



iconyx - BRILLIANT IDEAS BROUGHT TO LIFE

Case Studies on Benefits of Spatial Technologies for Pest & Environment Management and Biosecurity

Case Studies

**Biosecurity
Initiative
NSW
Coastal
Councils**

A photograph of a person wearing a blue shirt and jeans, standing in a grassy, overgrown area, possibly a coastal area.

**Dengue
Fever
Response
Queensland
Health**

A photograph of a man in a dark blue t-shirt and jeans, holding a yellow and black power drill, looking down at something in his hands.

**Park Mgmt &
Endangered
Species
Whittlesea**

A photograph of a green frog sitting on a brown, textured surface, possibly a log or rock.

**Disaster
Response
Nillumbik**

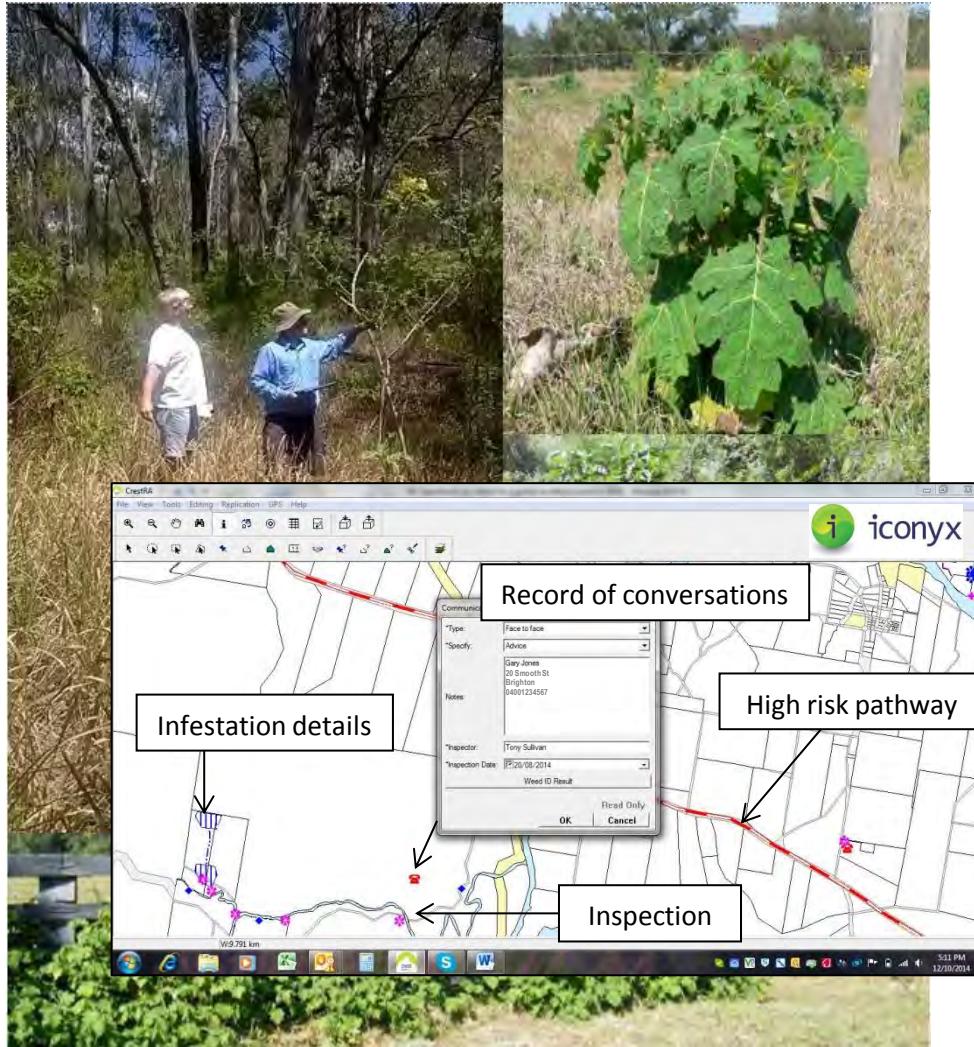
A map of a city area with red and green shaded regions, representing different zones or affected areas.

**IPM & Vector
Control
County of
Santa Clara**

A photograph of a man in a light-colored shirt and cap, using a long-handled sprayer to apply liquid to a grassy area.

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Biosecurity Initiatives – NSW Coastal Councils



Tropical Soda Apple

Australian Class 1 Agricultural Weed
US Federal Noxious Weed

Analysis showed weed appearing at stockyards



Multi-region “Weed Access Program” Biosecurity Initiative

Infestations cross-referenced against NLIP registered cattle movements

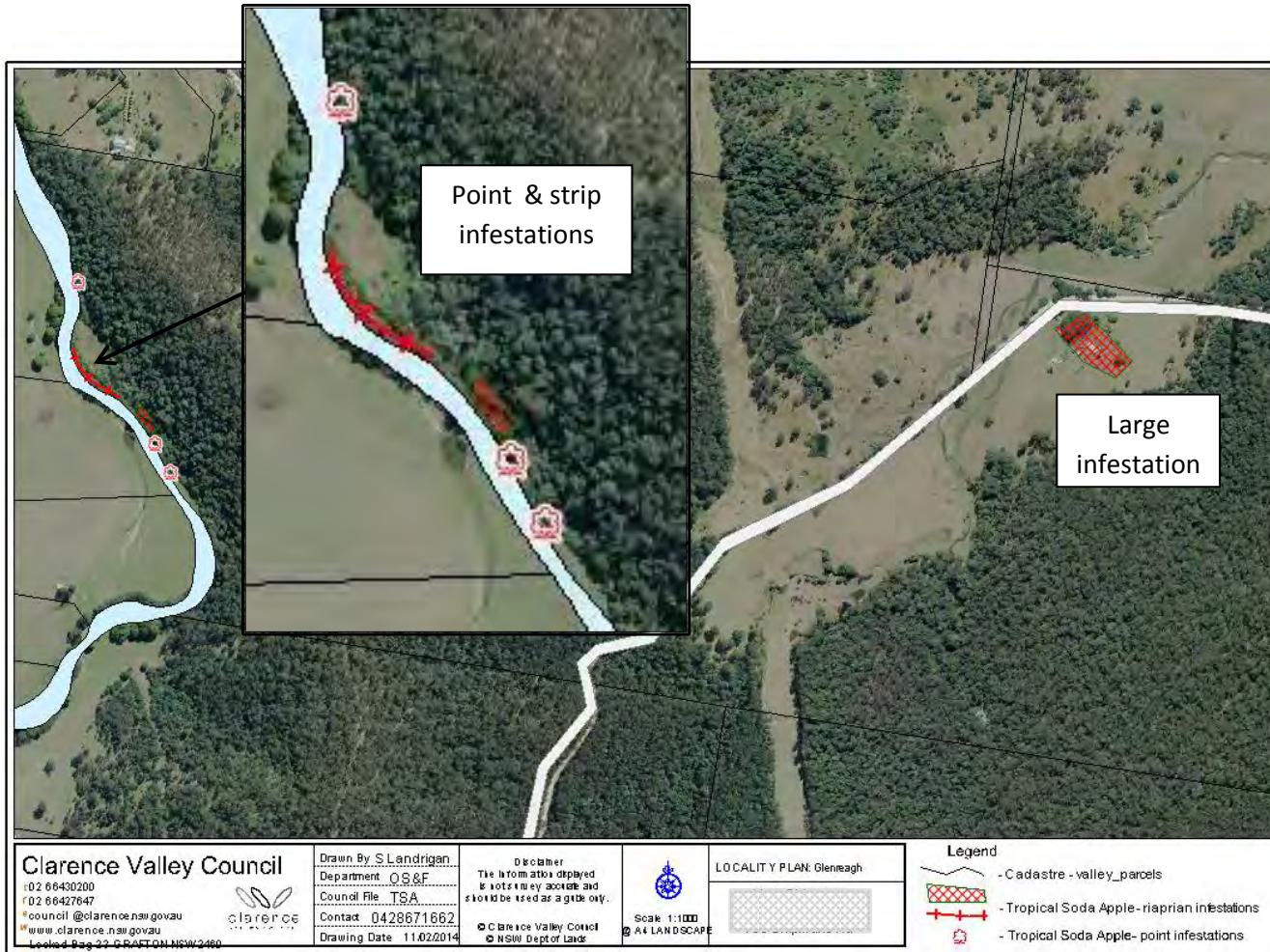
Cattle transport pathways identified

Properties at risk identified

New infestations proactively prevented

Communicating to Landholders

- NSW Coastal Councils



Key Success Factors

Using maps to discuss problem

Automatic maps in formal notices

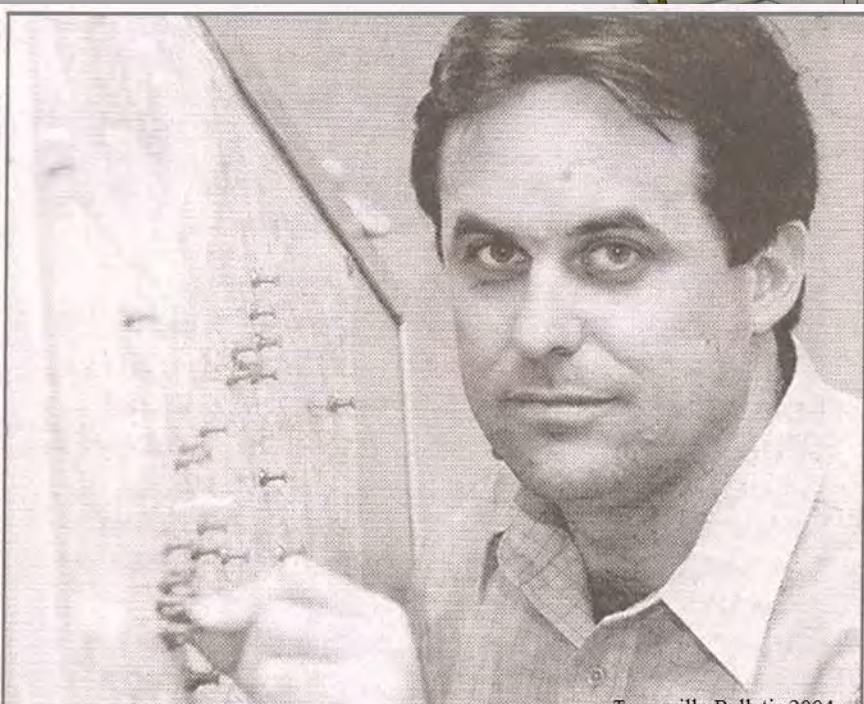
(State Weed/Pest Control Acts)



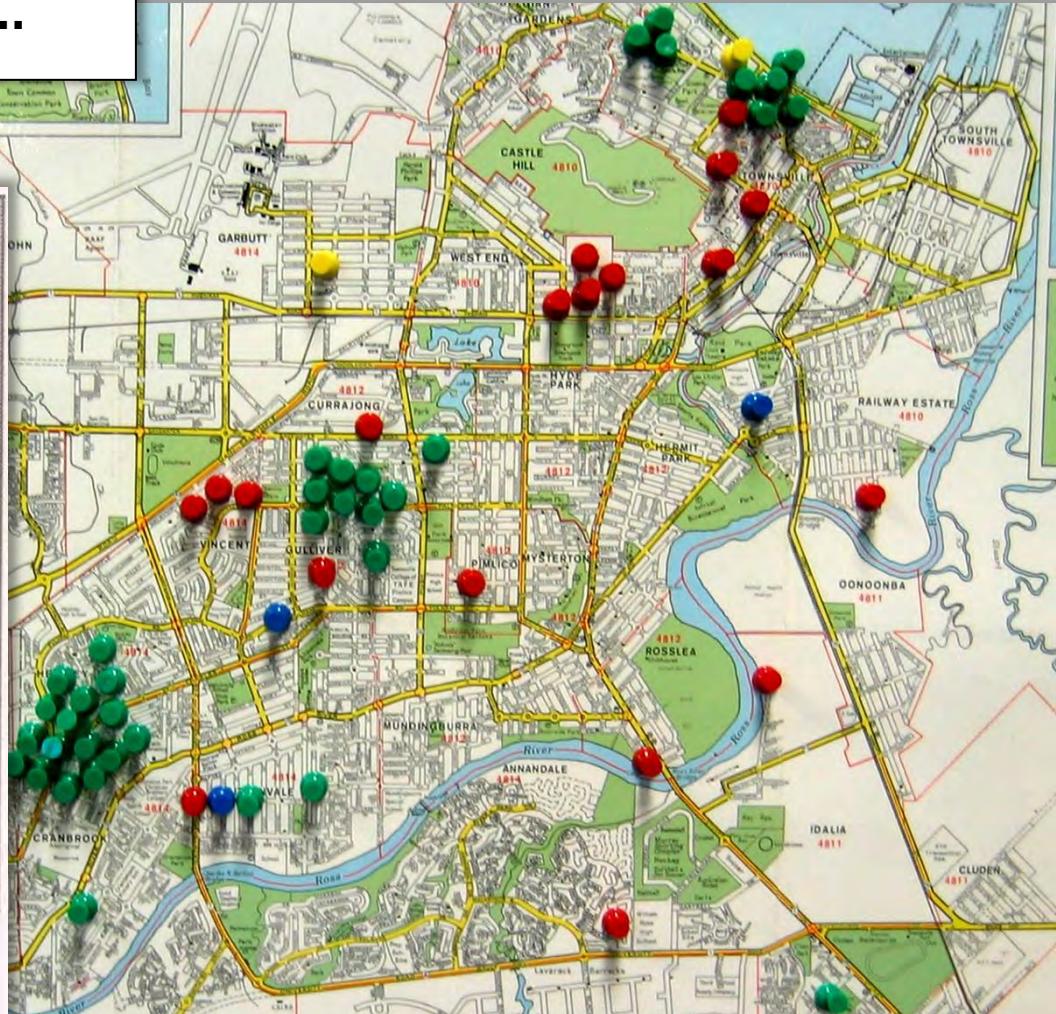
Strong support

Dengue Fever Response – Queensland Health

Fully Paper Tracking ...



ALARMED ... John Piispanen plots dengue hot spots throughout the city



Dengue Fever Response – Queensland Health

Fully Handwritten Forms ...

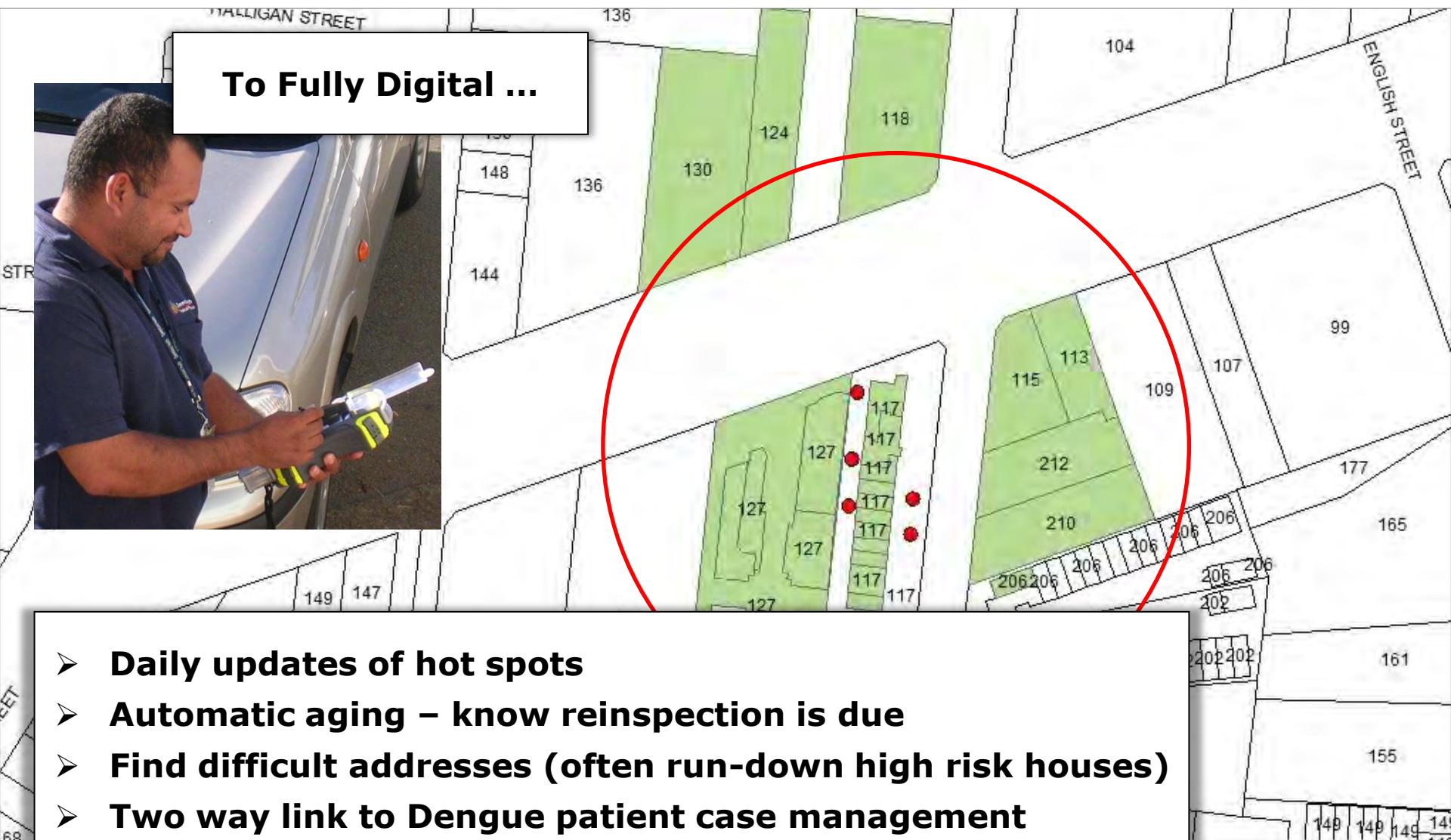
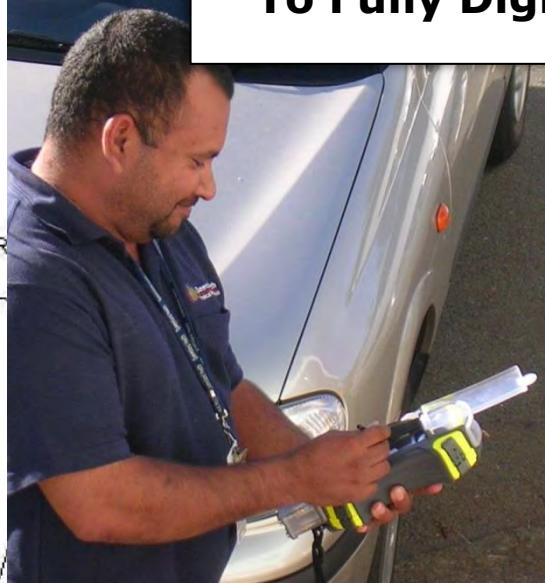
Save Sea
13.8.87

AEDES AEGYPTI MOSQUITO PREMISE-TO-PREMISE SURVEY FORM

COUNCIL:	SUBURB: Coolum Beach	INSPECTOR: SAK, D. T. 13.8.87	DATE(S): 13.8.87							
<input type="checkbox"/> ROUTINE SURVEY <input type="checkbox"/> SUSPECT DENGUE CASE <input type="checkbox"/> VIROLOGICALLY CONFIRMED DENGUE CASE		<input type="checkbox"/> OTHER <input type="checkbox"/> SEROLOGICALLY CONFIRMED DENGUE CASE								
PREMISE		PREMISE INSPECTED	BREEDING CONTAINER TYPE	LARVAE SAMPLE No.	LARVAL ID	AREA SPRAYED			INSECTICIDE USED	NOTES
No.	ADDRESS	YES	NO			INSIDE	UNDER	OTHER		
	<i>Total inspection of Boat</i>									
	<i>some tyres - salt water in them</i>									
	<i>some "cavities" w/ H₂O & 20% salt water</i>									
	<i>Holes - H₂O fresh on bottom - sloping - no larvae</i>									
	<i>Containers - NO live plants</i>									
NOTES: <i>very clean - Most H₂O → oily, or salty or both. No larvae, adults seen</i>										

Dengue Fever Response – Queensland Health

To Fully Digital ...



- **Daily updates of hot spots**
- **Automatic aging – know reinspection is due**
- **Find difficult addresses (often run-down high risk houses)**
- **Two way link to Dengue patient case management**

Park Works Management – Whittlesea City

The image shows an aerial view of Whittlesea City with various park reserves outlined in cyan. Each reserve is labeled with a code (e.g., HR08, HR09, HR10, HR11, HR12, HR13, HR14, HR15, HR16, HR17, HR18, HR19, HR20, HR21, HR22, HR23, HR24, HR25, HR26, HR27, HR28, CH27, CH28, WW01, WW02, WW04) and a yellow anchor icon. A callout box on the right contains the text 'COORDINATING' and a list of three items: 'Maintenance', 'Pest control', and 'Habitat mgmt'. Below the map is a screenshot of a software interface titled 'Bushland Works Recording - 519017'. The interface includes a form with fields for Property ID, Reserve, Site Supervisor, PKLatitude, PKLongitude, User, and Date. To the right is a table titled 'ACTIVITY HOURS' with eight rows: 'CHEMICAL USE', 'GENERAL FIELD MAINTENANCE WORKS', 'HABITAT MANAGEMENT MONITORING', 'PEST ANIMAL CONTROL', 'REVEGETATION ACTIVITIES', and 'WEED CONTROL (NON SPRAYING)'. At the bottom are 'Read Only', 'OK', and 'Cancel' buttons.

COORDINATING

- Maintenance
- Pest control
- Habitat mgmt

Bushland Works Recording - 519017

ACTIVITY HOURS
CHEMICAL USE
GENERAL FIELD MAINTENANCE WORKS
HABITAT MANAGEMENT MONITORING
PEST ANIMAL CONTROL
REVEGETATION ACTIVITIES
WEED CONTROL (NON SPRAYING)

Read Only

OK Cancel

*Property ID: HR24

*Reserve: Hunter Road Conservation Reserve

*Site Supervisor: Aleks Arsoски

*PKLatitude: -37.619068

*PKLongitude: 145.073741

*User: Tim Connell

*Date: 22-Jun-2014

Endangered Growling Grass Frogs

– Whittlesea City

GGF Incidental Monitoring - 1214647

*Reserve: Northern Landfill

*What is being recorded: Adult Frog(s)

*Month: February

*Within Breeding Season (December-February): Yes

*Time of recording (24.00): 3.00

Notes on Habitat Description: Quarry Hole, some in water semi- aquatic vegetation.. open water and mud flats. Walls of quarry escarpment covered in open woodland plantings of wattle and River Red Gums.

HABITAT DESCRIPTION

Include Photo of Recorded Habitat [from 4D Cam]



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WEATHER CONDITIONS

*Temperature (C): 31

*Sunshine: Clear and Sunny

*Wind Conditions: Gentle Breeze

SURVEY RESULTS

*Survey Method: Audio Survey (Frogs Heard)

Number Heard: 0

Number Seen: 0

OK

Site Name	Type of Waterbody	Size (approx.)	Permanence	Vegetation cover %				Dominant plant species	Grazing		Substrate %				Comments
				Emergent	Submergent	Floating	Fringing		Bare rock	Bare ground/soil	Rock rubble	Logs/fallen timber	Artificial		
McGregor Rd Drain	Drain	100m transect	3	35	0	0	100	<i>Melaleuca</i> , broom, blackberry	No Grazing	0	0	0	0	Degraded banks, blackberry, broom, slow flowing water	
McDonalds Rd Drain	Drain	100m transect	3	35	0	1	95	<i>Melaleuca</i> , <i>Phragmites</i> , Watsonia	No Grazing	0	0	0	0	Medium flow speed, good cover of fringing and emergent vegetation	
North West Catch Drain	Drain	100m transect	3	20	0	1	90	<i>Melaleuca</i> , Dock, <i>Triglochin</i>	No Grazing	0	0	0	0	Moderate flow, good emergent and fringing vegetation	
Bunyip River Drain	Drain	100m transect	3	30	0	0	100	<i>Phragmites</i> , <i>Melaleuca</i> , blackberry	No Grazing	0	0	0	0	Fast flowing drain with dense fringing vegetation	



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Controlled Burning – Whittlesea City



PLANNING & TRACKING

- Just like paper maps
- Enforced process
- Accurate measurements



6 - Burn Day Execution - 1358673

TO BE COMPLETED ON DAY OF BURN

*Property ID: DL02
*Reserve: Mirabucca Wetlands Note any issue regarding PPE:

SMEACSQ Briefing (SUMMIT FORM)

*Was SMEACSQ Completed?: was not
*Plant and Equipment Checked?: Yes

Questions Arising from SMEACSQ briefing: Note any issue regarding Equipment:

COMMUNICATIONS

*All participant details recorded? (SUMMIT FORM):
*All teams assigned radio coms?: Yes
UHF Radio Channel:
*Prescribed Burn Coordinator Contact Circulated?: Yes

FINAL BURN PLAN

*Road Pedestrian Signage Placed?: Yes
*Burn Plan Map Created and Available for Staff?: Yes
*Will Burn Plan Vary from Prescription?: Yes

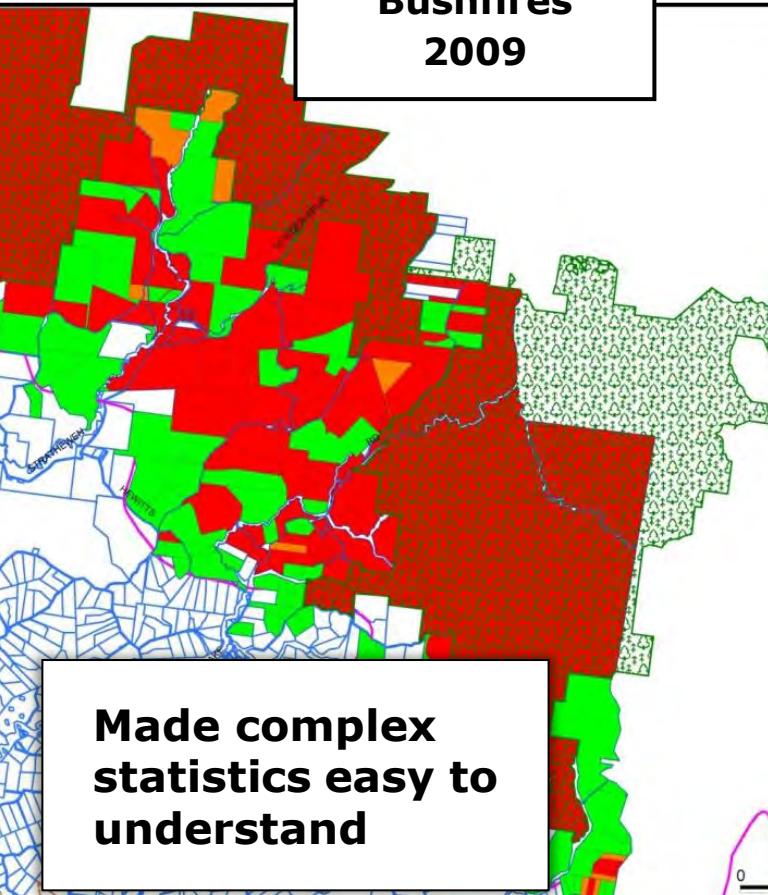
PPE EQUIPMENT CHECKS

*PPE Checks / Inspections Completed?: Yes

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Rapid Disaster Response – Nillumbik Shire VIC

Black Saturday Bushfires 2009



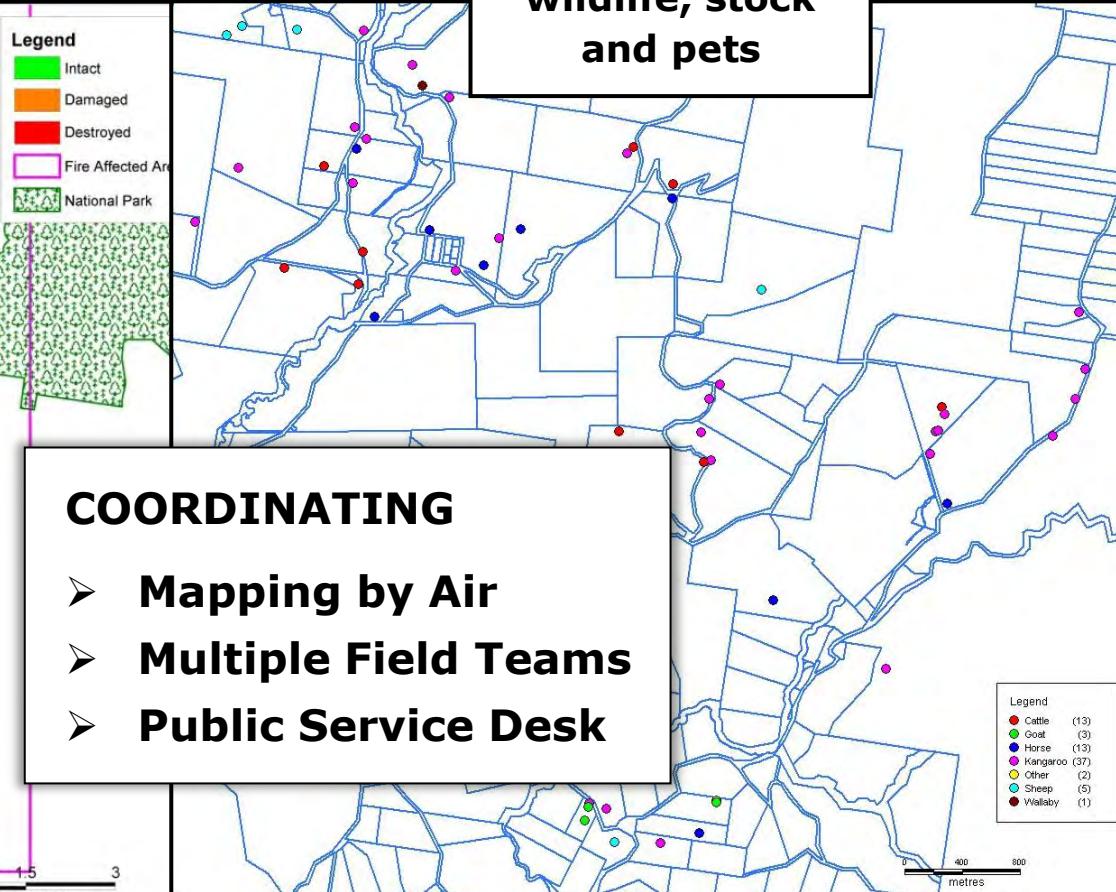
Legend

- Intact
- Damaged
- Destroyed
- Fire Affected Area
- National Park

COORDINATING

- Mapping by Air
- Multiple Field Teams
- Public Service Desk

Dead & injured wildlife, stock and pets



Vector Control – County of Santa Clara (in progress)



TARGETTING West Nile Virus, Hantavirus, Lyme Disease, Malaria, Plague, Dengue Fever, Baylisascaris, Chikungunya, Dog Heartworm, Tularemia

TECHNICIANS CAN SEE

- Work history
- Other reports in area
- Known sources
- Surveillance sites
- Pest pathways
- Protected species

Effective Control



Integrated Pest Management

- County of Santa Clara (in progress)

COORDINATORS CAN SEE

- **Work history**
- **Other reports in area**
- **Known sources**
- **Environmental concerns**
- **Impact of geography**
- **Pest trends over time**

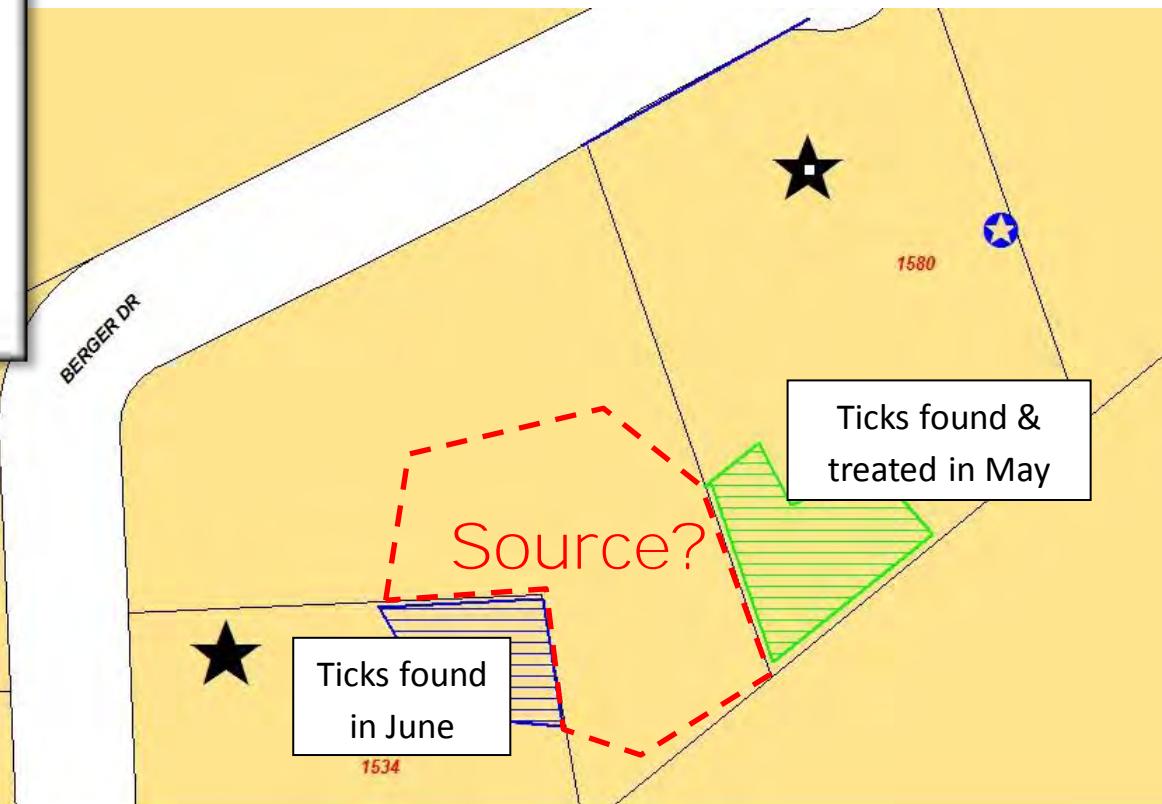


**Effective
Control**

**Minimum
Chemicals**

**Future
projections**

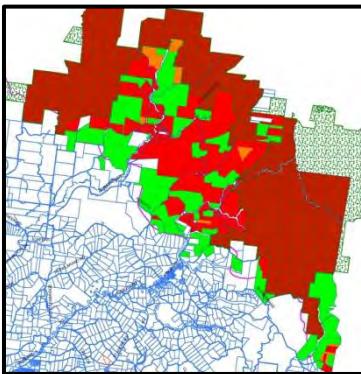
- Close to 200 sites requiring pest management
- Complex sites with multiple ongoing problems



Spatial Technology enables major steps forward in managing pests, environmental health and biosecurity

In the Field

Rich information on environment, assets and threats, service requests and call history, all together



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In the Lab

Rapid analysis of problem areas and coverage

Consolidated view of all pests and vectors

Standardize and share data over large areas – find vector pathways

In the Office

Map reports of spread and containment

Strong evidence for funding

Strong evidence for enforcing legislation in court

Accurate records of chemicals used

Tight controls

Questions & More Info



Come up and grab a card

My contact details

Special link to more case study information for IPM Symposium participants

Technology Concepts



Reference Documents



Web-based Management SW – Form design, Notices, Workflow, Scheduling

Image Store



Secure private data

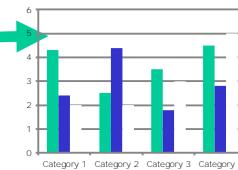
Other Corporate Systems & Databases

**(Property, GIS, Asset Mgmt,
Finance, CRM, Resources etc.)**

Hosted SQL Database

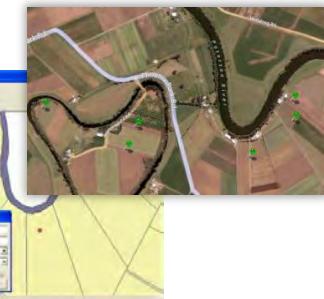


Full spatial data Reporting Portal

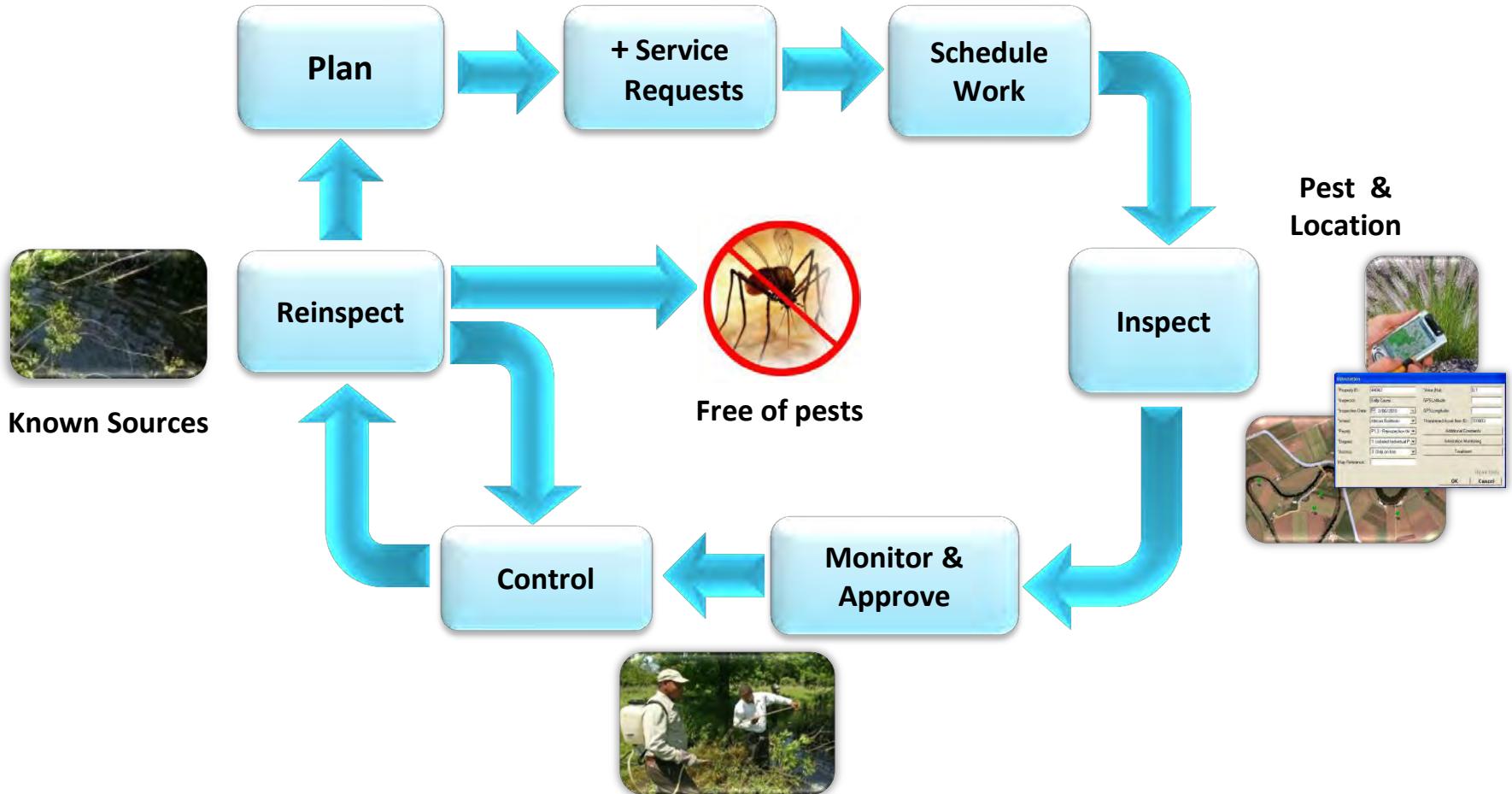


Synch from field via 3G/WiFi

Mobile digital forms and maps



Pest Management Workflow



Advice on the Practical Side of Introducing Technology



- Business process and reporting requirements can be a moving target
- Field staff, admin staff and management all need to learn a new way of working and communicating
- Does it fit the way you work? E.g. all day in the car, on foot or on a bicycle
- Managers and admin staff will appreciate the automation benefits the most
- Field staff will get most benefit from not needing to come back to the central office for paperwork
- Skilled field staff will also benefit from having a really good **view of what's going on around them, knowing the full history** when speaking to the public, finding sites more easily, and be more independent and effective
- **BUT it's all too easy to make things too complicated for the people in the field**