

# Early detection and control of kudzu in Brisbane

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# Origin

- Kudzu (*Pueraria lobata*) is a member of the pea family (Fabaceae)
- Originates from Asia
- Probably deliberately introduced as a potential forage legume



An elongated kudzu inflorescence. Photo: Forest & Kim Starr (USGS).



Photo: Dr Sheldon Navie



# Description

- Large alternatively arranged compound leaves with lobed, hairy leaflets (deciduous in winter)



Photo: Dorean Erhart

# Description

- Thickened roots develop into large tubers (up to 1.8 m long and 45cm wide)
- Stems covered with long, yellowish-brown hairs



Photo: Colin Johnson



Photo: Dr Sheldon Navie

# Potential Impacts

- Transformation of ecosystems through destruction of vegetation community structure (eg destruction of canopy)
- Disruption of natural succession cycles through prevention of germination and smothering of seedlings



Infestation in Tallebudgera Valley  
Photo: S. Csurhes,



# Distribution

- Recorded as common and considered native in the Torres Strait Islands and far north Queensland - may be a different species as it doesn't appear as invasive or rampant\*
- Gold Coast - Springbrook and Tallebudgera
- Redland - Macklay and Russell Islands
- Brisbane - Kedron Brook catchment
- Present in northern NSW - Murwillumbah, Byron, Ballina, Coffs Harbour and Bellingen shires\*\*



\*S. Csurhes, Pest Plant Risk Assessment, Kudzu (*Pueraria montana var lobata*), DPI, August 2008

\*\*North Coast Weeds Advisory Committee, Regional Weed Management Plan, 1.1 Plan Title: Kudzu - *Pueraria lobata*



# Introduction

- Dr Sheldon Navie reported sighting of infestation August 2006 at Kedron Brook, Mitchelton
- Infestation on boundary between Brisbane and Moreton Regional Council (old Pine Rivers Shire Council)



Photo: Dr Sheldon Navie



# Delimitation

## ■ Establish size

- Number of plants present hard to determine due to existing vegetation
- Kudzu was about to go into dormant phase
- Area overall sprayed in spring to kill grasses and expose vine stems

## ■ Establish extent

- Kudzu not declared at the time, so surveys of private land weren't possible
- No resources for survey work on Council land except immediately up and downstream
- Media release not taken up



# Information Gathering

## ■ Web based research

- IUCN - among the world's 100 most invasive species
- Global compendium of weeds
- [www.hear.org](http://www.hear.org) website
- Google
  - North Coast Weeds Advisory Committee  
REGIONAL WEED MANAGEMENT PLAN 2004
  - YouTube videos of 'crowning' control method
  - References to medicinal properties
  - Online sales



# Feasibility & Risk Assessment

## Risks

- High environmental impacts
- Eradication not feasible economically once widely established
- Unable to determine extent of distribution in City

## Feasibility

- Eradication possible if plants/infestation small and not well established
- Spread is mainly vegetative
- Control options available
- Fairly certain not widely established across City



# Cost

- Decision to treat and attempt to eradicate locally
- Seed may remain viable for several years - life of project is open ended - but
- Costs expected to decrease after the first three years if treatment ensures seeding is prevented over successive years.



# Communication/Enabling

- Declare locally under Council's Natural Assets Local Law
- Develop a New & Emerging Weed Alert fact sheet and distribute to staff and Councillors
- Councillor newsletters, media articles, website information
- Information at community events and other opportunities



# Treatment options

- No herbicides currently registered for kudzu in Australia
  
- Bellingen Shire preliminary trials by NSW Agriculture:
  - Grazon DS (containing triclopyr and picloram)
  - Garlon 600 (containing triclopyr)
  - May be successful at controlling the species
  - Not suitable for use in environmentally sensitive situations. \*\*
  
- Crowning, burning, grazing and mowing used with success in U.S.A.



\*\*North Coast Weeds Advisory Committee, Regional Weed Management Plan, 1.1 Plan  
Title: Kudzu - *Pueraria lobata*

# 1<sup>st</sup> Treatment October 2006

## Boundary Park, Mitchelton

### Method:

- Overall spray - 1:100 Glyphosate (Weedmaster Duo)

### Outcomes:

- Effective for defoliation so vines could be traced more easily
- Prevented flowering
- Affected off target species
- Was not effective at killing the plants

Treatment undertaken under:  
APVMA OFF LABEL PERMIT - PER7485



# 2<sup>nd</sup> Treatment Oct/Nov 2007

## Boundary Park, Mitchelton

### Methods:

- Cut stump - 1:1 Glyphosate & 1:30 Starane
- Basal bark - 1:30 Starane with kerosene carrier
- Crowning - 1:1 Starane

### Outcomes Cut Stump & Basal Bark:

- Very effective on small tubers, regrowth from lateral nodes on large tubers

### Outcomes Crowning:

- Very effective on small tubers, regrowth from lateral nodes on large tubers, but killed off more of the tuber overall

- Kudzu flowered early - no mature seed was found before treatment



# Nov 2007 Media

**Council's "Weed of the Month" becomes news...**

**"Kudzu weed threatens to inherit the Earth**

A SUPER weed is threatening to take over Brisbane. Known as kudzu, the weed can grow up to 30cm a day, and has caused headaches for city officials since its discovery in Brisbane... "

Courier Mail 28 November 2007

**"Kudzu weed 'could devastate' vegetation**

The Cooperative Research Centre for Australian Weed Management says an outbreak of the kudzu weed at Kedron Brook in Brisbane could have devastating consequences on vegetation in south-east Queensland..."

ABC News online post 29 November 2007



# Maximising an Opportunity:

- Call centre scripting of required information and who to direct callers to
- Alert sheet forwarded to key staff with who to direct callers to
- Local laws officers collected information and undertook inspections
- Confirmed locations forwarded to Local Assets Services Operations for treatment
  
- Approximately 60 calls
- Majority were misidentifications



# Call in information

## ■ Six new locations found:

- St Clement Anglican Church - source known
- Northey Street City Farm - source unknown
- Kalinga Park - source unknown
- Rail line near Kalinga Park - source unknown
- Teralba Park - source unknown
- Stuckey Rd, private property and Council land - source unknown



# 3<sup>rd</sup> Treatment June 2008 Boundary Park, Mitchelton

- flooding rains expose numerous tubers





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Photos: Colin Johnson

# Inspections Sept 2008 Boundary Park, Mitchelton

- Site inspection and treatment coordination meeting with Moreton Regional Council staff:
  - 2 medium sized tubers found re-shooting
  
- Moreton RC and BCC will meet on site for reinspection in 2 weeks
  
- Coordinated treatment will continue



# Treatment - other sites January 2007

- Rail line treated by QR by overall foliar spray:
  - 1<sup>st</sup> treatment - 1:100 Glyphosate
  - 2<sup>nd</sup> treatment - Starane
  - 3<sup>rd</sup> treatment - Starane
- Sept 2008 reinspection - 2 plants re-shooting



Photo: Dorean Erhart



# Treatment - other sites January 2007

- Teralba Park & St Clement Anglican Church :
  - 1<sup>st</sup> treatment - potato sized tubers dug up
- Sept 2008 inspection - no sign of regrowth



Photos: Dorean Erhart

# Treatment - other sites January 2007

- Northey Street
  - City Farm Staff undertook to dig out specimens
- Reinspection pending
- Stuckey Rd & Kalinga Pk
  - 1<sup>st</sup> treatment - 1:100 Glyphosate
- Sept 2008 reinspection - several new plants found and one old vine that was missed in the initial round of treatment



# Where to from here?

- Kudzu now State declared Class 2 in Qld
- Continue treatment and reinspection of existing sites
- Further work required to find out where present on private properties
  - Media
  - Alert sheet to staff and others
  - Opportunistic Local Laws inspections



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- Dr Sheldon Navie

Private land inspections:

- Dave Rogers & Clint Sneddon, BCC CARS Local Laws

