

Near-real Time Mapping Application to Optimise Feral Deer Control in Urban Setting

Rajendra Shilpakar - Senior Land Services Officer – GIS

Alison Towerton - Biosecurity Project and Programs Officer

Annaliese Geddes – Senior Biosecurity Officer

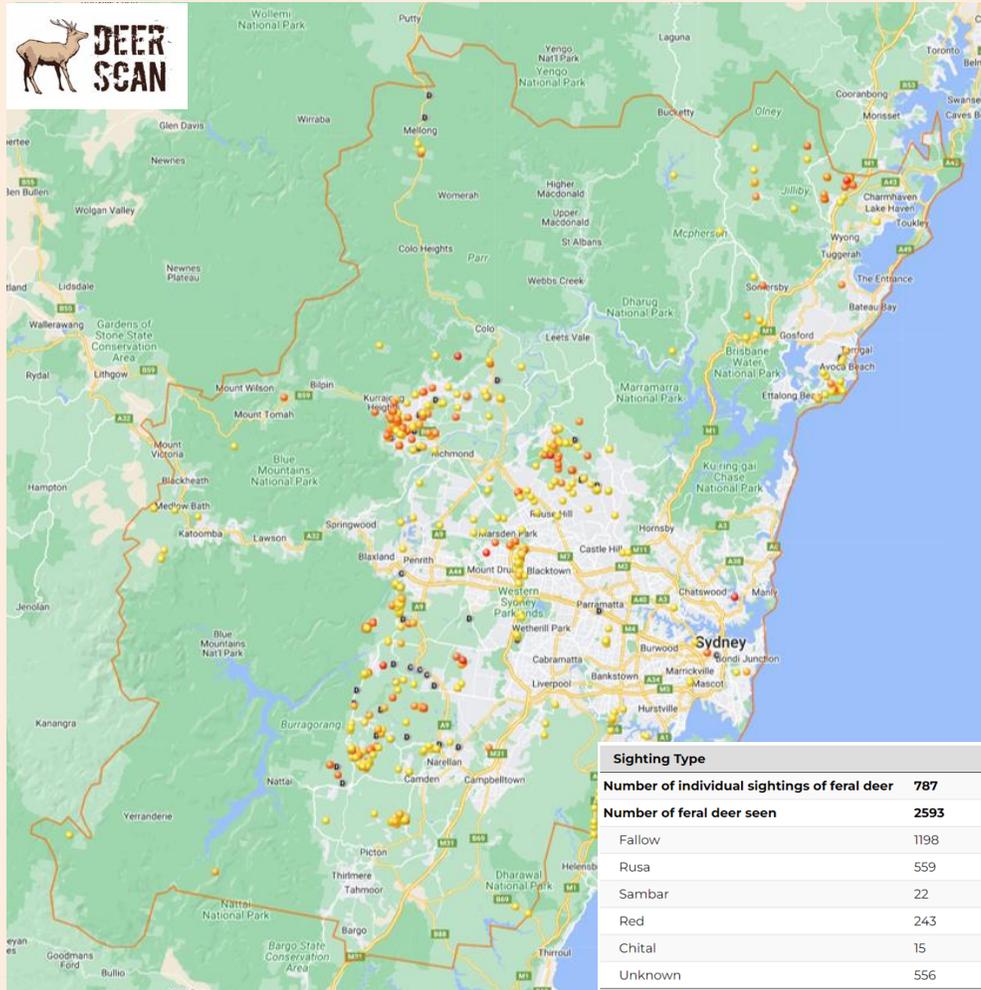


Feral Deer in Greater Sydney

- Widespread and managed as asset protection
- Deer control is complex in peri-urban landscape
- Ground control most suitable option
 - effective WHS management
 - efficient information recording
 - transparent data sharing



Feral Deer in Greater Sydney



Damage Type	
Number of damage records	118
Type of damage reported	193
Damage to fences and gates	11
Motor vehicle collision or hazard	25
Competition with livestock	4
Damage to native vegetation	72
Damage to tree planting activities	20
Plantation damage	5
Fruit tree / orchard damage	10
Damage to gardens / flowers	20
Spread of weeds and seeds	6
Soil disturbance and erosion	14
Other	6



Photo: Peter Ridgeway

We have a deer 'problem'... now what?

- Case Study: Penrith Liverpool Deer Program
 - Extensive door knocking by Biosecurity Officers to understand the problem
 - August 2020 pre-control monitoring commenced (cameras, landholder surveys, FeralScan data and deer pellet counting)
 - October 2021, control commenced by qualified, licenced and insured professional contractors and GS LLS Biosecurity Officers

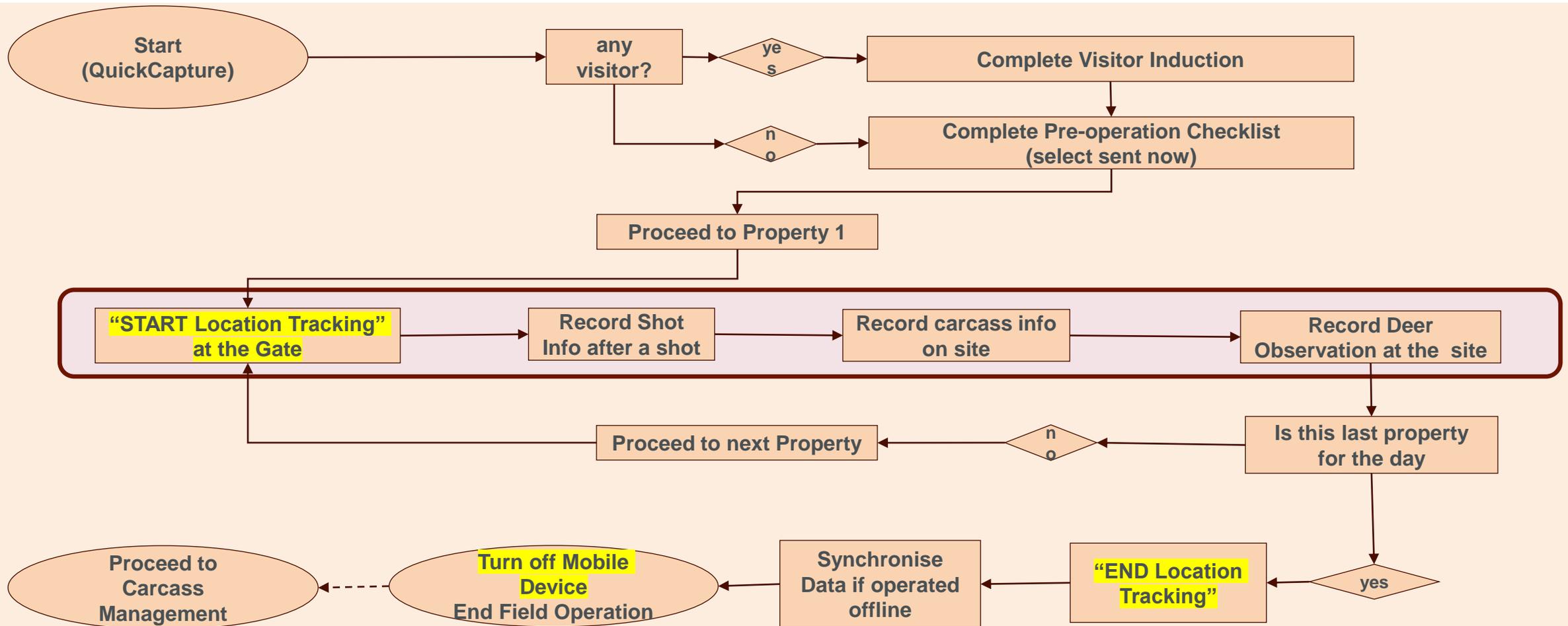
How can we make sure this control program is run as safely as possible in a peri-urban landscape?

Program Framework

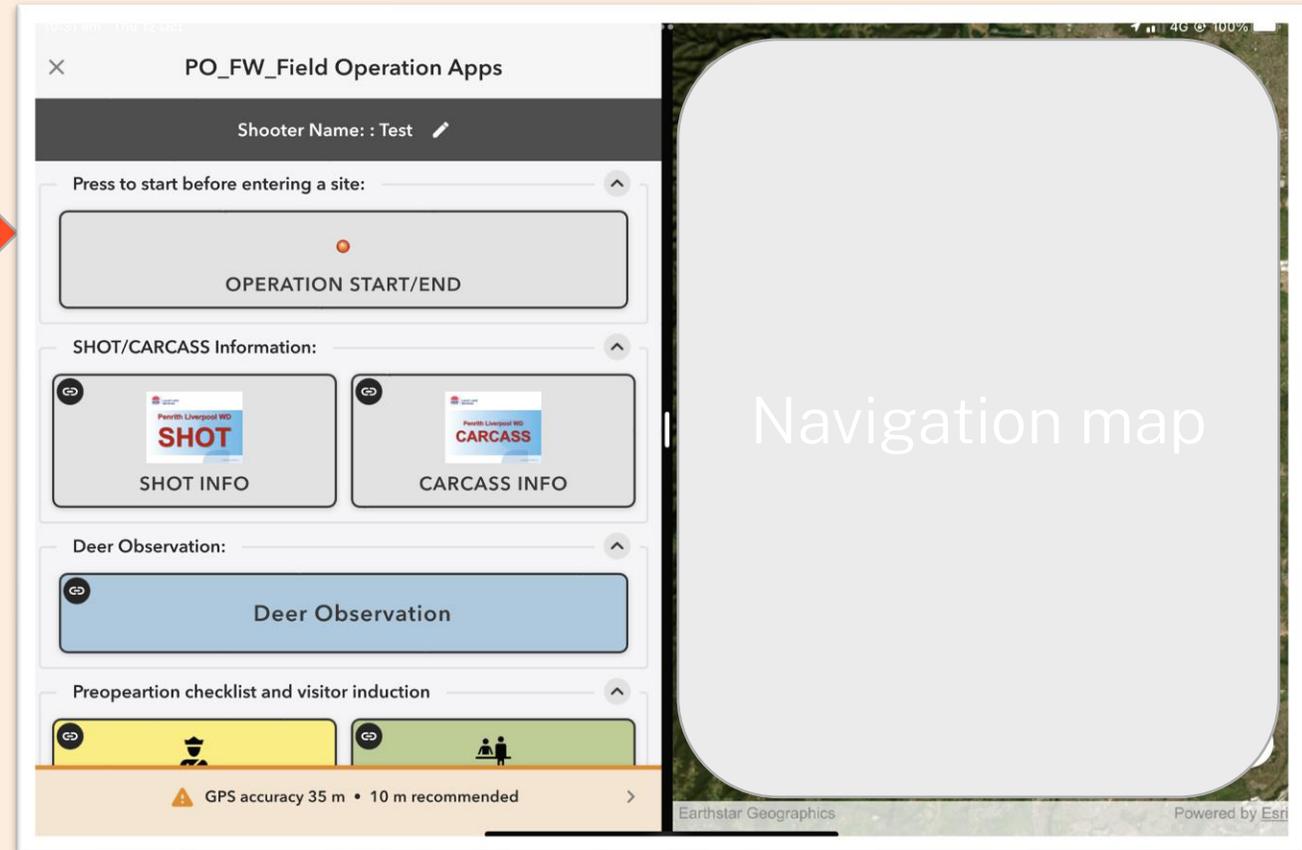
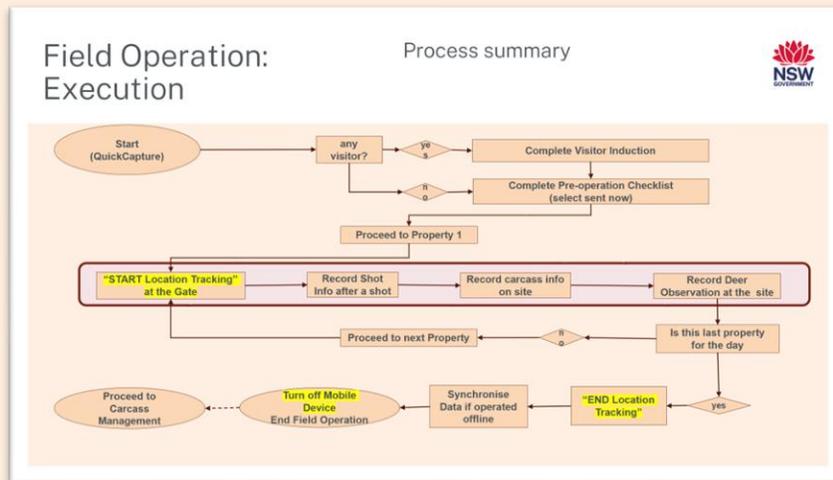
Updated from Lee Parker, 2018



Field Operation Execution: Process Summary



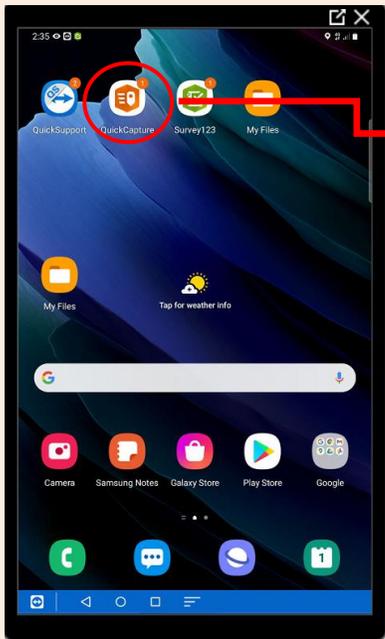
Field operation application: Key Features



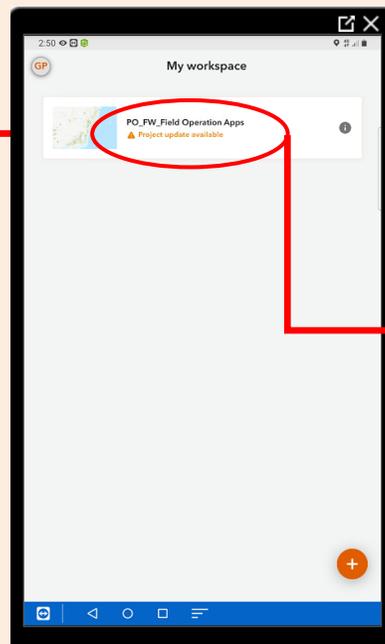
- users friendly app
- developed in-house in ArcGIS online environment, easy to replicate
- offline capability
- near-real time information sharing

Easy to update/enhancement

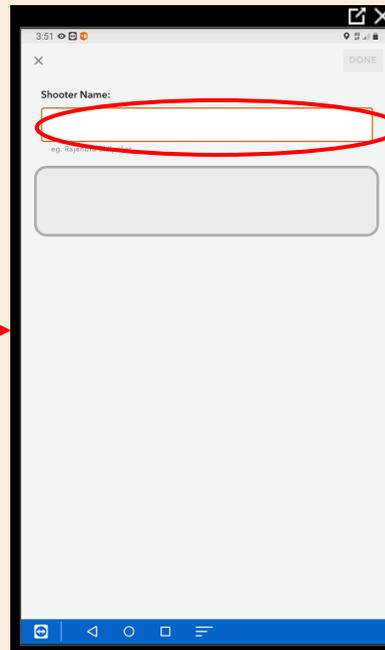
Device Home



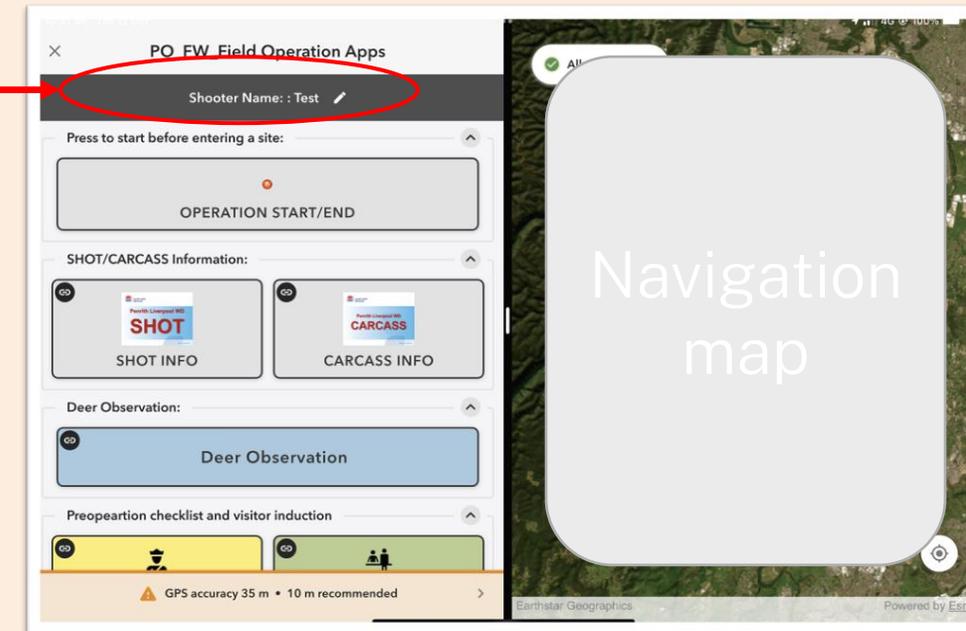
QuickCapture



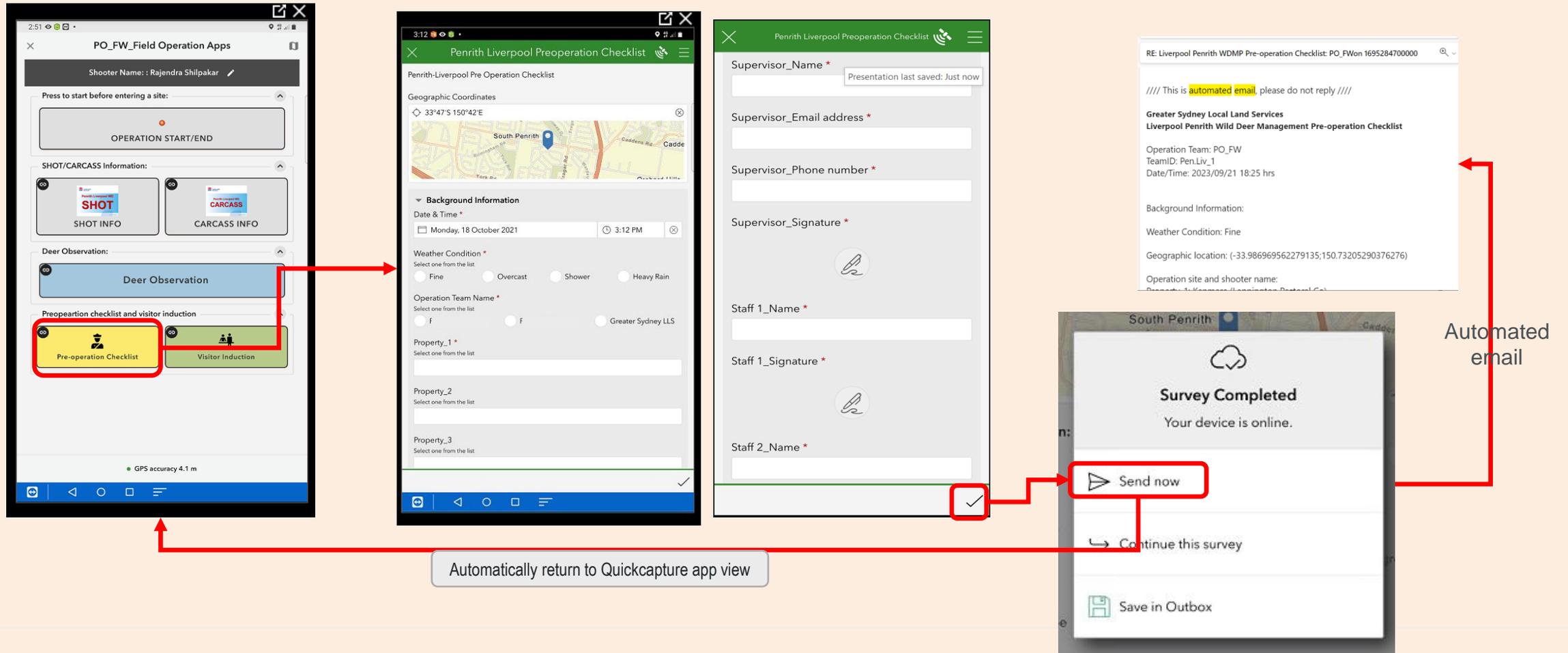
Insert/Select
Shooter
Name



App and Map View



Pre-operation checklist and visitor induction

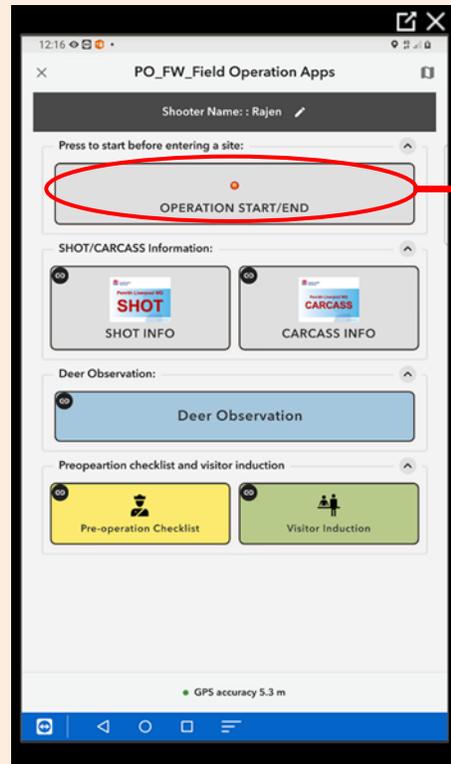


Location streaming with date/time

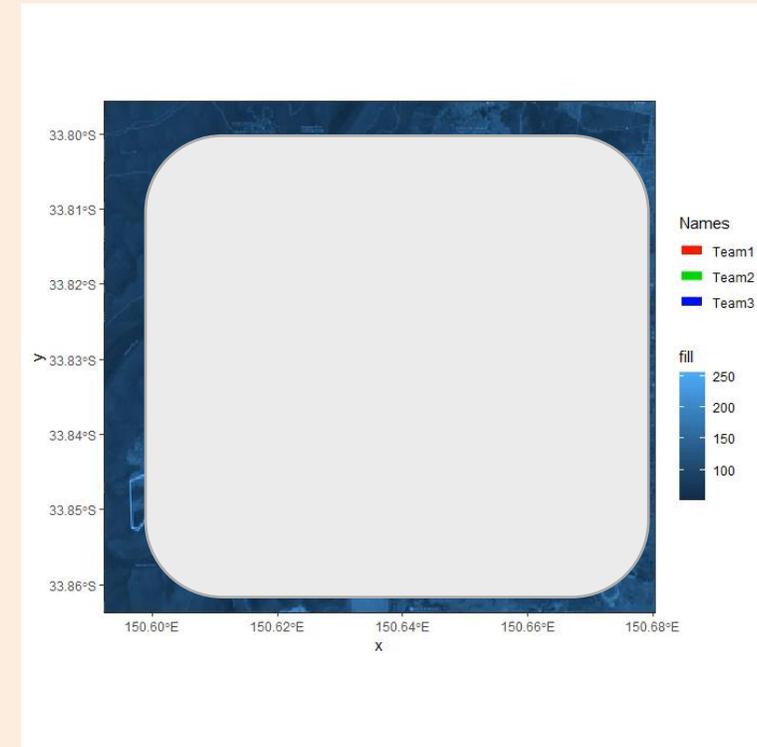
Before entering to a property: start operation (start recording location with shooter name)

Before leaving the last property: end operation (stop recording location)

Field Ops Apps



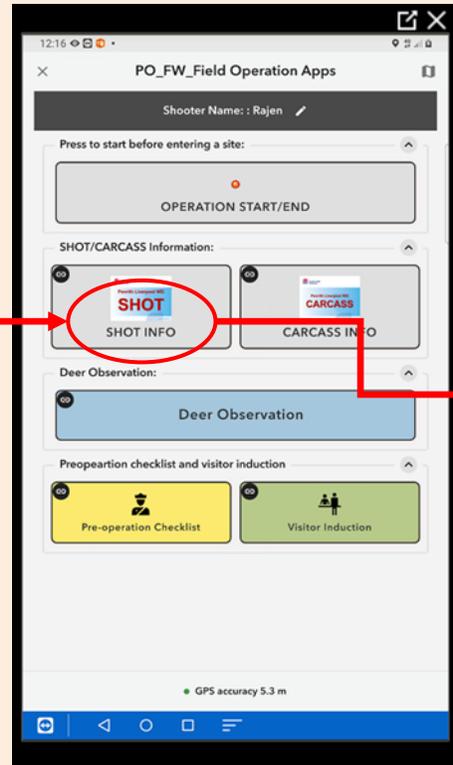
recording



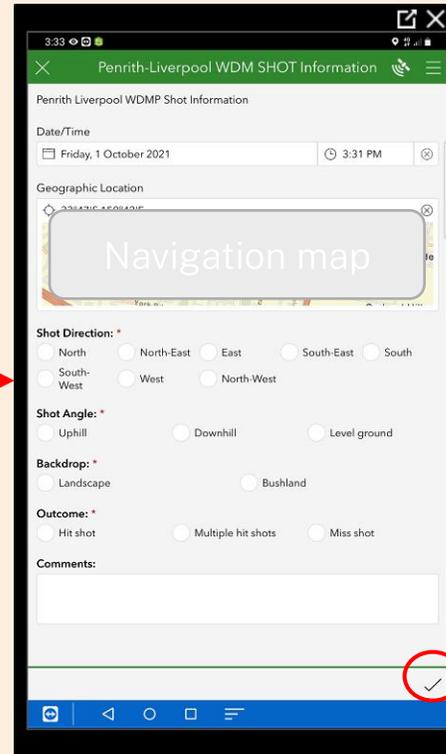
SHOT information



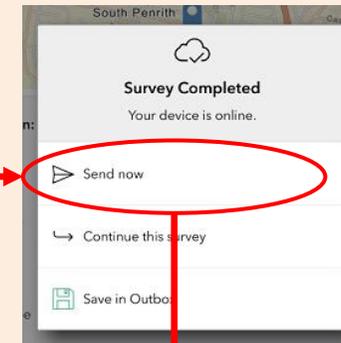
Field Ops Apps



SHOT Info



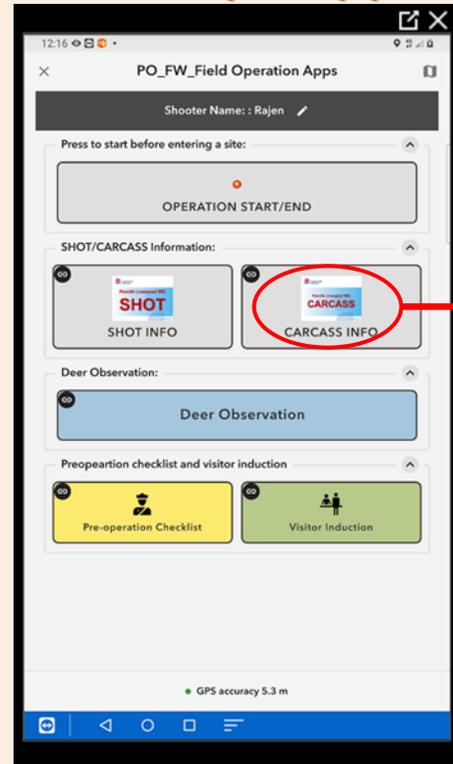
1. Date/Time: default (current)
2. Geographic Location: auto as you see on map
3. Shot Direction: select one from list
4. Shot Angle: select one from list
5. Backdrop: select one from list
6. Outcome: select one from list
7. Comments: optional



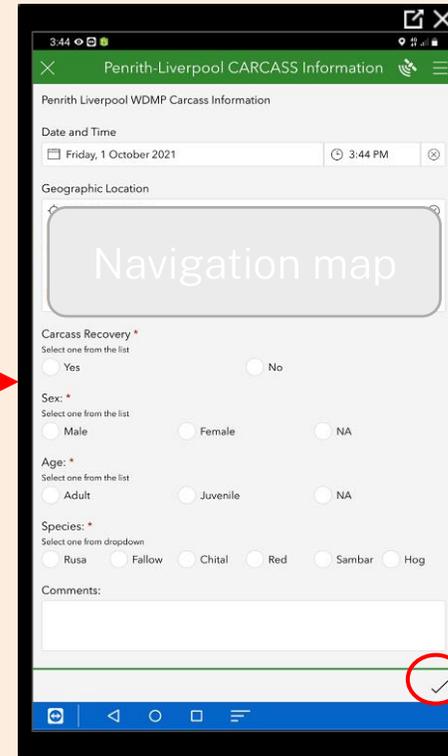
CARCASS information



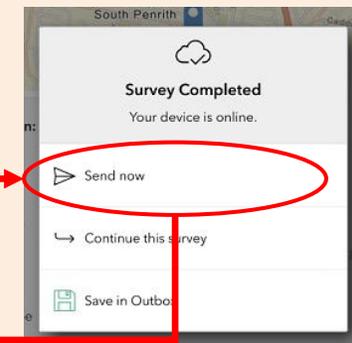
Field Ops Apps



CARCASS Info



1. Date/Time: default (current)
2. Geographic Location: auto as you see on map
3. Carcass recovery: yes/no
4. Sex: select one from list
5. Age: select one from list
6. Species: select one from list
7. Comments: optional
8. **Carcass photo**: take a picture
9. DNA Sample ID

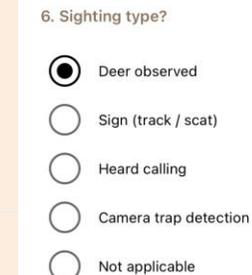
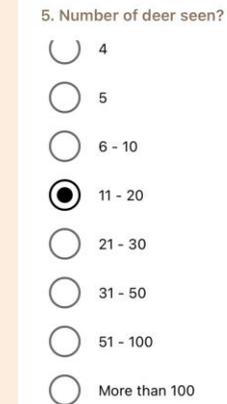
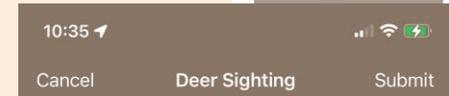
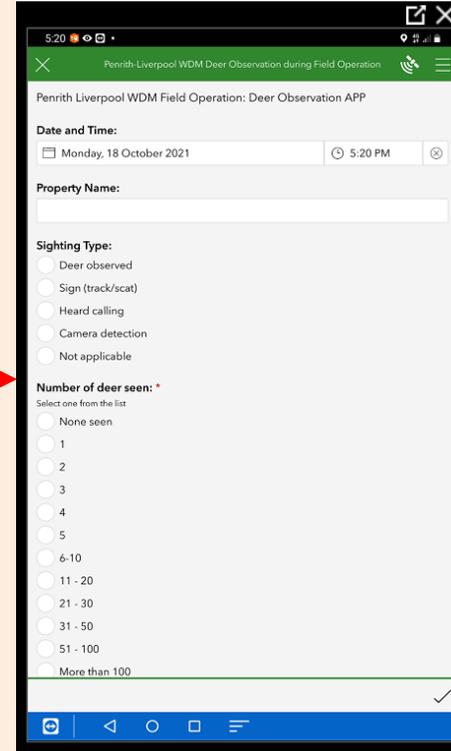
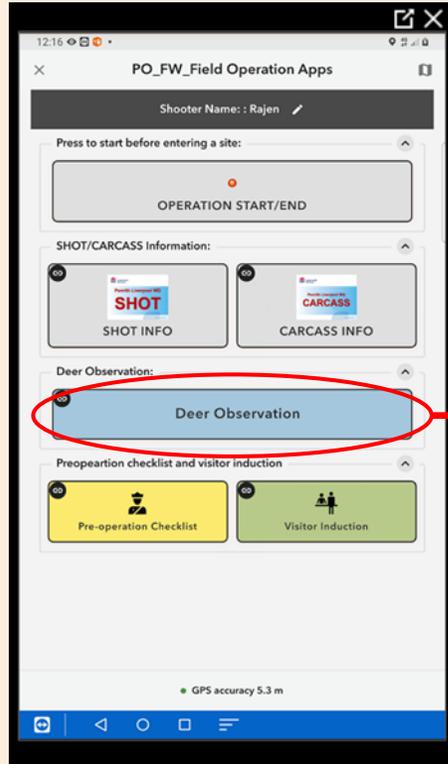


Deer observation

Field Ops Apps

Deer Observation Form

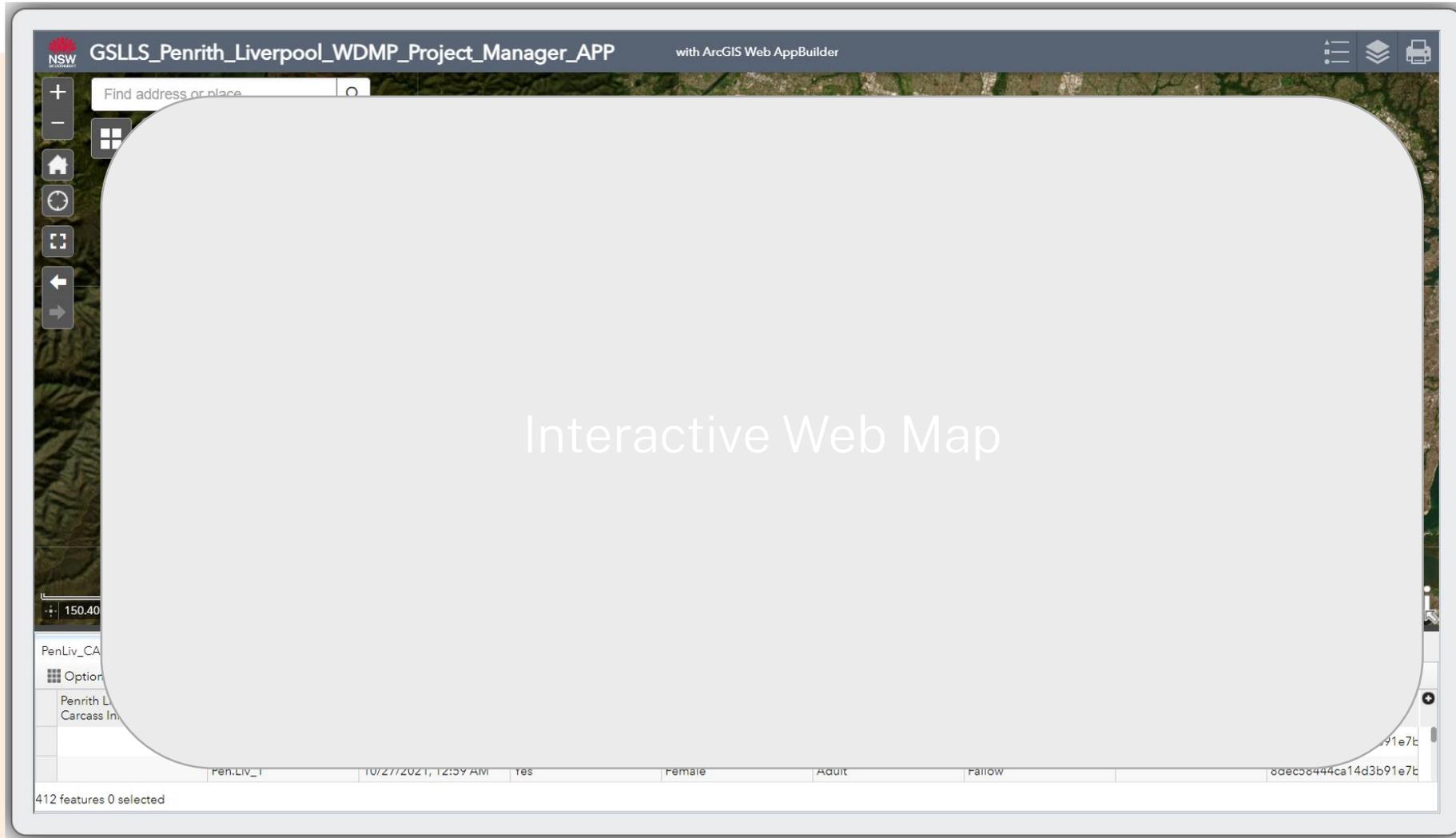
1. **Date/Time:** default (current)
2. **Geographic Location:** auto as you see on map
3. **Property Name:** type name
4. **Sighting type:** select one from the list
5. **Number of deer seen:** select one from the list
6. **Comments**



DASHBOARD_Penrith Liverpool WDMP



Project managers tool



Summary of operations

- NIL reported safety breaches/incidents
- Contractors satisfied with the ease of app
- Landholders satisfied
- Field operation data analysis is in progress

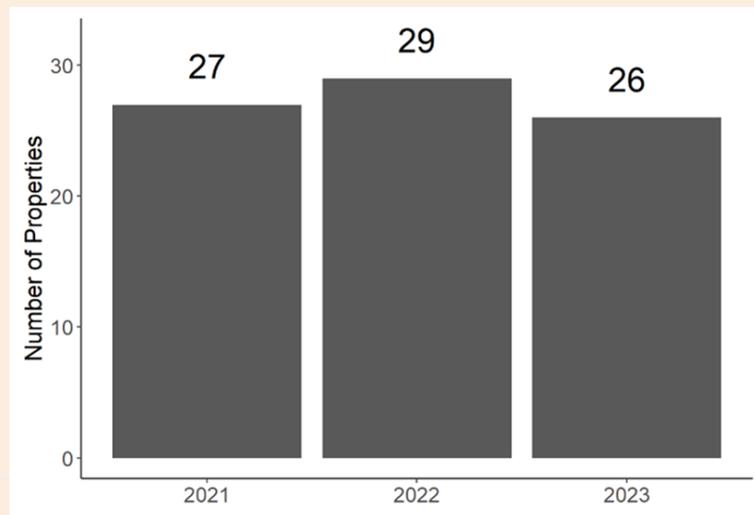
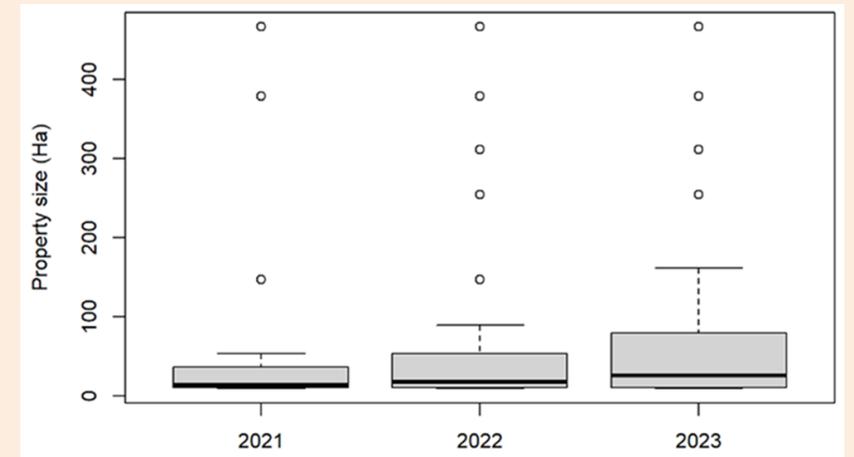
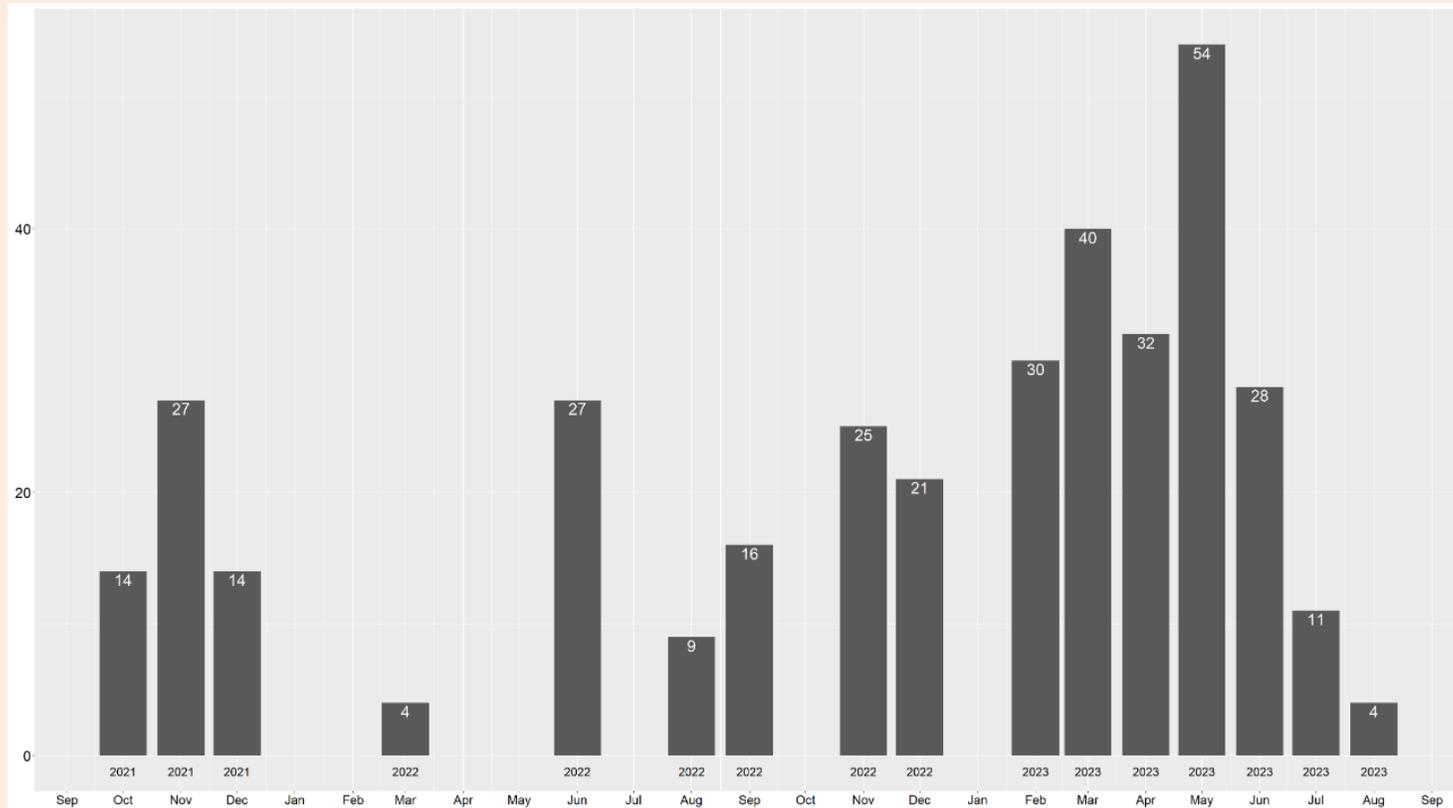


Photo: SMH 2020

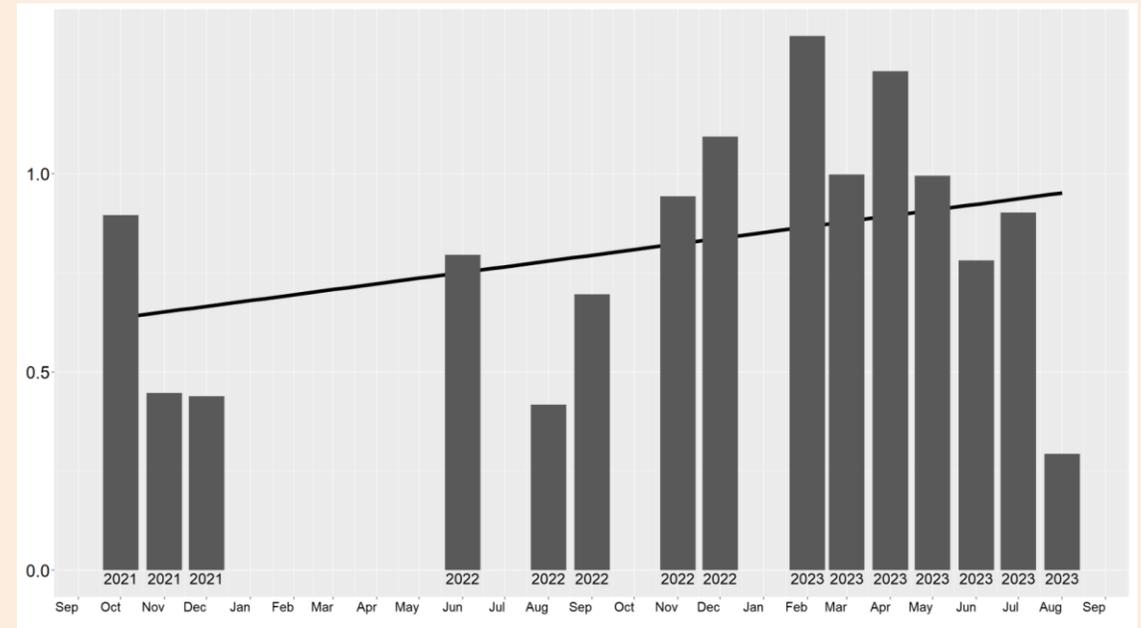
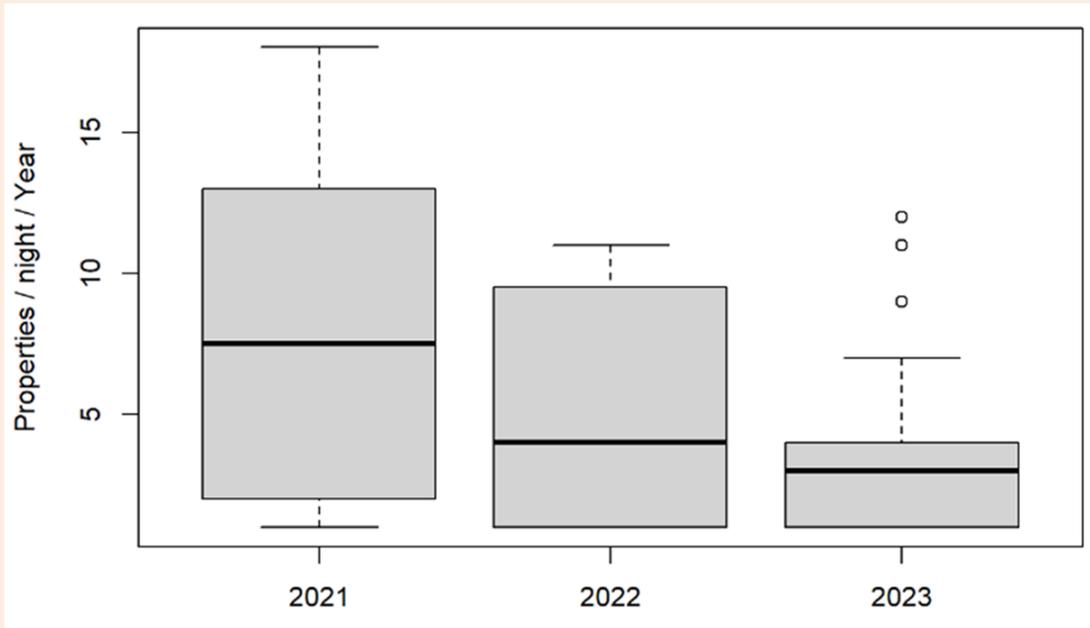
Field operation data:

Preliminary analysis



Field operation data:

Preliminary analysis



Acknowledgements

- Participating landholders
- Field operations teams: GSLLS Biosecurity team and Contractors
- Liverpool City Council
- NSW DPI



Dr Rajendra Shilpakar
Email: rajendra.shilpakar@lls.nsw.gov.au



Dr Alison Towerton
Email: alison.towerton@lls.nsw.gov.au



Ms Annaliese Geddes
Email: annaliese.geddes@lls.nsw.gov.au