

PERCEPTIONS AND LIVELIHOOD USE OF *Acacia dealbata* BY RURAL COMMUNITIES IN THE EASTERN CAPE



RHODES UNIVERSITY
Where leaders learn



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Introduction

- South African grasslands/rangelands are important for many people for grazing and other ecosystem services such as water yield, biodiversity, carbon sequestration and medicinal plants.
- However, large parts of the grassland biome are threatened by invasive species, including woody species such as Black and Silver Wattle.
- Woody invasive plants reduce the carrying capacity of livestock through replacing grasslands.
- Silver Wattle has invaded total area of approximately 500 000 hectares of the country especially in higher level grasslands which are important for important water catchments.

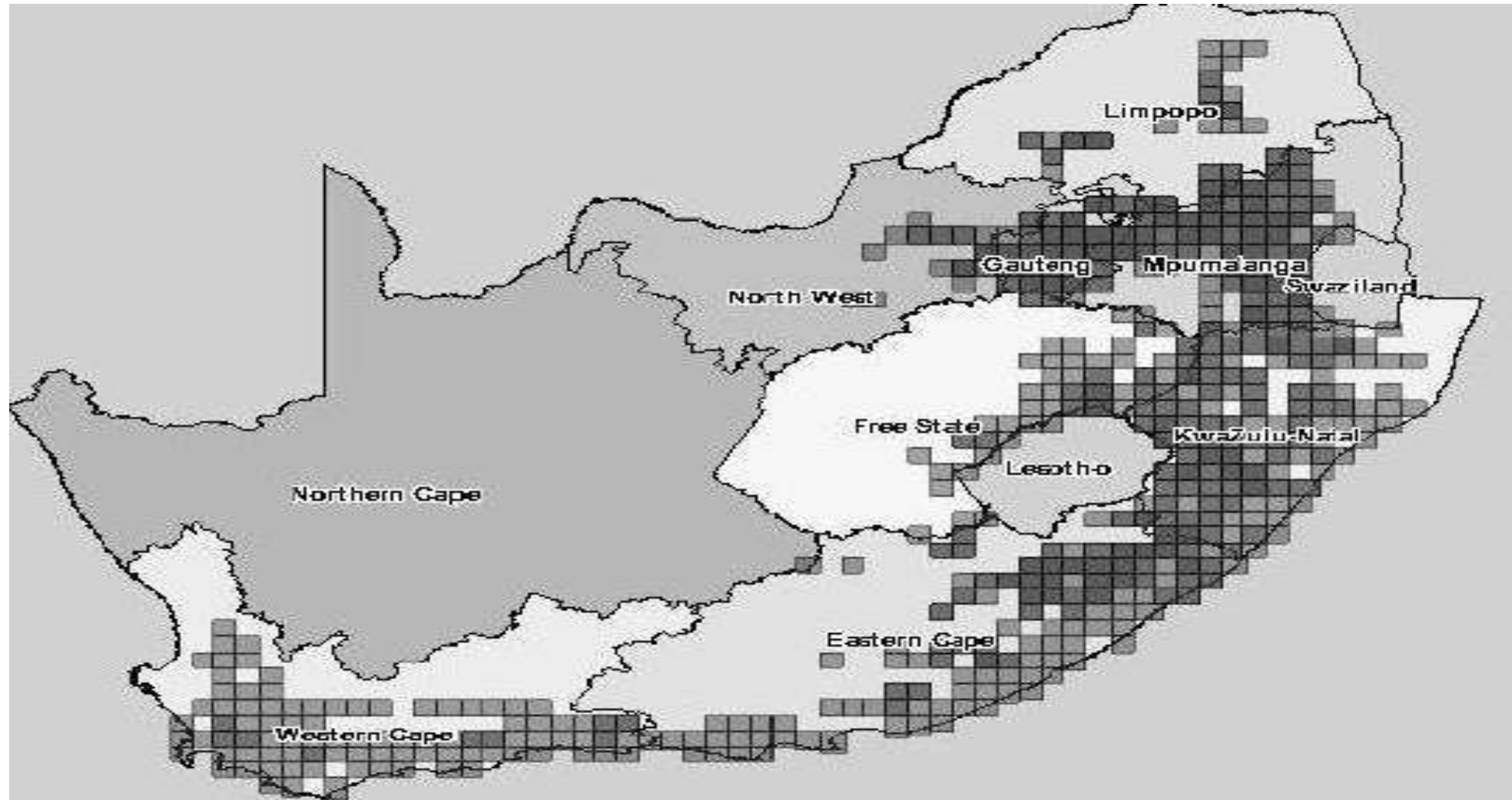


Fig. 1. Area invaded by Black and Silver Wattle in South Africa

Introduction: Continued

- Because of the ecological impacts, the Agricultural Research Council envisages to release rust as control for *A. dealbata*.
- However, despite their impacts on the ecosystem structure and function, many invasive species, including Silver Wattle are used by local communities.
- Consequently, their control or removal may impoverish local communities or increase their vulnerability if there are limited or no alternatives.
- This project sought to examine the extent of reliance of local communities of Silver Wattle in the Eastern Cape, to help the ARC decision as a foundation to determine the potential consequences if the biocontrol is released.

Objective

To assess the perceptions and livelihood uses of *Acacia dealbata* by local communities.

KEY QUESTIONS

1. What is the importance of *A. dealbata* to local livelihoods in the Eastern Cape Province?
2. What are the benefits and costs that local communities experience due to their use, management and responses to *A. dealbata*?
3. How do *A. dealbata* invasions improve or undermine rural livelihood opportunities, resilience and vulnerability?
4. How do use, perceptions and costs change in relation to either time since invasion or extent of invasion?
5. What are the locally available alternatives which provide the same services and goods as *A. dealbata*?
6. Who experiences opportunities, resilience and vulnerability on their livelihood due to *A. dealbata* invasion?

Study area

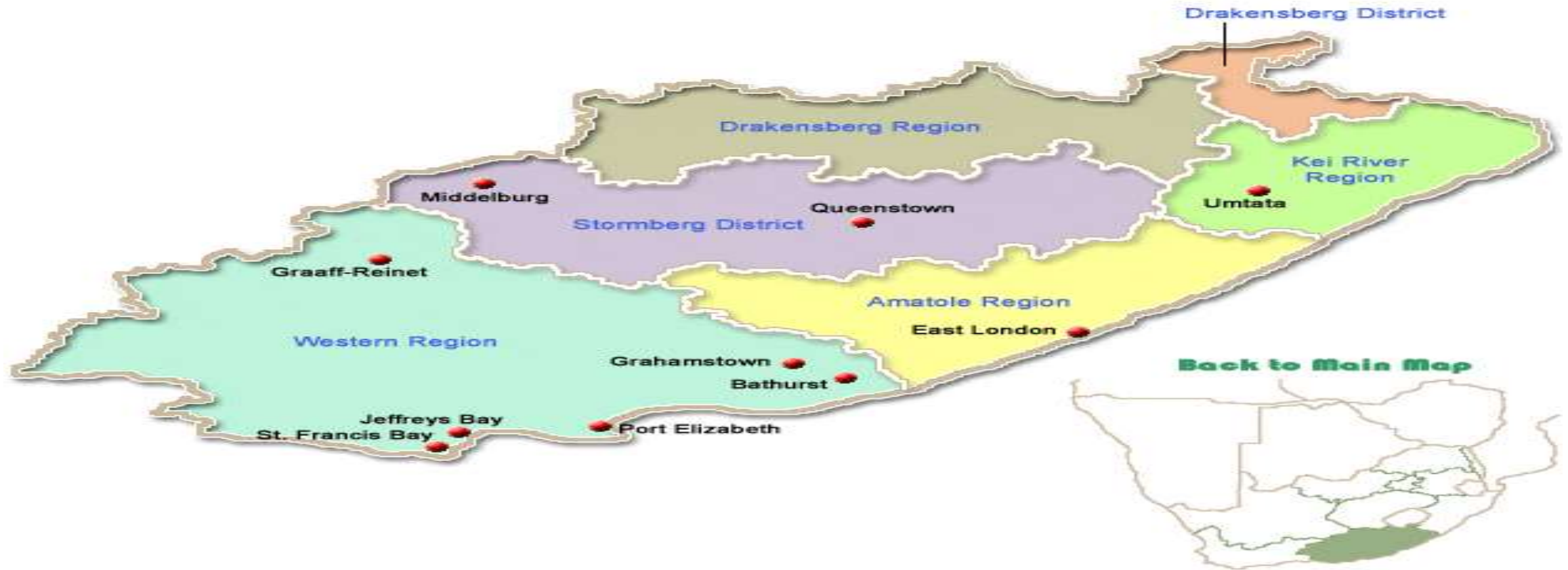


Fig. 2. Matatiele Area

- Matatiele area ($30^{\circ}12.65' S$, $28^{\circ}46.06'E$) altitude -1 488 m.
- Matatiele is found in the foothills of Drakensberg mountains, on the border of the province of KwaZulu-Natal.

Results: Perceptions of Invasion

- Local names are *Dywabasi* in isiXhosa or *Skamore* in isiSotho.
- Majority (90 %) noted that Silver Wattle abundance has been increasing for the past decade.
- Rocky, hilly, grazing areas and near water sources were identified as the areas Silver Wattle favours the most.

	1930-1950	1950-1970	1970-1990	1990-2010	2010-Present
Abundance					

Results: Uses of Silver Wattle

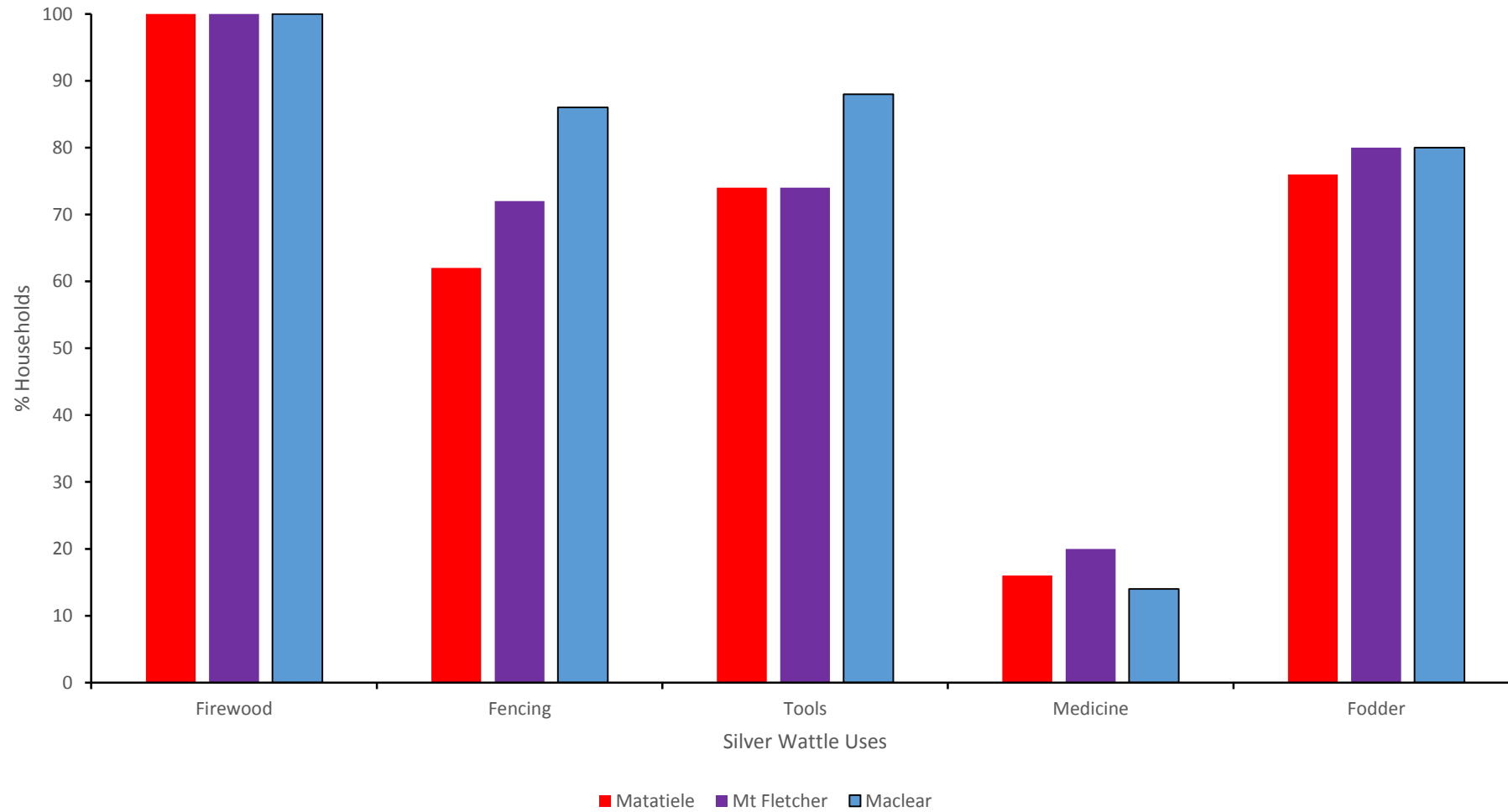


Fig. 3. Proportion of households which use Silver Wattle for different purposes

Uses of Silver Wattle and Household Wealth

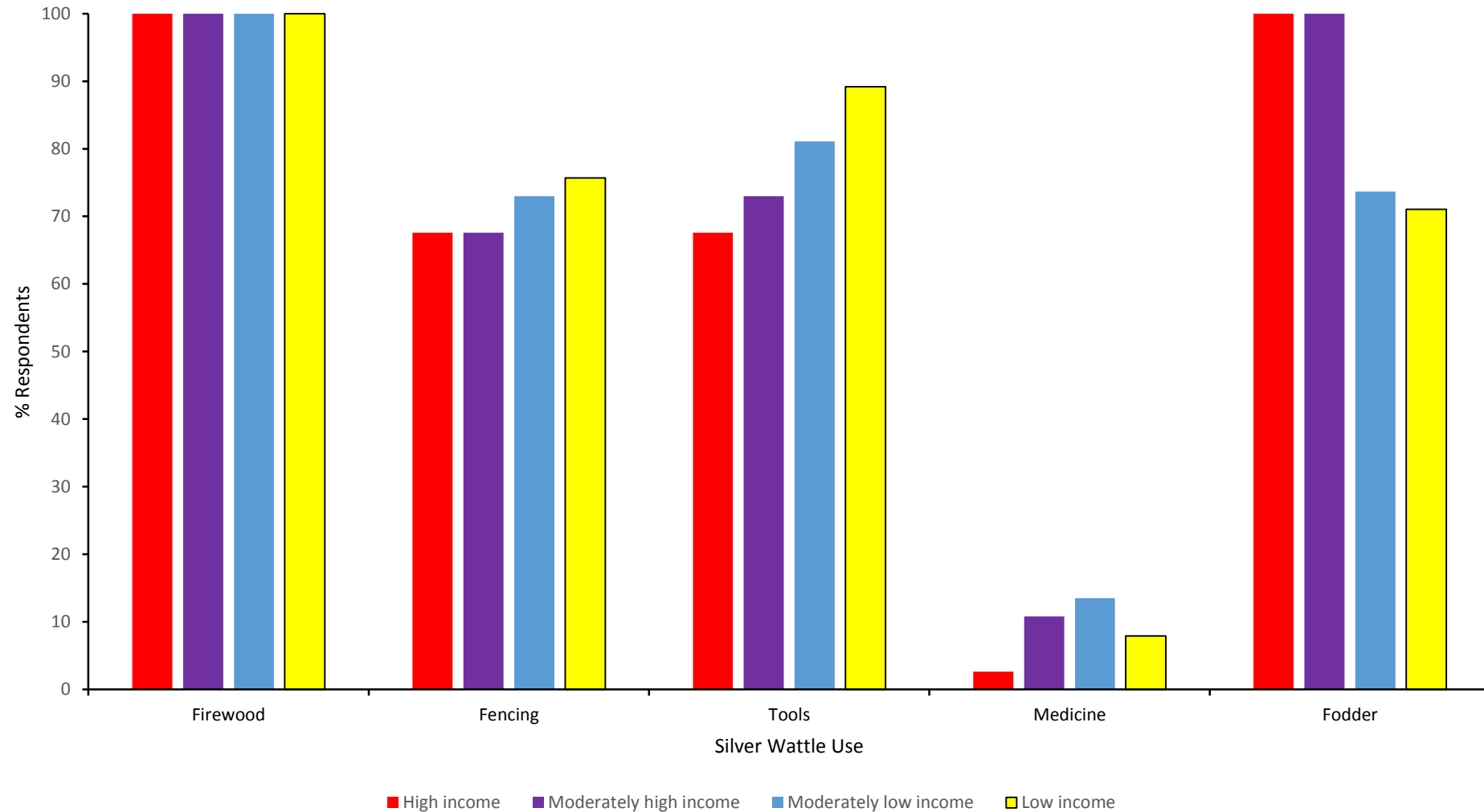


Fig. 4. Relative uses of Silver of Silver Wattle by income quartile

Results: Firewood

Frequency of collection and quantities collected

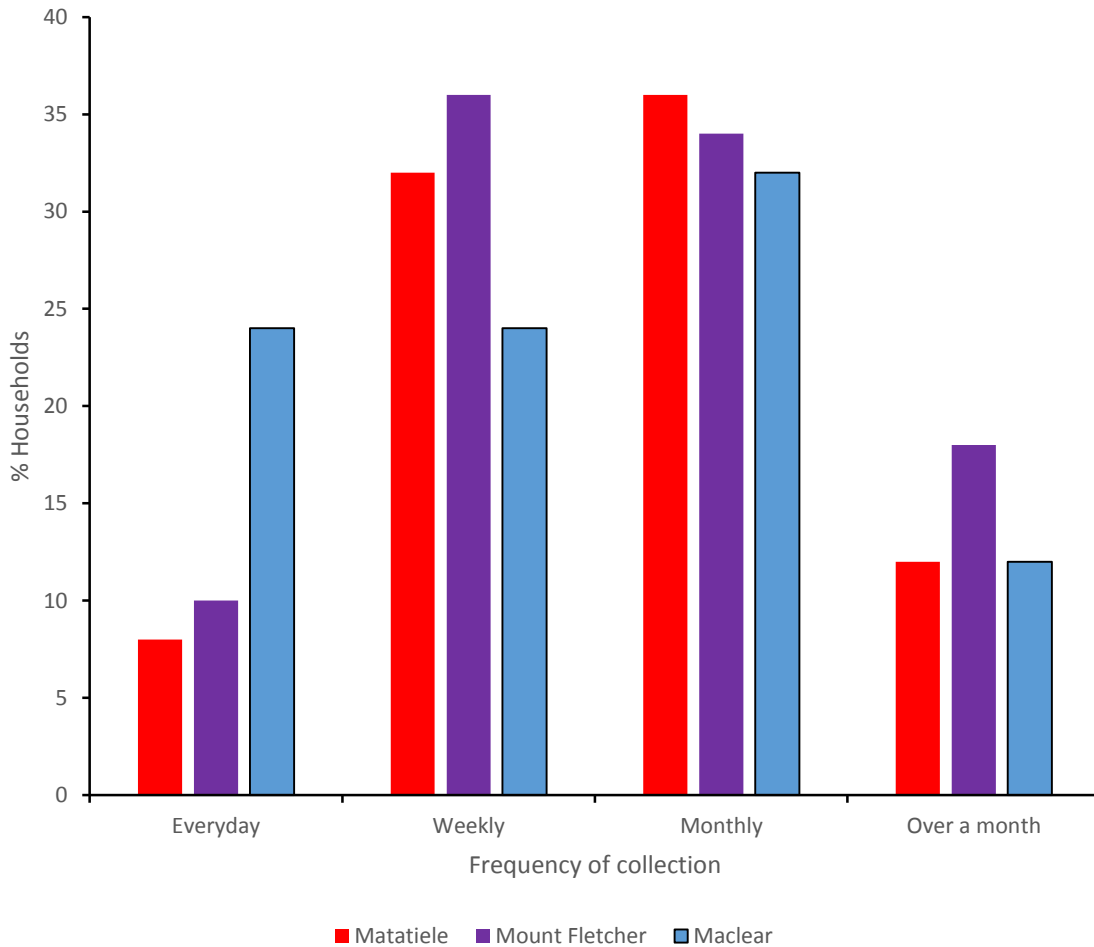


Table 1. Average quantity and resource value for Silver Wattle use for firewood per annum per household (Excluding rituals and celebrations)

Site	Average Quantity (kg)	Value (ZAR)
Matatiele	1 840 ± 138	2 300 ± 136
Mount Fletcher	1 735 ± 105	2 284 ± 108
Maclear	1 700 ± 98	2 154 ± 98
Mean	1 758 ± 114	2 246 ± 114

Fig. 5. Frequencies of collection of Silver Wattle for firewood

Results: Firewood Alternatives

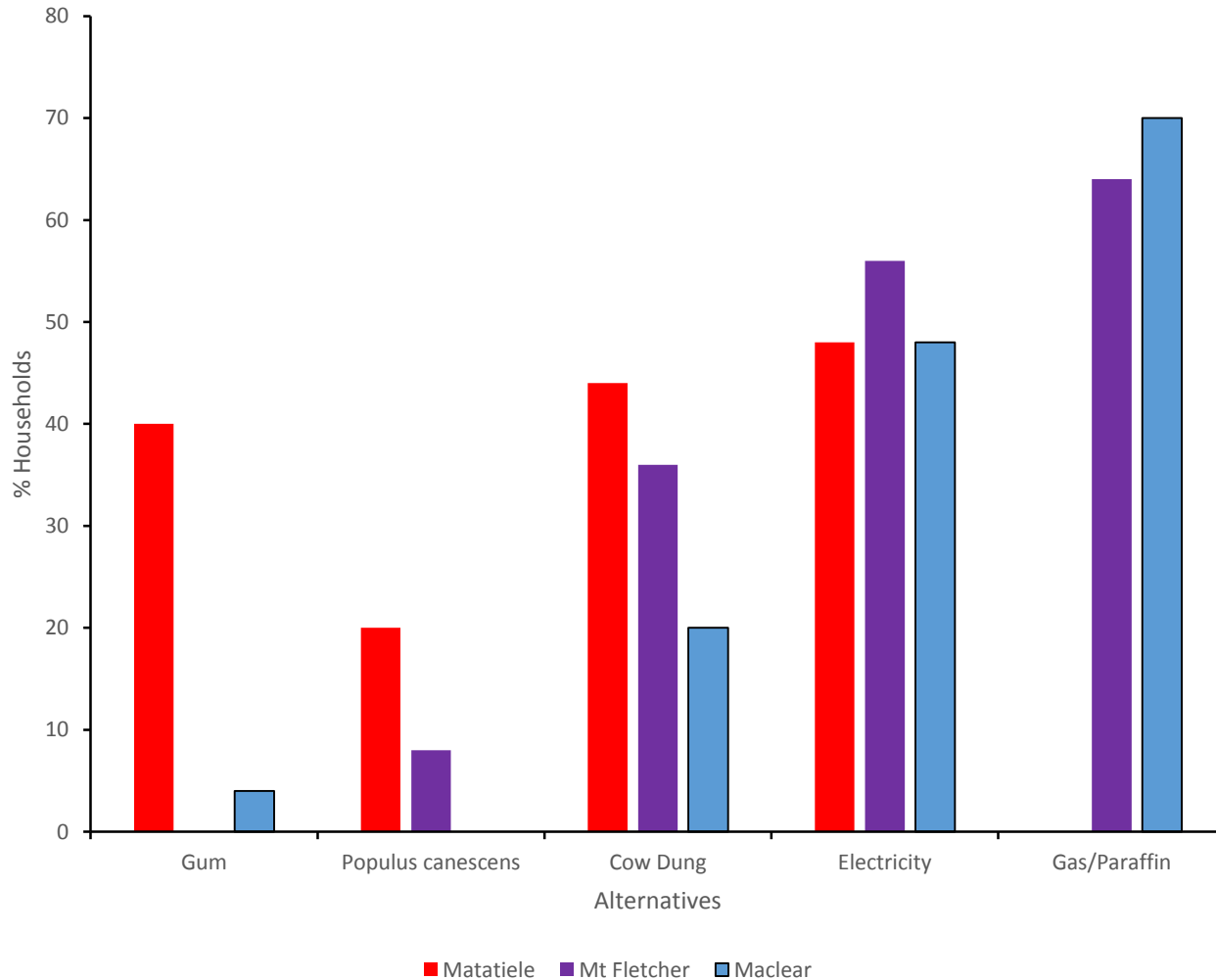


Table 2. Relative preferred percentages for energy source per site

	Silver Wattle	Alternative	Don't know
Matatiele	94	2	6
Mount Fletcher	90	10	0
Maclear	84	14	2

Fig. 6. Alternatives for firewood acquired from Silver Wattle per site

Results : Fencing



Fig. 7. Silver Wattle used for fencing purposes (Photo by A. Ngorima)

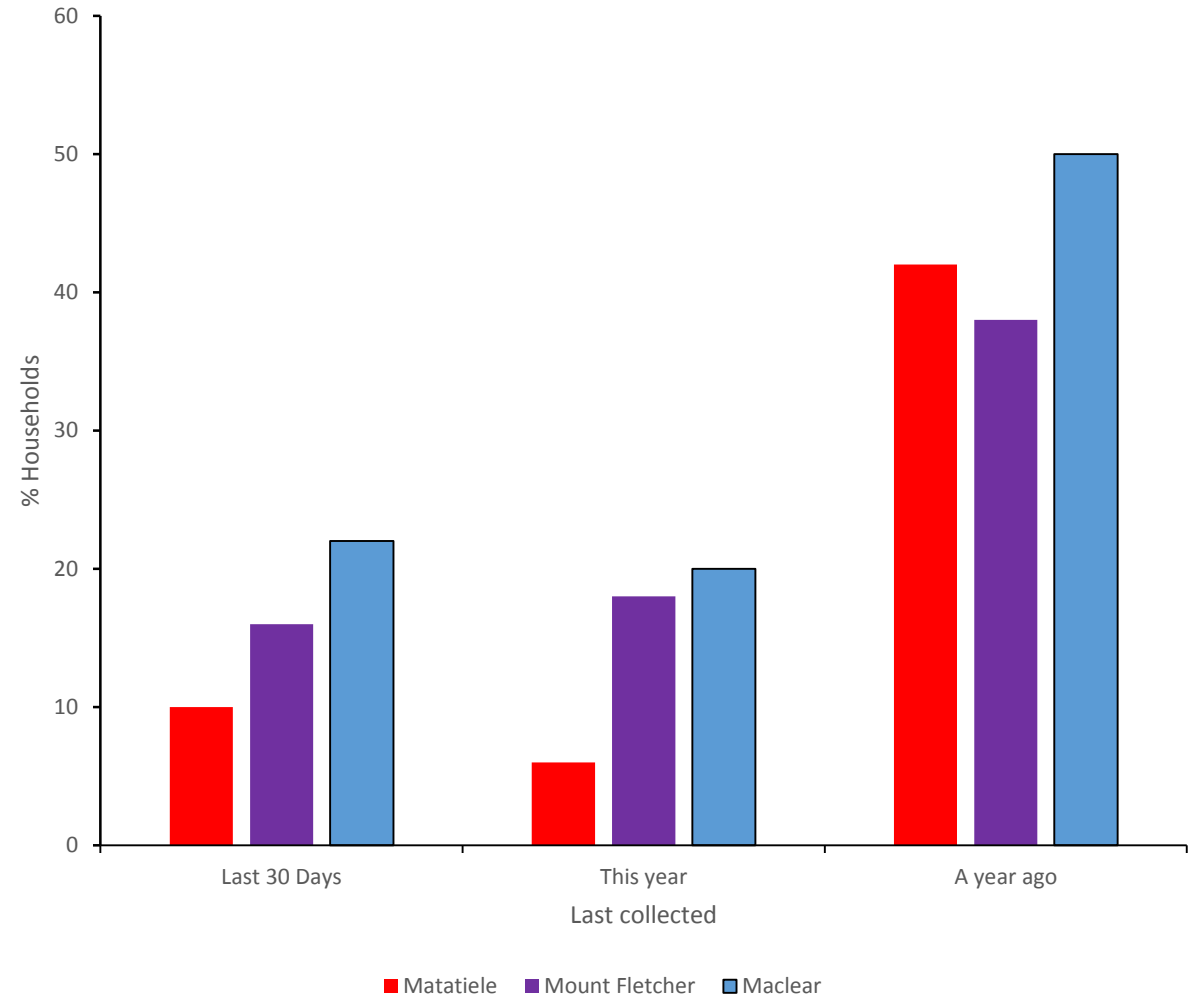


Fig. 8. Period when Silver Wattle was last collected for fencing

Results : Fencing

Quantities collected and Last collection

Table 3. Resource valuation for Silver Wattle fencing use per annum per household

Site	Average number of poles	Value (ZAR)
Matatiele	40 ± 5	400 ± 54
Mount Fletcher	51 ± 5	510 ± 49
Maclear	65 ± 4	650 ± 37
Mean	52 ± 5	520 ± 47

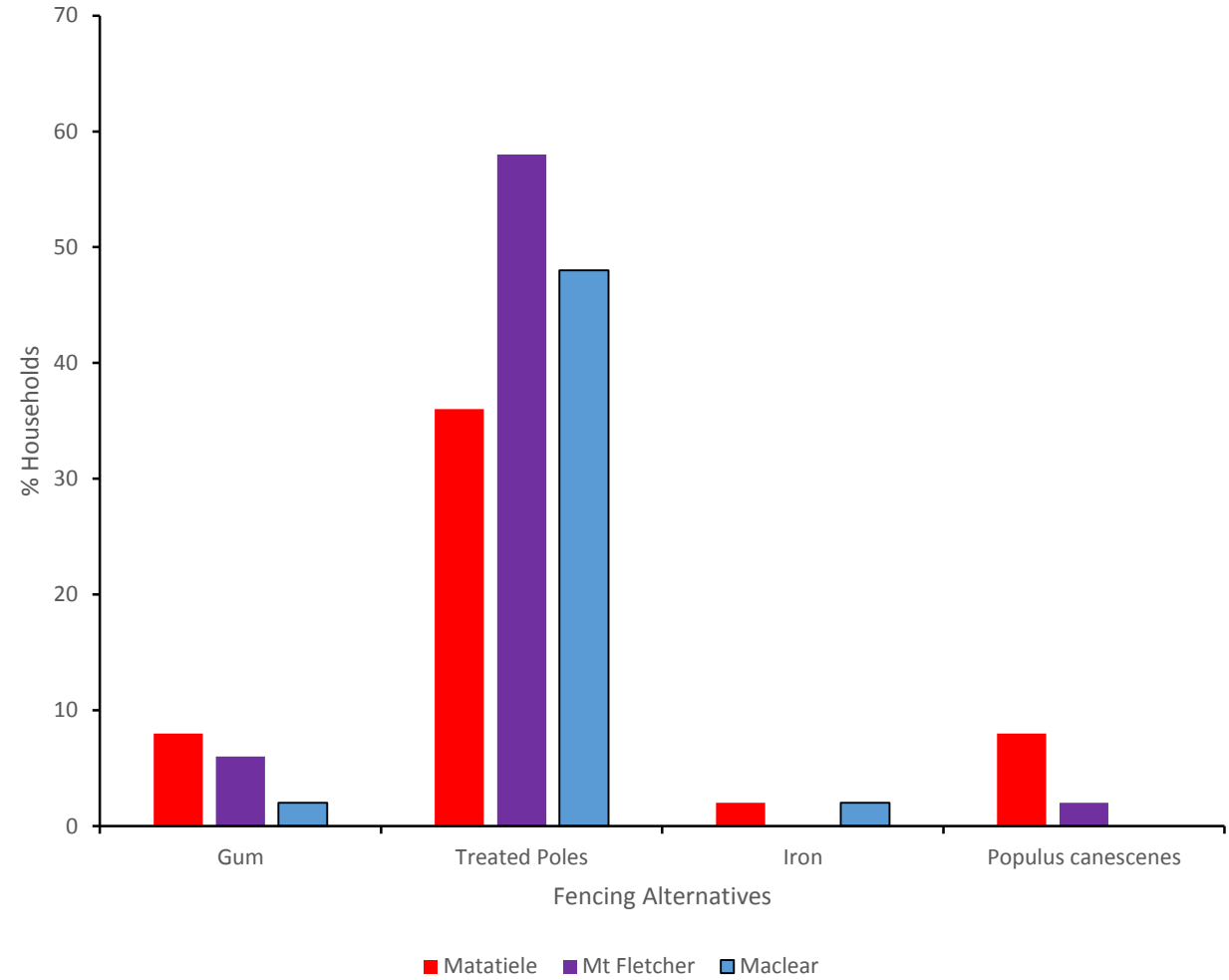


Fig. 9. Alternatives for Silver Wattle fencing

Results: Fodder



- The majority of respondents (78 % in Matatiele, 80 % in Mount Fletcher and 80 % in Maclear) own livestock.
- Households also collect Silver Wattle for fodder to feed young and the injured animals at home.

Fig. 10. Livestock eating leaves of Silver Wattle (Photo by A. Ngorima)

Results: Summary

Table 5. Summary of resource valuation for Silver Wattle use (ZAR) per annum for the three sampled sites

Use	Value per user households	Value per household	Value per hectare	Total value per user households
Firewood	2 246	2 246	2 073	4 042 800
Poles	525	381	161	315 000
Tools	318	245	97	190 800

Silver Wattle Reducing Vulnerability of Rural Communities

Table 6. Will livelihoods improve if Silver Wattle is removed?

Site	Yes (%)	No (%)	Do not know (%)
Matitiele	8	92	1
Mt Fletcher	10	84	6
Maclear	8	92	0
Mean	9	89	2

- *We will struggle a lot, I cannot even imagine such a situation”.*
- Silver Wattle aids in cash savings.
- Cash generation.

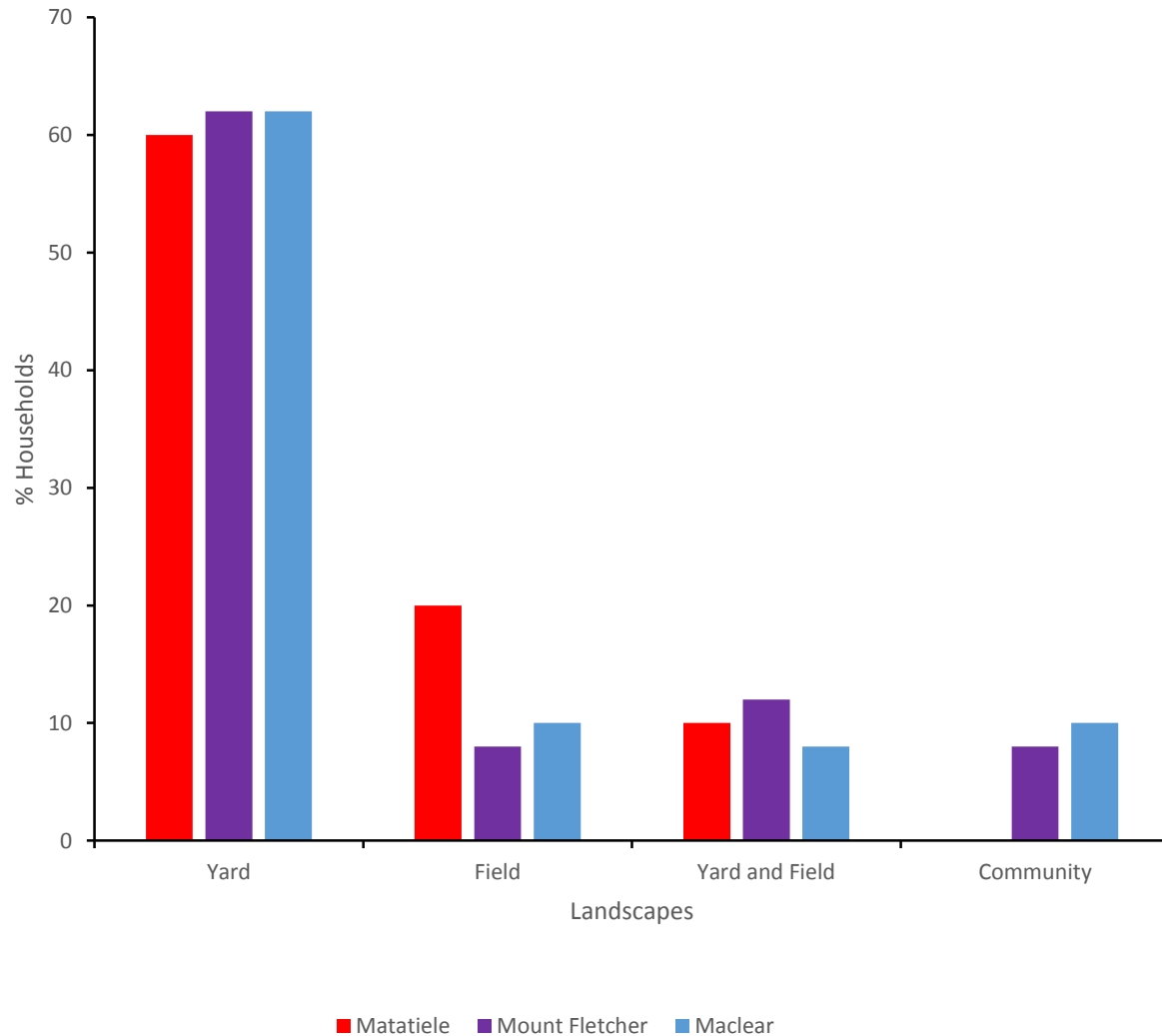
Costs due to Silver Wattle invasions

Table 7. Will livelihoods improve if current Silver Wattle abundance is doubled?

Site	Yes (%)	No (%)	Do not know (%)
Matitiele	11	88	1
Mt Fletcher	12	84	4
Maclear	9	90	1
Mean	11	87	2

- *“The high abundance of the tree is bringing criminals, high rate of rape and robbery especially us elderly people. Let us not talk about this tree because it gives me headaches”.*
- High crime rate.
- Invading their fields and grazing areas for livestock.
- Roots destroying houses.
- Water consumption.

Effects of Silver Wattle on Land Uses and Vulnerability



- 88 % of the respondents in Matatiele, 90 % in Mount Fletcher and 86 % stated that the current abundance of Silver Wattle in their area was too much.

Fig. 11. Landscapes where Silver Wattle is not wanted

Conclusion

- Silver Wattle is useful.
- It is too abundant and should be reduced.
- A high abundance of Silver Wattle is associated with negative impacts such as reduction in arable land, grazing land and a rise in crime rate.

Acknowledgements



- Dr A. Wood
- Prof C.M Shackleton



Thank You

“Examine each question in terms of what is ethically and ecologically right, as well as what is economically expedient.” Aldo Leopold