

**The impact of  
*Dichrostachys cinerea* (L.)  
Wight & Arn (Fabaceae)  
on herbaceous species in  
a semi-arid rangeland in  
Zimbabwe**

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# Introduction



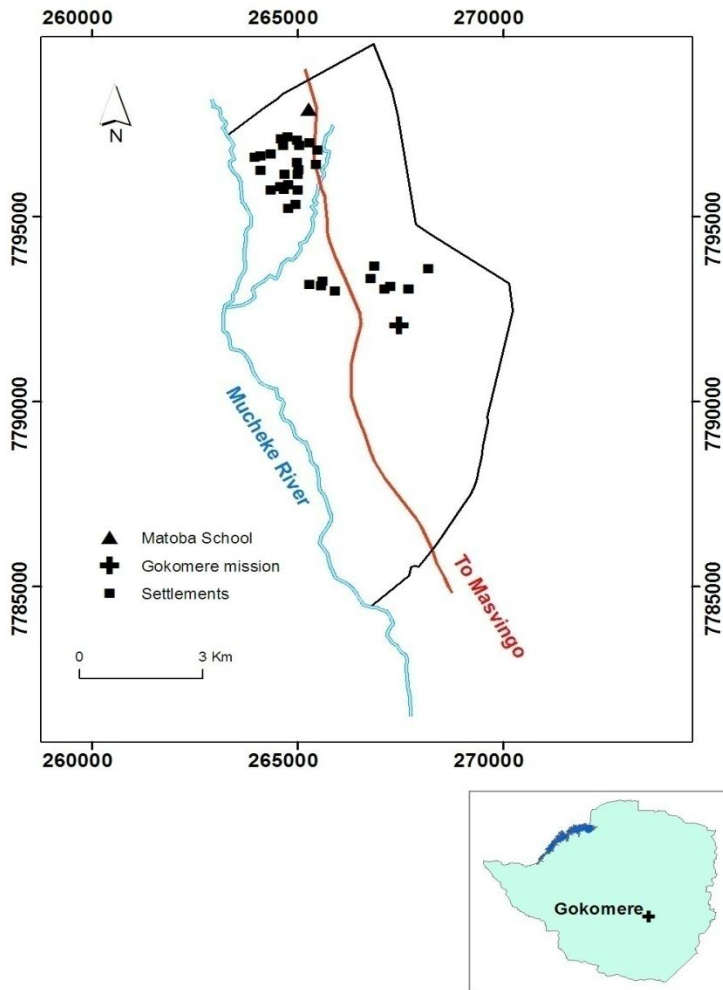
- Bush encroachment enables expansion of native *spp* into new geographical areas
- *Dichrostachys cinerea*, native to Africa and Asia
- It establishes viable, reproductively functional populations, increasing demographically and spatially
- *D. cinerea* thickets followed a species-poor zone in the immediate vicinity of boreholes affected by increased grazing and trampling pressure (Tolsma *et al.*, 1987)

# Quotes on *D. cinerea*



- “The dense verdure sometimes extends for hundreds of meters uninterrupted. From a neighboring hill it appears somewhat like a lawn or like Bermuda grass, and, sparkling as it does with handsome flowers, forms one of the most beautiful features of the Cuban flora” (PIER, 1998).
- “Whole farms in central Cuba have been rendered useless by this foreign nuisance without any effort being made to check the curse and that good farm land is being abandoned in disgust” (PIER, 1998).

# Materials and methods



- 5 *D. cinerea* invaded sites, and 5 adjacent uninvaded sites (~ 1 hectare in size each) were assessed:

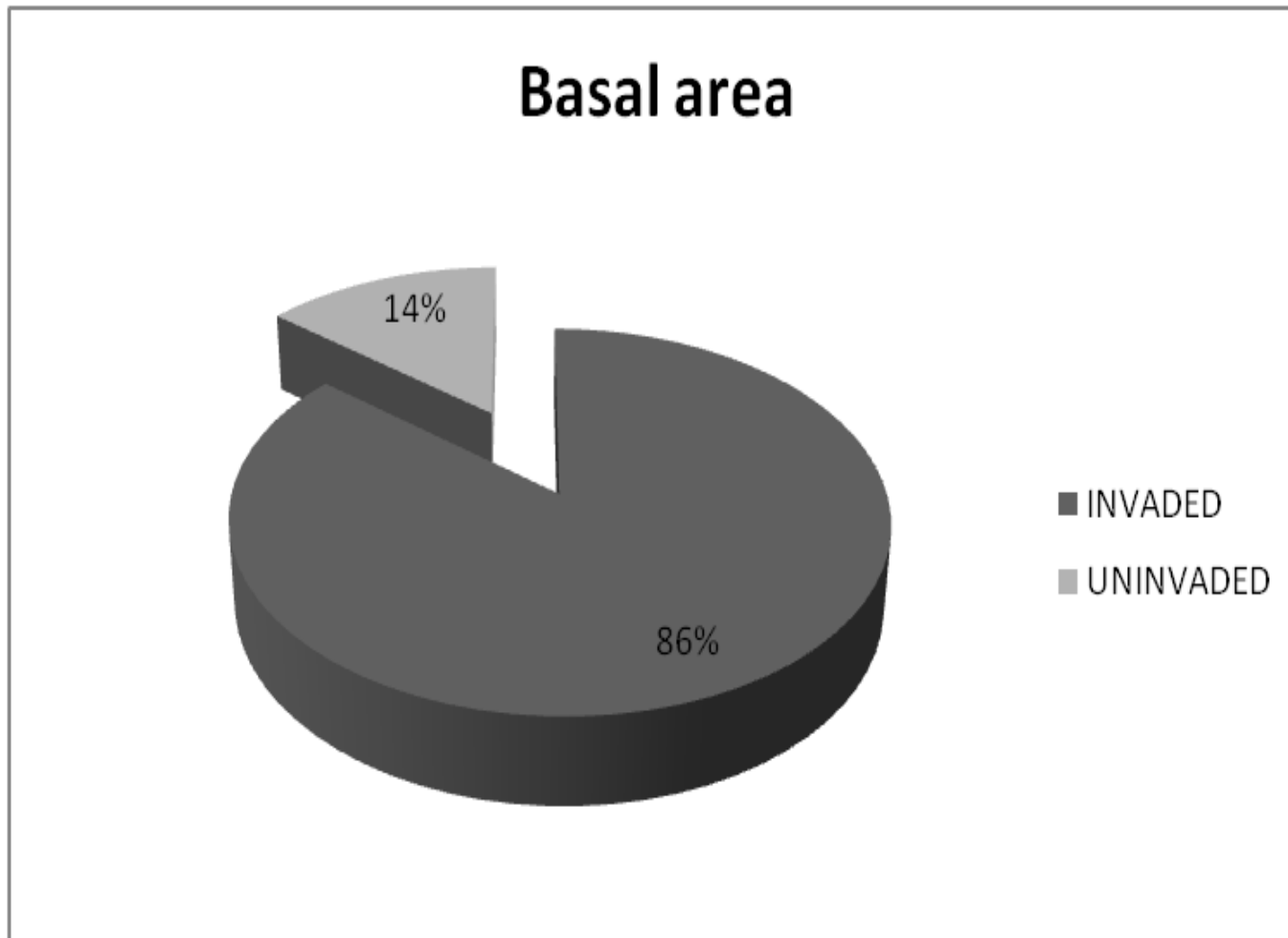
## Parameters:

### Native herbaceous species:

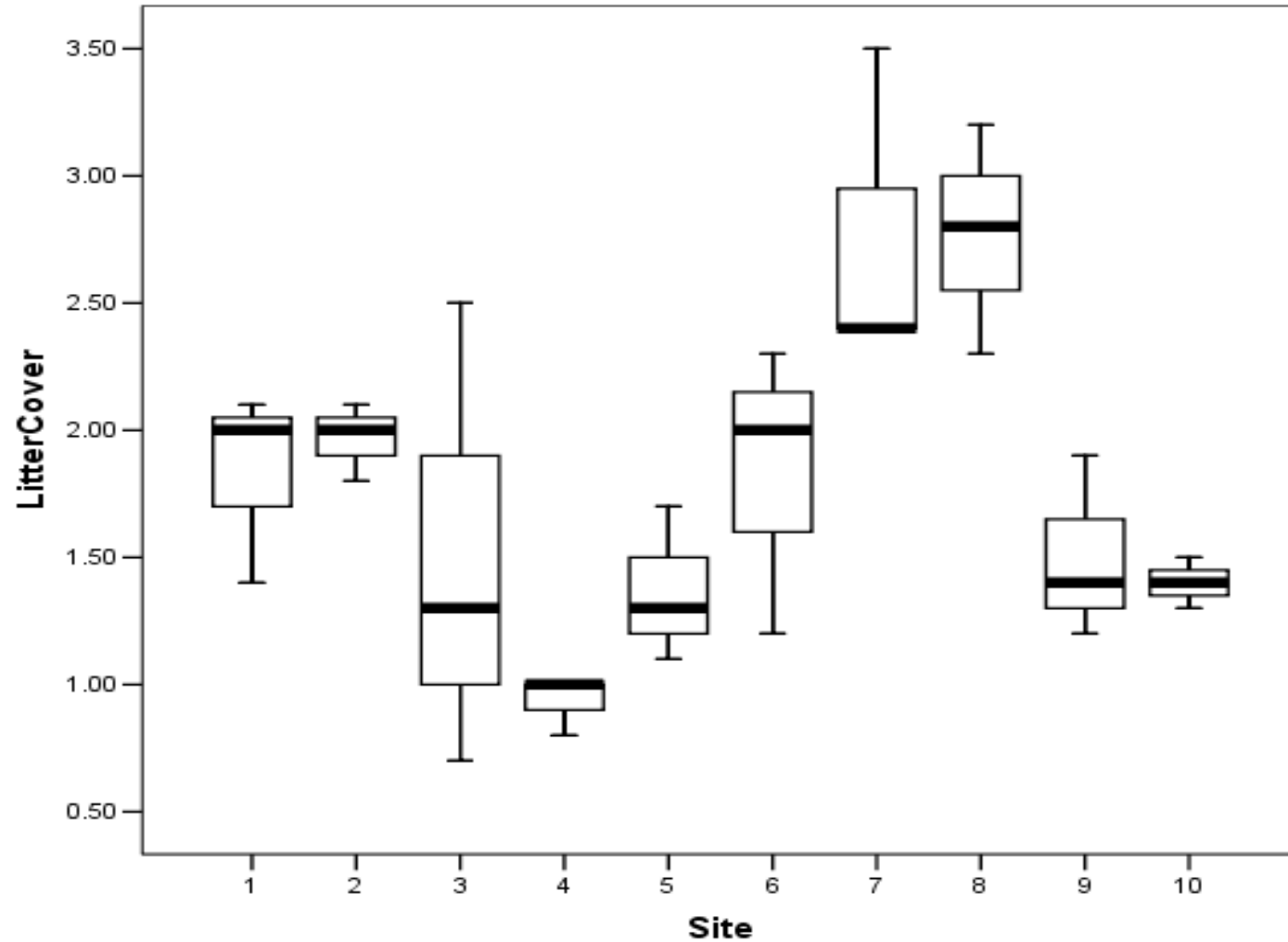
- diversity
- richness
- basal cover
- litter cover
- top hamper
- plant vigour.

Fig 1: Gokomere rangelands

# Results: Basal Area



# Results: Litter Cover



# Results

**Table 1. Herbaceous species variables among the invaded and uninvaded sites**

<b>Parameter</b>	<b>Invaded</b>	<b>Uninvaded</b>
Basal cover	3.7 <sup>a</sup>	4.5 <sup>b</sup>
Litter cover	1.5 <sup>a</sup>	2.1 <sup>b</sup>
Species richness	2.9 <sup>a</sup>	3.5 <sup>b</sup>
Plant vigour	2.9 <sup>a</sup>	3.4 <sup>b</sup>
Top hamper	0.8 <sup>a</sup>	1.1 <sup>b</sup>

Means in rows with different superscripts are significantly different ( $P < 0.05$ )

# Results

**Table 2. Herbaceous species diversities among the invaded and uninvaded sites**

<b>Diversity index</b>	<b>Invaded Site</b>	<b>Uninvaded Site</b>
Shannon_H	2.58 <sup>a</sup>	2.85 <sup>b</sup>
Simpson_1-D	0.92 <sup>a</sup>	0.94 <sup>b</sup>

Means in rows with different superscripts are significantly different ( $P < 0.05$ )



# Discussion



- *D. cinerea* has vigorous growth characteristic, extensive , dense root system
- Competitive for resources
- *D. cinerea* canopy cover has negative impacts shade-intolerant *spp*
- High seed germination and plant vigour
- Deciduous, producing a lot of litter
- High propagule pressure

# Conclusion



- *D. cinerea* reduced native herbaceous species richness, diversity, plant vigour and basal cover
- *D. cinerea* invaded areas had more litter cover than uninvaded
- Impacts of *D. cinerea* reduce carrying capacity of rangelands

# Recommendation



- A longer term study needed on the biology and invasive capacity of the specie on other vegetation
- There is also need to find environmentally friendly and effective methods of controlling *D. cinerea*.

**THE END**

**THANK YOU**