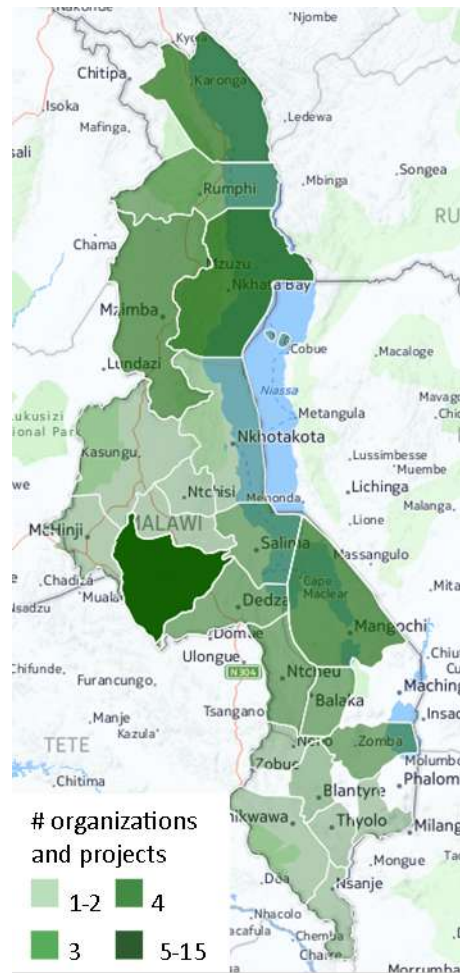




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IPC UK

Permaculture in central Malawi

Permaculture programs and organizations in Malawi



Aerial photo of a permaculture organization`

What are the impacts of permaculture practices?

Typical village home compared to home surrounded by permaculture garden



“Conventional” farming vs. permaculture

“Conventional” farming

- ▶ System of high-external input agro-chemical practices.
- ▶ Conventional plots often use chemical fertilizer, hybrid seeds, and annual tillage to grow maize in Malawi.

Permaculture

- ▶ Design system for the application of agroecology and associated low-external input practices.
- ▶ Permaculture plots often use organic, low-external inputs and intercropping to grow multiple crop varieties in Malawi.

Participant farmers and villages

Aerial photo during dry season, fields extending to villages in rainy season, village during dry season (clockwise)

Photograph: Austin Dunn (left)

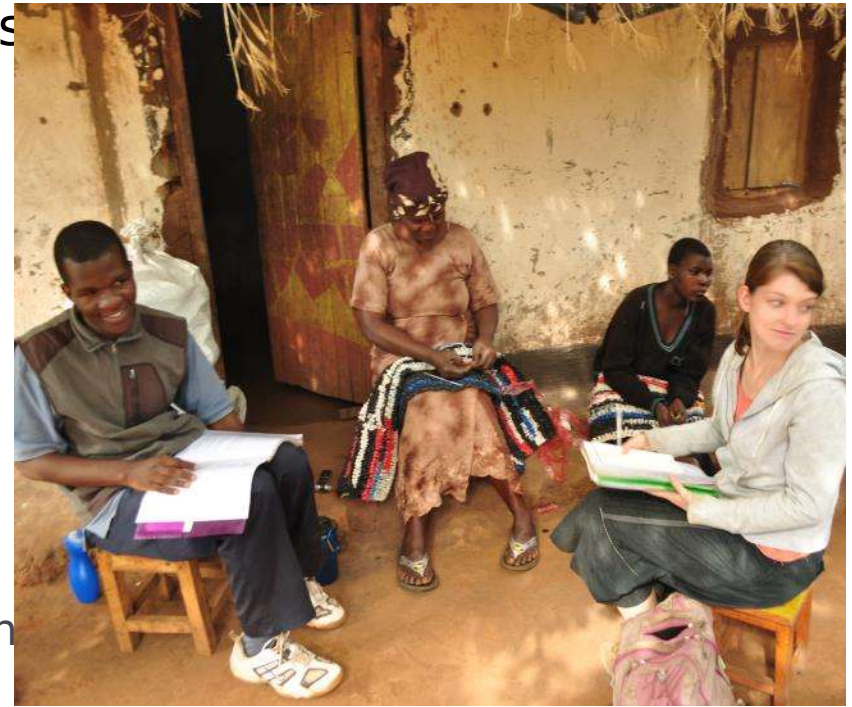


Aerial photo of village in dry season



Research methods

- ▶ Research team
 - ▶ Geoffrey Mlongoti, Chisomo Kamchacha, and Enock Chiteka
- ▶ Observation and participation in activities
 - ▶ Farming, cooking, meals, permaculture trainings, nutrition clinics
- ▶ 185 semi-structured interviews
 - ▶ Food and farming practices, permaculture, nutrition, health
- ▶ 237 surveys
 - ▶ Food security measure
 - ▶ 24-hour diet recalls
 - ▶ Demographics, livelihoods, crop production
- ▶ 14 focus groups
 - ▶ Food and farming practices, health, permaculture



Interview with a permaculture farmer

Food practices

Cooking *nsima* (stiff porridge), maize processing, typical meal of *nsima* and *ndiwo* (side dish)(clockwise)



Field and garden production

Maize growing on
ridges during the



Vegetables growing
in gardens during



Permaculture training

Farmers learning about water, contour beds in fields, compost (clockwise)



Permaculture adoption process



Exposure to/
learning
about
permaculture

Experience
benefits &
problems

Interest &
motivation

Adopt new/
adjust/
expand
practices

Factors impacting permaculture practice levels

Factors	Permaculture practice level			Conventional farmers
	High	Medium	Low	
Formal NGO training	✓			
Informal NGO training	✓	✓		
Higher average number of learning sources	✓			
Higher average years of practice	✓	✓		
Higher average years of education in household	✓			
Have support in community	✓			✓

PF=14, CF=24

Common permaculture practices

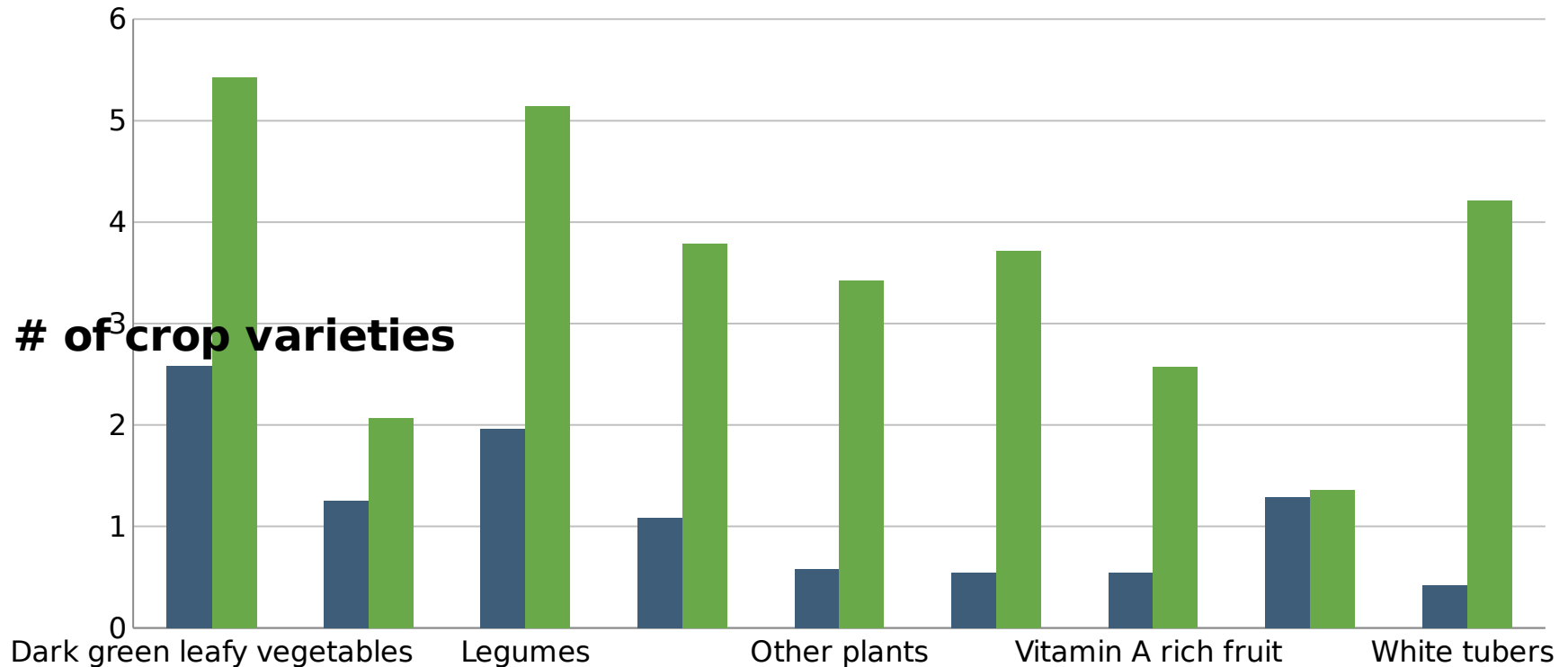
Permaculture Practices (used by over 70% of farmers)

Soil & Water Conservation	Agro-biodiversity	Resource Use
<ul style="list-style-type: none"> • Animal manure • Channel & catch water flow • Compost manure • Intercropping nitrogen fixing plants and trees • Irrigate with grey water • Mulching • No burning of organic matter • No-till weeding by hand • Permanent low- or no-till beds 	<ul style="list-style-type: none"> • Cultivation during all season • Grow crops that deter pests • Growing perennials (in addition to trees) • Intercropping • Leave crops that grow naturally • Tree planting 	<ul style="list-style-type: none"> • Creating multifunctional design • Making compost • Organic inputs • Recycled outputs back into farm • Saving seeds • Sharing and trading seeds • Using local seeds

Permaculture practices



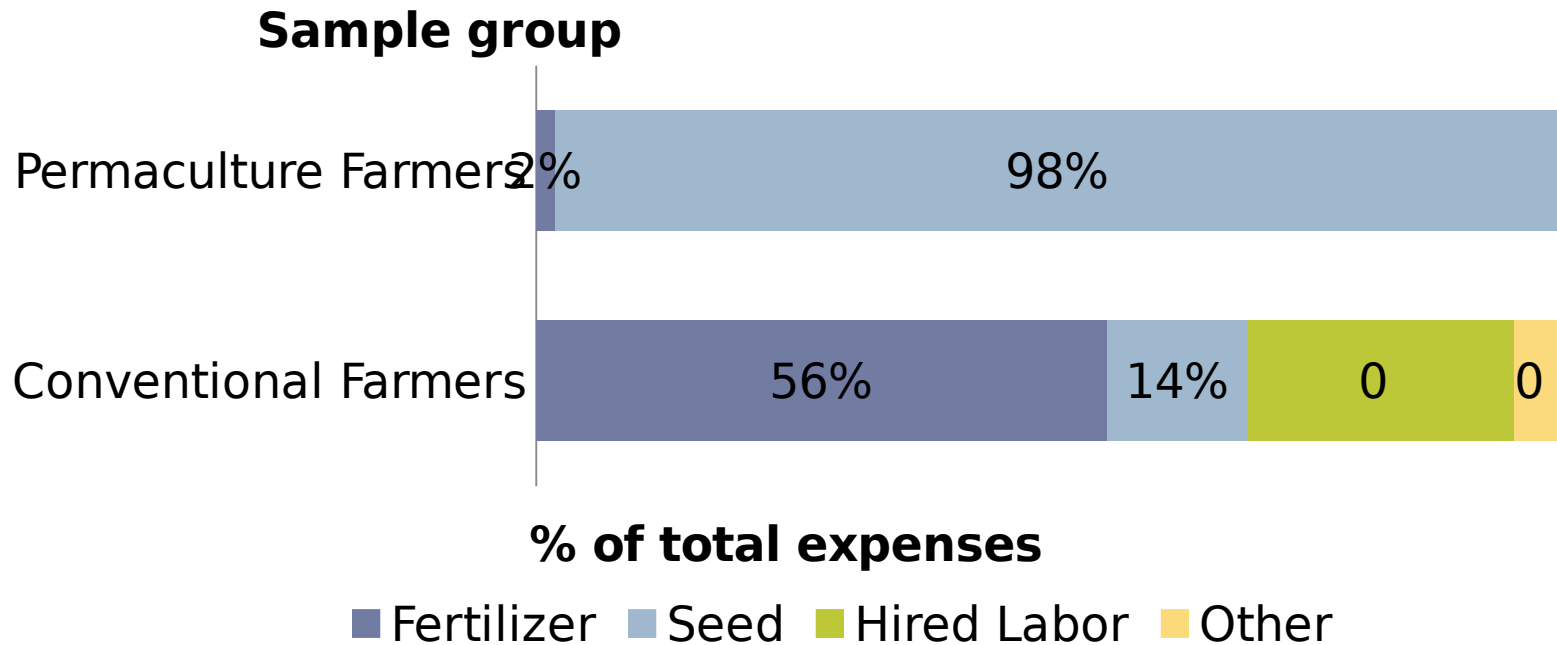
Average agro-biodiversity



Crops by food groups

■ Conventional Farmers ■ Permaculture Farmers

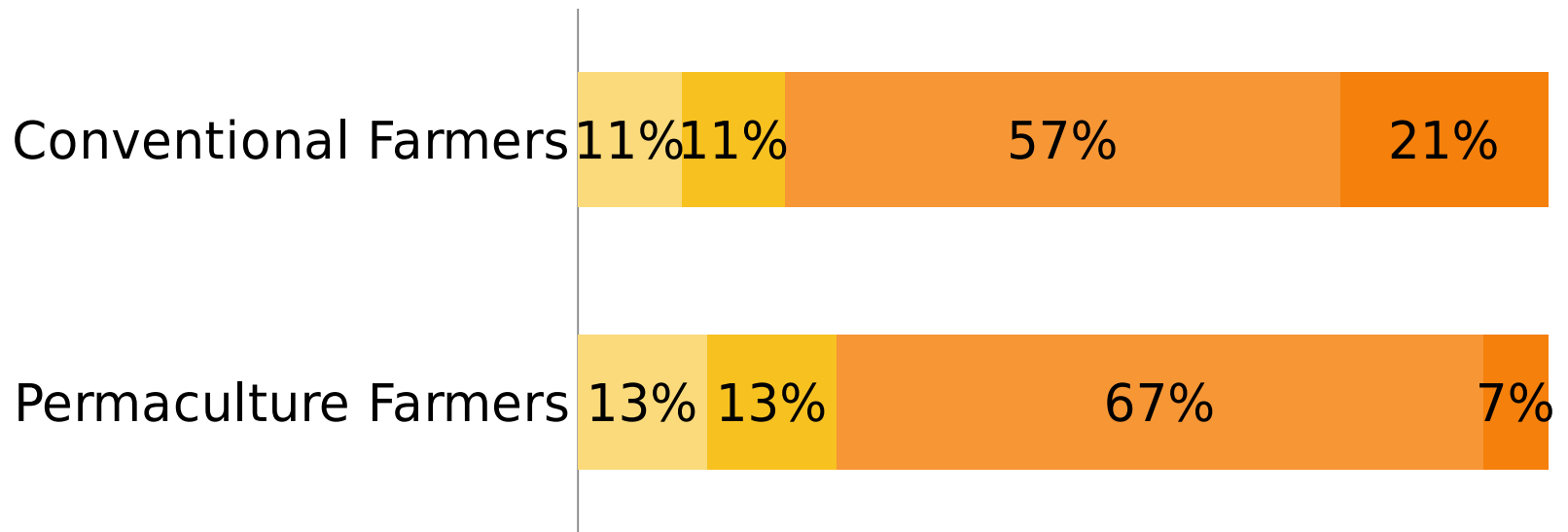
Agricultural input expenses



Distribution of average annual input expenses for permaculture versus conventional farmers, PF=14, CF=25

Food insecurity

Sample group



% of households

- Food Secure
- Mild Food Insecurity
- Moderate Food Insecurity
- Severe Food Insecurity

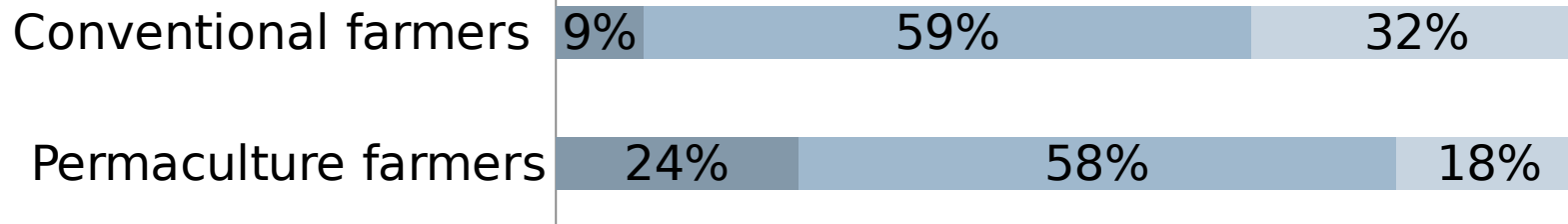
Food security categories by sample, CF=28, PF=15

Diet diversity by classification

Food groups consumed by $\geq 50\%$ of farmers by diet diversity category,

n=148

Low diet diversity (1-3)	Medium diet diversity (4-5)	High diet diversity (6-7)
Starchy staples	Starchy staples	Starchy staples
Dark leafy greens	Dark leafy greens	Dark leafy greens
Other fruits & vegetables	Other fruits & vegetables	Other fruits & vegetables
	Legumes	Legumes
	Vitamin A rich fruits & vegetables	Vitamin A rich fruits & vegetables
		Meat & fish



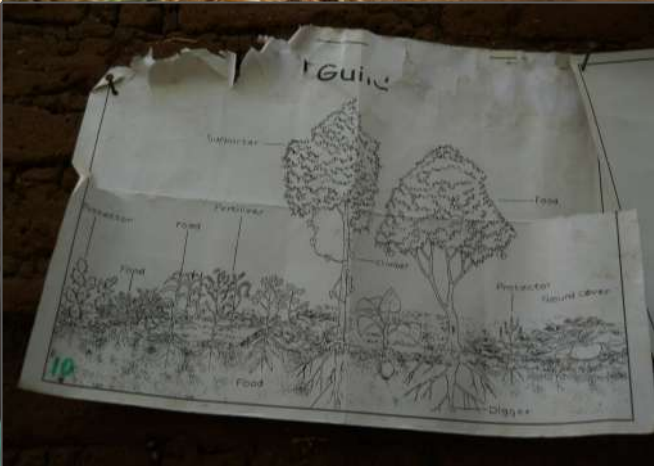
% of farmers

Diet diversity by classification, CF=93, PF=55

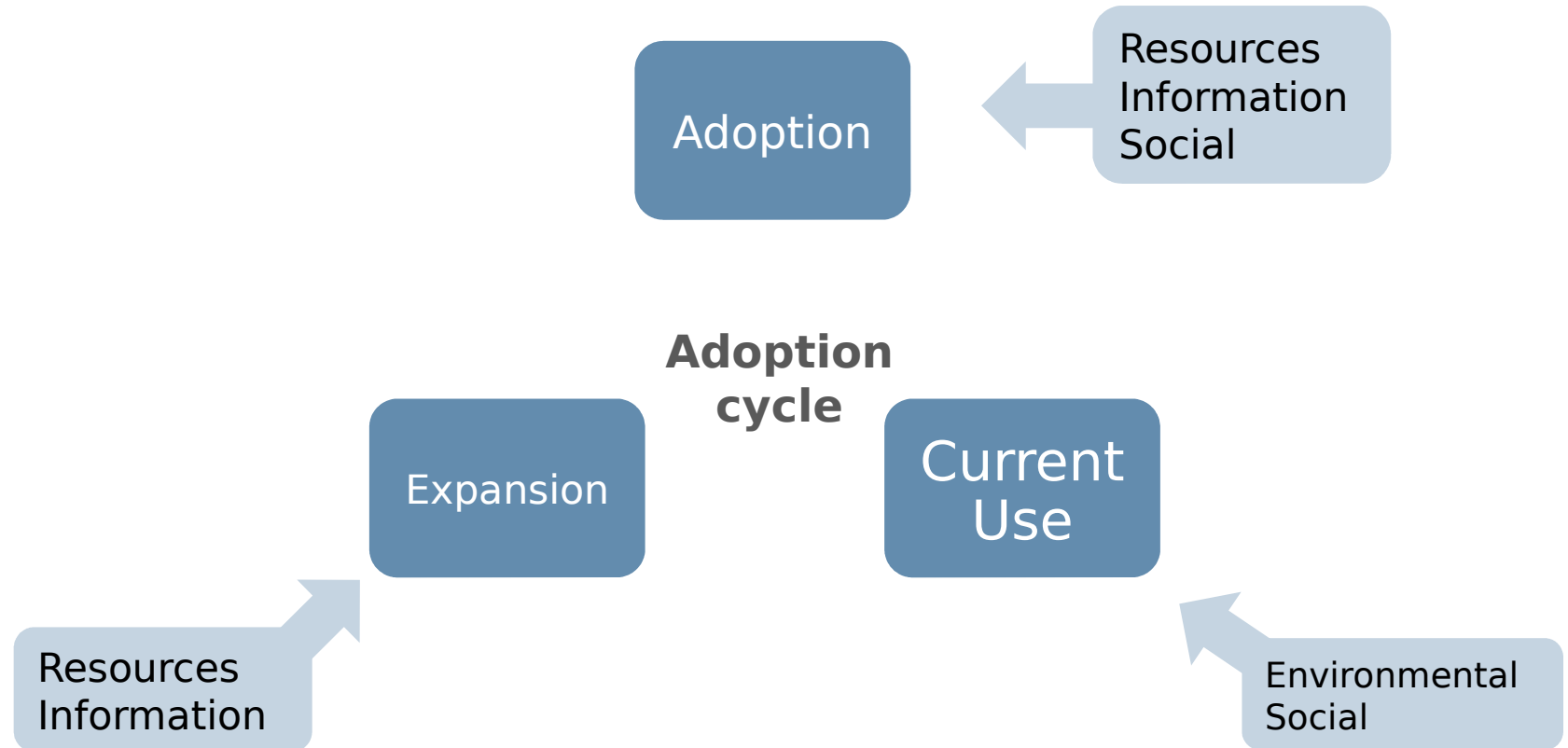
Building adaptive capacity

Resource recycling, garden design, compost (clockwise)





Permaculture constraints varied over time



Summary

- ▶ Farmers implemented permaculture practices over several years in a risk averse way.
- ▶ Many permaculture farmers reported experiencing multifaceted benefits from using permaculture practices.
- ▶ Permaculture education, skills, and practices helped farmers' expand their adaptive capacity to mitigate risk and address food access and farming problems.
- ▶ Farmers benefited from permaculture because they used practices that addressed household constraints.
- ▶ Farmers faced constraints to permaculture implementation.
- ▶ Permaculture practice largely did not alter farmers' systemic risk and vulnerability within Malawi's agro-food system.

Special thanks to...

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- ▶ Thanks for listening!
- ▶ For more information:
www.abigailconrad.com
- ▶ My wonderful research assistants Geoffrey Mlongoti (center) and Chisomo Kamchacha (right).

