected
- Stored dry in silica gel
- Location, distance and angle from transect recorded



10 000 ha Area

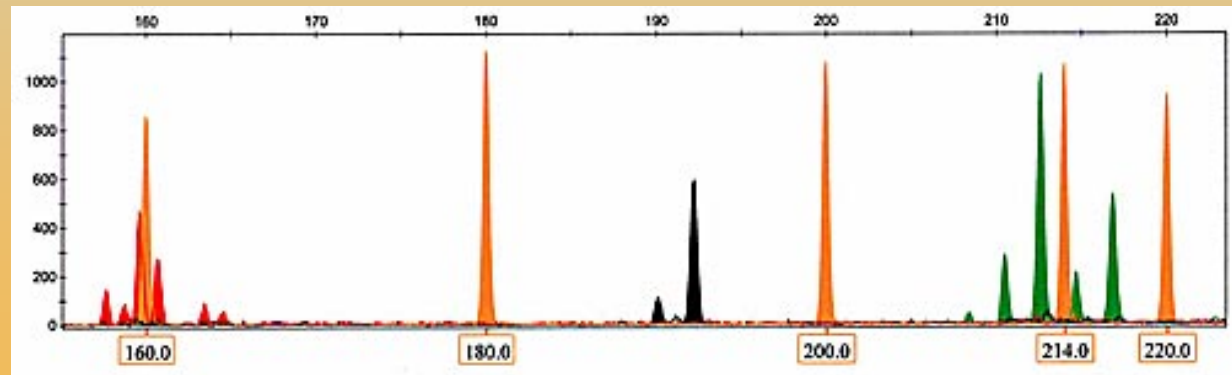
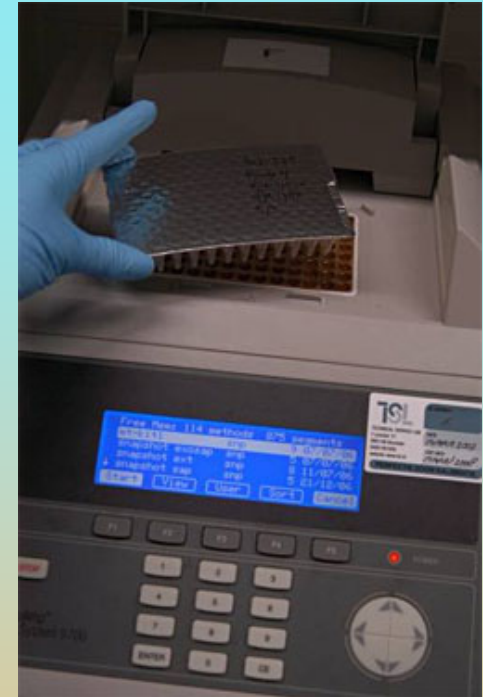


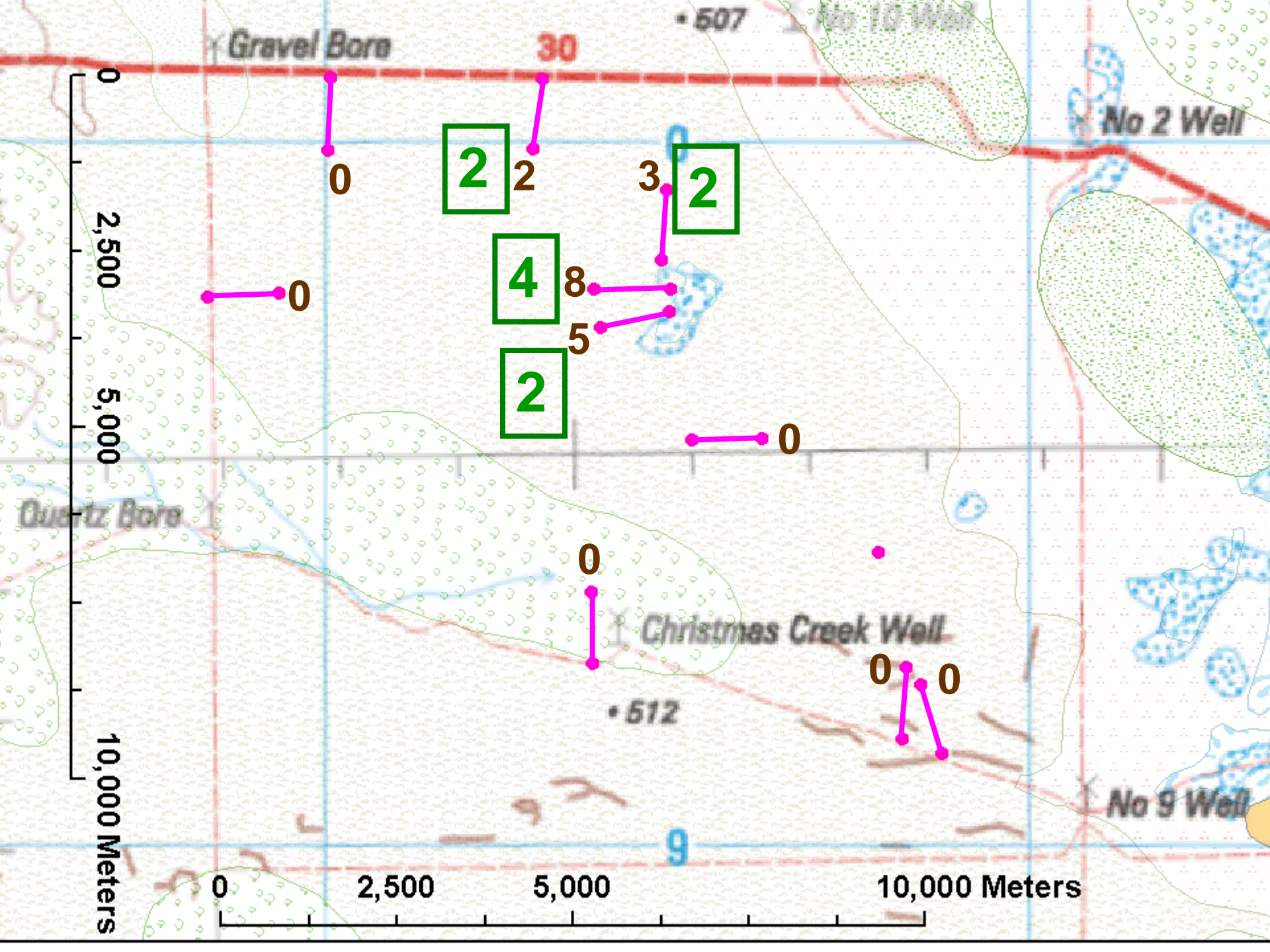
Genotyping

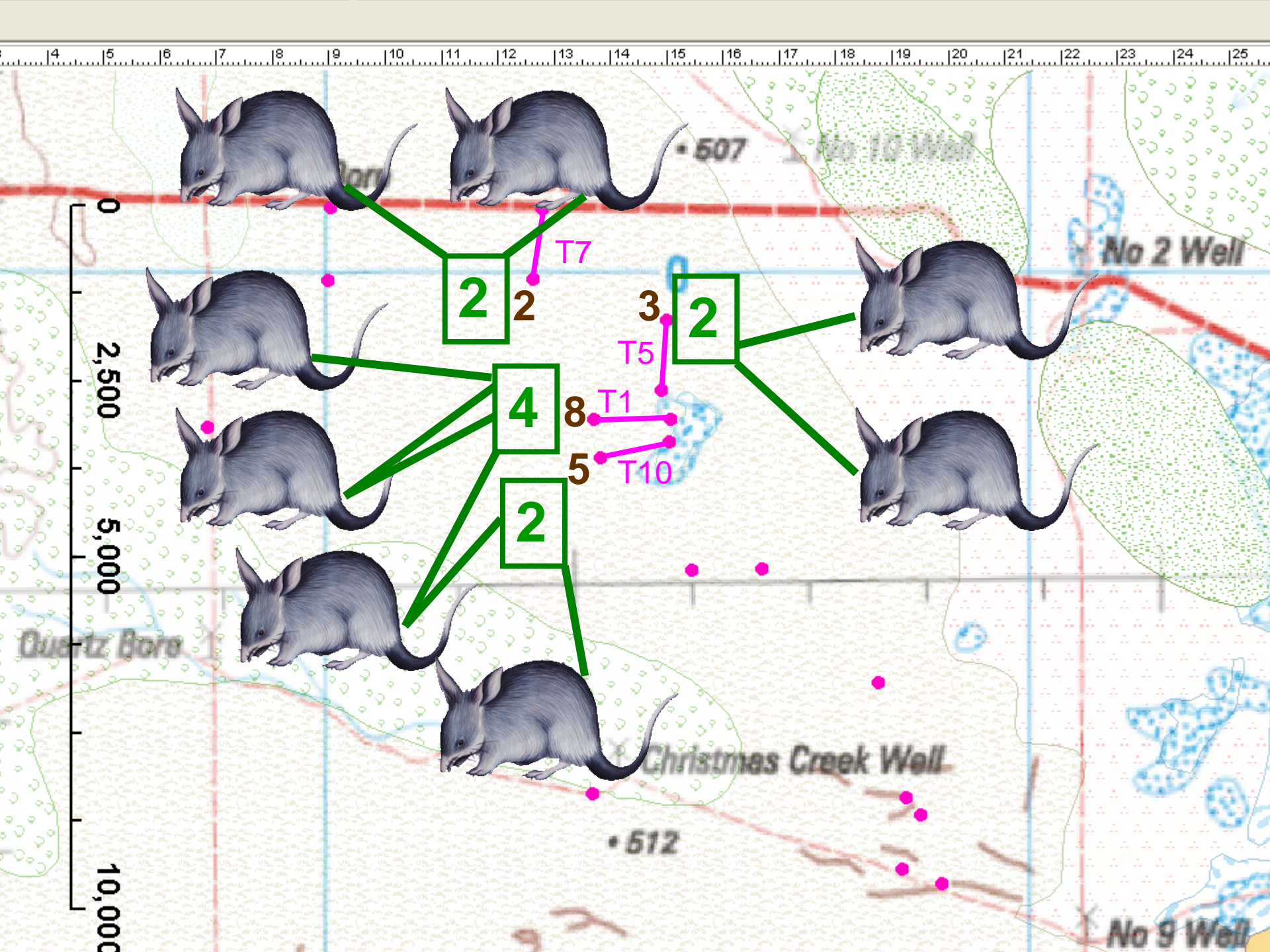
- 9 Polymorphic microsatellite markers available (refined by Smith et al 2009)



- Individuals genotyped from scats using only 4 loci so far









Summary



- DNA extracted from 10 of 18 scat samples collected
- 8 individuals identified from 10 scats
- Need more transects and scat samples to be able to calculate a detectability function and effective area sampled to apply to broader area

Future Work

- Complete genotyping samples with remaining 5 loci
- Refine transect length and compare:
 - Line transects on foot
 - Line transects on quad bikes
 - Quadrat searches



- Expand trial sites to Pilbara – to become long term monitoring sites/populations

Potential Trial monitoring sites in the Pilbara

- Site visit to Nifty and Kintyre July 2013

Nifty

Kintyre

Lorna Glen

Perth



Nifty



RESTRICTED ACCESS AREA
PRIVATE ROADS AND VEHICLE TRACKS

PERMITS MAY BE REQUIRED FOR ENTRY
INTO OR TRAVELLING THROUGH
ABORIGINAL LANDS & COMMUNITIES

LITTLE SANDY DESERT

THROSELL

RANGE

Kintyre

NUMEROUS CLEARED LINES
MAY POSE A NAVIGATION HAZARD

PERMITS MAY BE REQUIRED FOR ENTRY
INTO OR TRAVELLING THROUGH
ABORIGINAL LANDS & COMMUNITIES

542



Fresh burrow

Fresh burrow 03

Burrow 08

Very fresh burrow cameras

Fresh diggings/scats

Very fresh burrow cameras

Old burrow

Old burrow

Old burrow 6mths

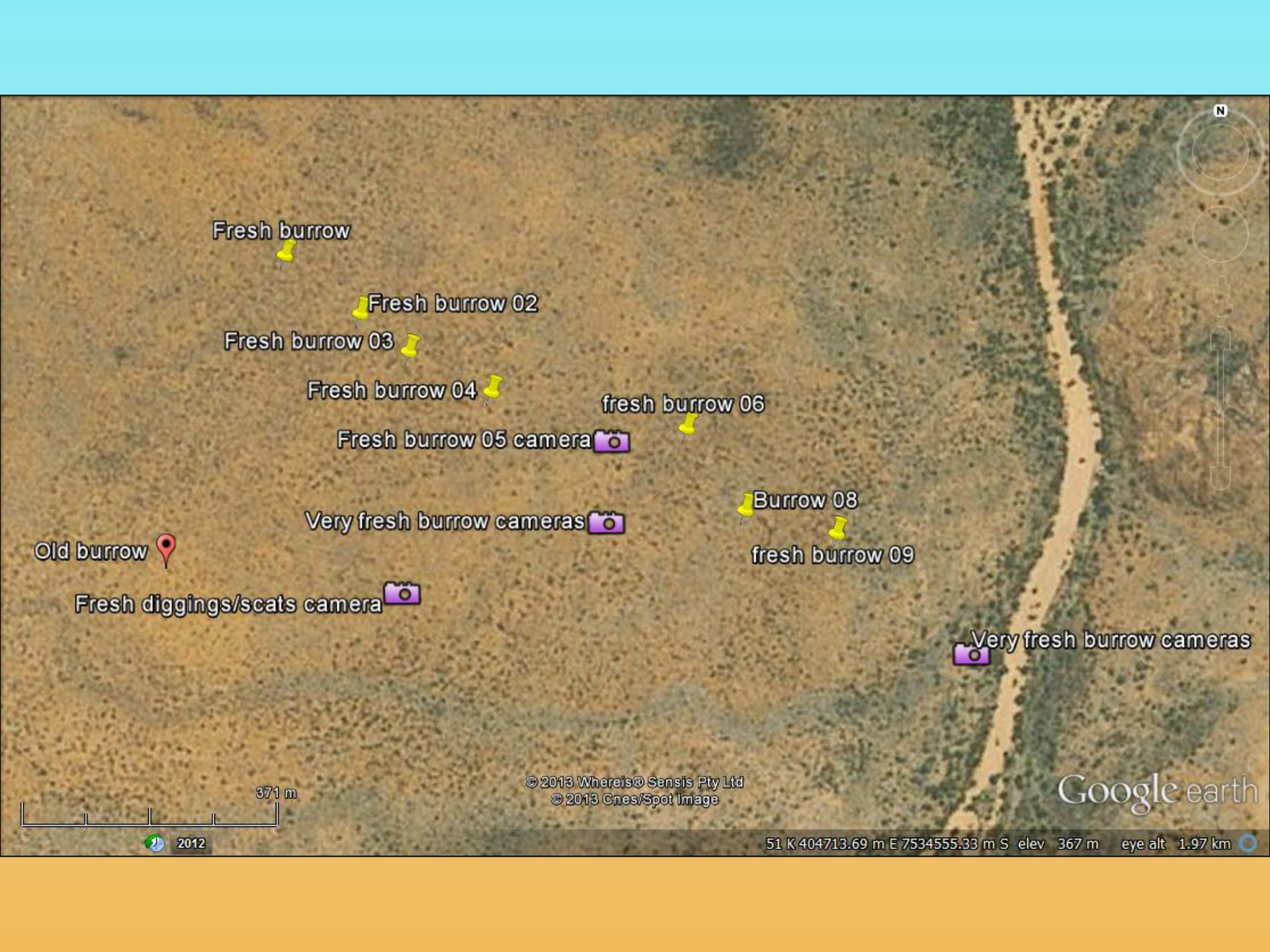
Kintyre Camp

Image © 2013 DigitalGlobe
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Google earth

2012

Imagery Date: 10/10/2012 51 K 404476.15 m E 7532845.01 m S elev 365 m eye alt 8.99 km



Fresh burrow

Fresh burrow 02

Fresh burrow 03

Fresh burrow 04

fresh burrow 06

Fresh burrow 05 camera

Burrow 08

fresh burrow 09

Very fresh burrow cameras

Old burrow

Fresh diggings/scats camera

Very fresh burrow cameras



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Google earth

2012

51 K 404713.69 m E 7534555.33 m S elev 367 m eye alt 1.97 km



















Remote Camera shots



2013-07-10 16:36:04

M 1/3

0 31°C



PC900-094A



2013-07-10 16:36:05

M 2/3

0 31°C



PC900-094A



2013-07-10 16:36:06

M 3/3

0 31°C



PC900-094A











2013-07-11 20:21:13

M 3/3

15°C



PC900-091A



2013-07-11 20:21:14

M 1/3

15°C



PC900-091A









2013-07-12 05:19:34

M 3/3

13°C



PC900-091A





2013-07-12 05:19:37

M 2/3

13°C



PC900-091A



2013-07-12 05:19:38

M 3/3

13°C



PC900-091A













2013-07-12 05:23:38

M 3/3

13°C



PC900-091A







2013-07-12 05:23:43

M 3/3

13°C



PC900-091A



































2013-07-12 07:00:15

M 1/3

0 12°C



PC900-095A

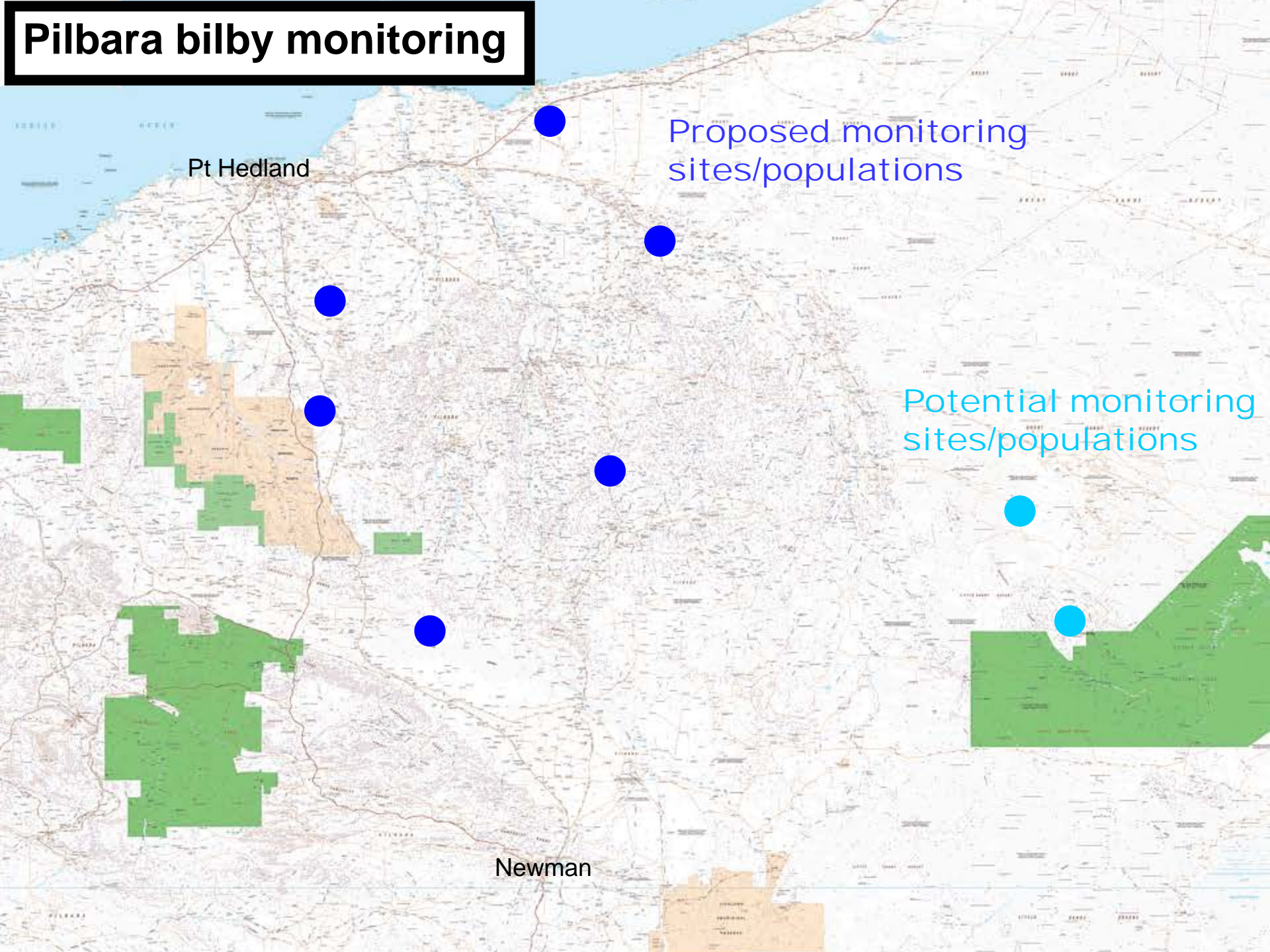
RECONYX

Benefits to DPaW Bilby Research from Rangelands NRM Western Western Desert Meetings

- Established collaboration with DPaW, Birla Nifty, Cameco and possibly Newcrest
- Investigation into LiDaR and imagery use for Landscape scale survey – Birla Nifty and Cameco
- Potential Trial monitoring sites/populations



Pilbara bilby monitoring





Acknowledgements

- Fiona Carpenter Technical Officer DPaW
- Global Gypsies – Lorna Glen transects
- Aditya Birla Nifty – Michael Robinson
- Cameco – Tim Duff





















