

A savanna landscape at sunset. The sun is low on the horizon, casting a warm, golden glow over the scene. In the background, there are rolling hills and a herd of elephants grazing in a field of tall grass. The foreground is dominated by a dense field of tall, golden-brown grasses.

**Is there hope? Competitive
displacement of *Chromolaena
odorata* by native grasses**

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Chromolaena odorata (L.) King & Robinson

- Perennial shrub
- Native range: South and Central America, Caribbean
- Invasive range: Southeast Asia, India, Australia, Central and Southern Africa
- High seed production
- Wind dispersed seeds
- High growth rate
- Vigorous resprouter



Family: Asteraceae
Christmas bush (South America)
Triffid weed (South Africa)
Siam weed (Asia)

Chromolaena odorata (L.) King & Robinson

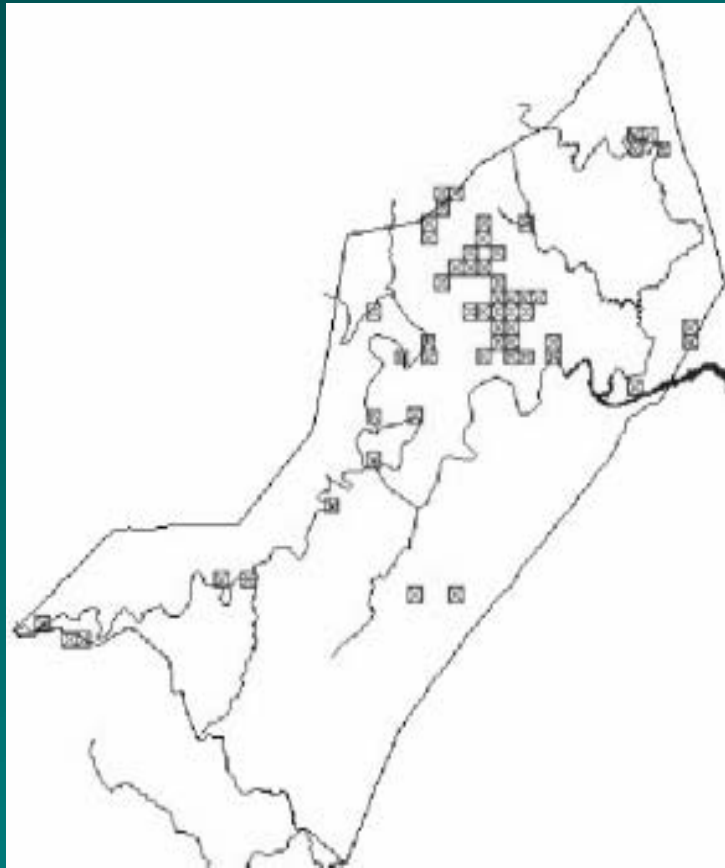
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Invasion of chromolaena in Hluhluwe-iMfolozi Park

Distribution in 1978

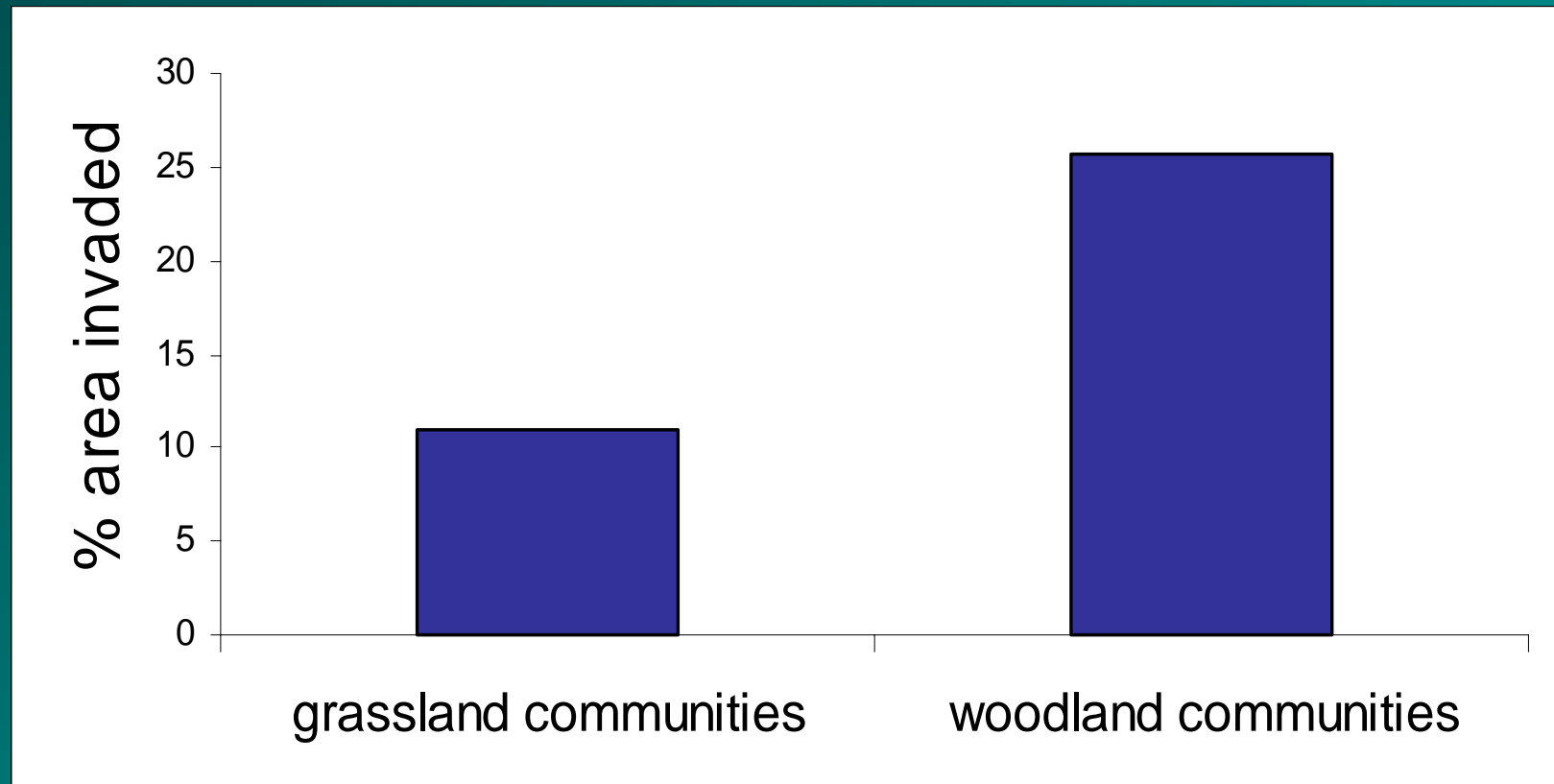


Distribution in 1998





Chromolaena invasion per habitat



Data for Hluhluwe Game Reserve, 2001
Source: Owen Howison

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- Resource competition with grasses
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- Herbivory
- Soil pathogens

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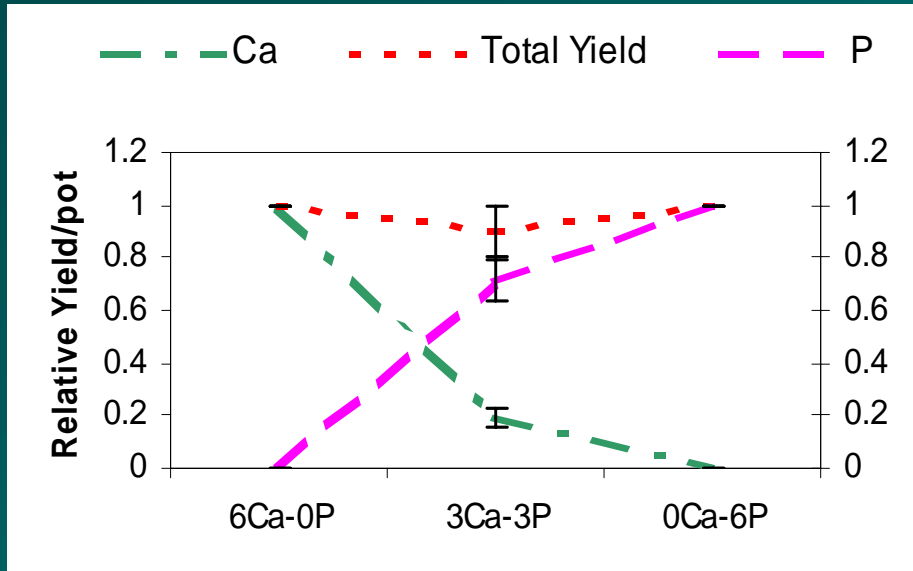
And can we apply this for the control of chromolaena?

Competition experiments

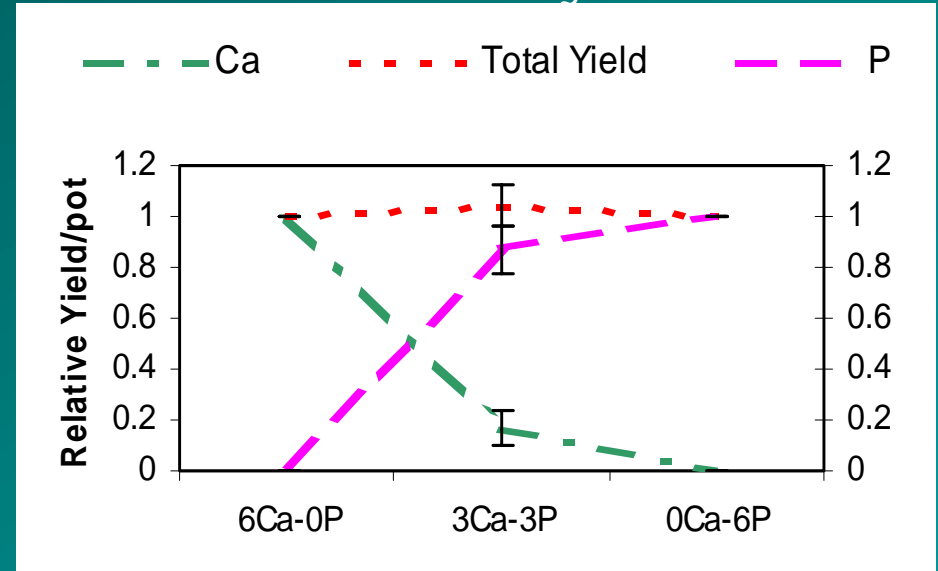
- **Greenhouse study:** *Chromolaena odorata* vs. *Panicum maximum* under different water regimes and densities (seedling stage)
- **Common garden experiment (ongoing):** Invasion into natural grasslands under different rainfall regimes (adult stage)

Results greenhouse study

Wet



Dry

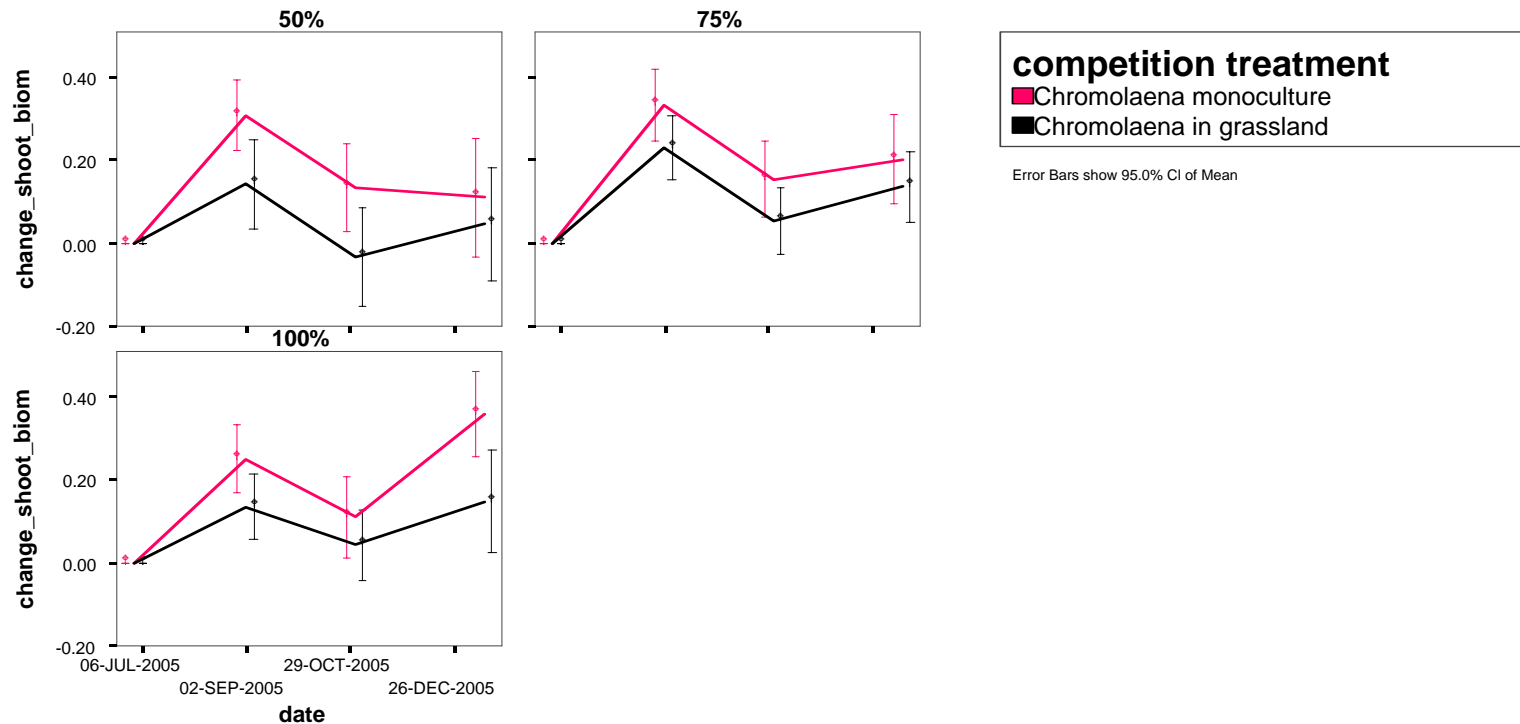


p values	wet	dry
<i>C. odorata</i> vs. 0.5	0.000	0.007
<i>P. maximum</i> vs. 0.5	0.033	0.018
<i>C. odorata</i> vs. <i>P. maximum</i>	0.000	0.000

p values	<i>C. odorata</i>	<i>P. maximum</i>
wet vs. dry	0.915	0.154

Chromolaena outcompeted by *Panicum* in both water treatments!

Common garden experiment



Chromolaena performance reduced in native grassland

How can we apply this in control?

- Increase the resistance of the system → reduction in invasion success
- Where habitat allows, promote grassland rehabilitation
 - Clear chromolaena in woodland and then burn with a hot canopy fire

Effect of clearing and burning on chromolaena survival



The canopy fire



The effect of the burning



The effect of the treatments



One year later...



Two years later...



Thanks!

- Han Olf
- Sue van Rensburg
- KZN Wildlife
- Joris Cromsigt, Ruth Howison, Owen Howison
- SABRE crew: Khanyi Mpandza, Nonhlahla Mbatha, Thabani Gumede, Sipho Khumalo, S'neh Mhlongo
- Msc students: Kelly Elschot, Maarten van Hoppe, Jelger Herder