

Early detection and control of kudzu in Brisbane

Dorean Erhart
Invasive Species Strategy Team
Natural Environment & Sustainability
Brisbane City Council



Dedicated to a better Brisbane



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 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*

1st 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



2nd 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



3rd Treatment June 2008 Boundary Park, Mitchelton

- flooding rains expose numerous tubers





Dedicated to a better Brisbane

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:
 - 1st treatment - 1:100 Glyphosate
 - 2nd treatment - Starane
 - 3rd treatment - Starane
- Sept 2008 reinspection - 2 plants re-shooting



Photo: Dorean Erhart



Treatment - other sites January 2007

- Teralba Park & St Clement Anglican Church :
 - 1st 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
 - 1st 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



Acknowledgements

Technical and treatment advice:

- Rod Wood & Andrew Wills, BCC LAS Operations

Treatment of infestations:

- Colin Johnson, Darren Lewis & Graham Parsons BCC LAS Operations

Communications assistance:

- Kelly Matthews, BCC Invasive Species Strategy Team

Species information & photos:

- Dr Sheldon Navie

Private land inspections:

- Dave Rogers & Clint Sneddon, BCC CARS Local Laws

