Reseeding to improve biodiversity, livestock forage, and wildlife habitat

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Grasslands are highly degraded

Less than 10% of original grassland remains in most areas of North America

Due to

- Land use change
- Invasive species

Reseeding is challenging

Re-invasion
Low diversity
High cost prevents large scale revegetation efforts

Spatially patterned methods

Dense patches of seeds

Seeded species disperse to non-seeded areas

Strip seeding

- Horizontal patches

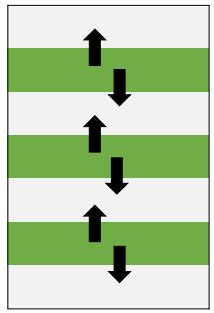



Photo: Drew Rayburn

Potential benefits

Dense seeding of grasses
- Higher chance of establishment

Increased invasion resistance

Lower seed and labor cost

Easy implementation

Erosion control



Experiment

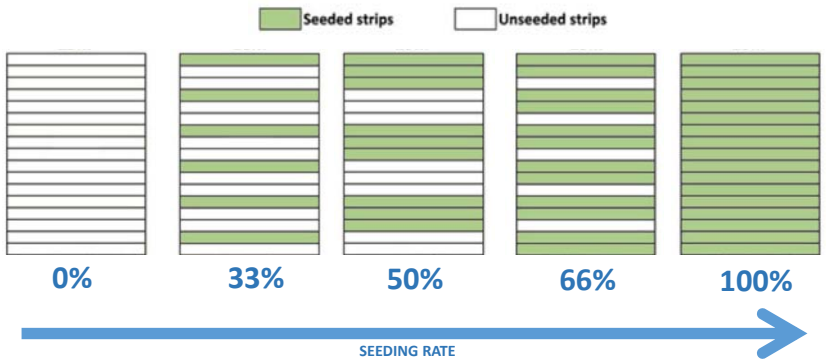


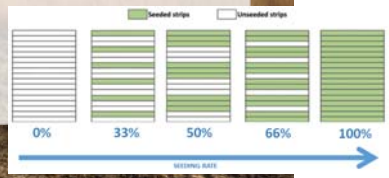
Image modified from Rayburn & Laca 2013


Photo: Drew Rayburn

Question

Does strip seeding provide utility for achieving multiple management goals?

- Biodiversity enhancement
- Invasion resilience
- Forage production



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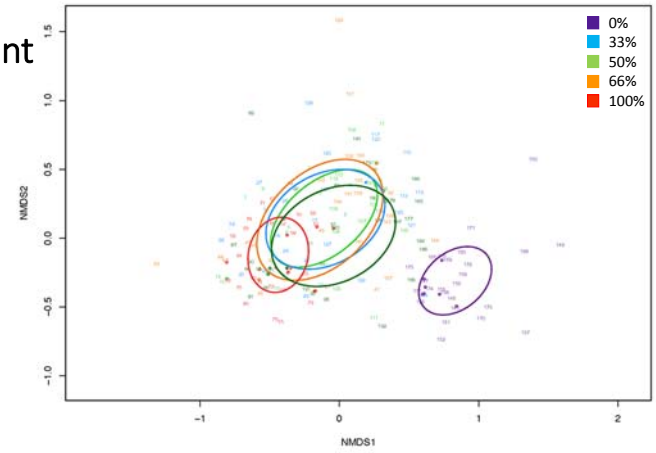
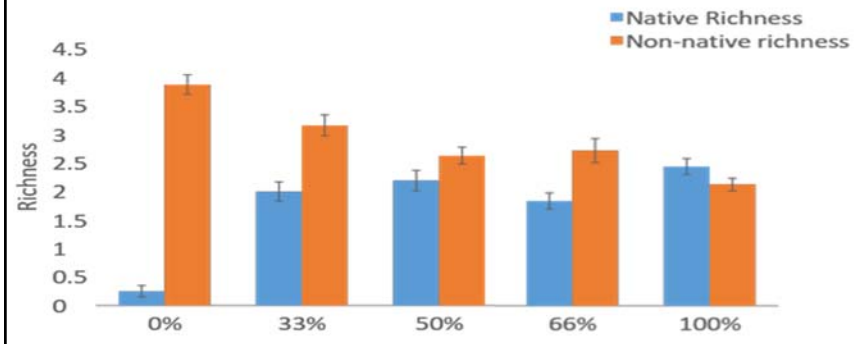
- **Biodiversity enhancement**
- Invasion resilience
- Forage production

Biodiversity enhancement



Biodiversity enhancement



Overview

	Seeding	Across treatments
Biodiversity enhancement	✓	⊘
Invasive plant management		
Forage production		

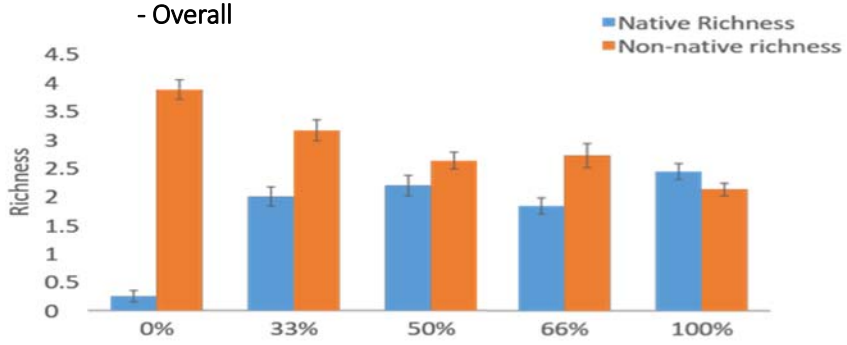
Question

Does strip seeding provide utility for achieving multiple management goals?

- Biodiversity enhancement
- **Invasion resilience**
- Forage production

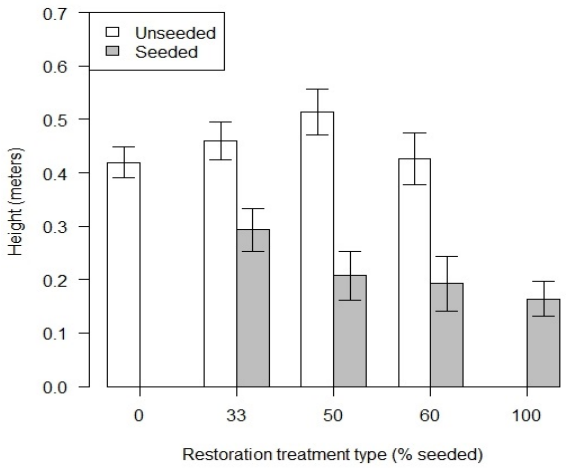
Invasive plant management

- Overall



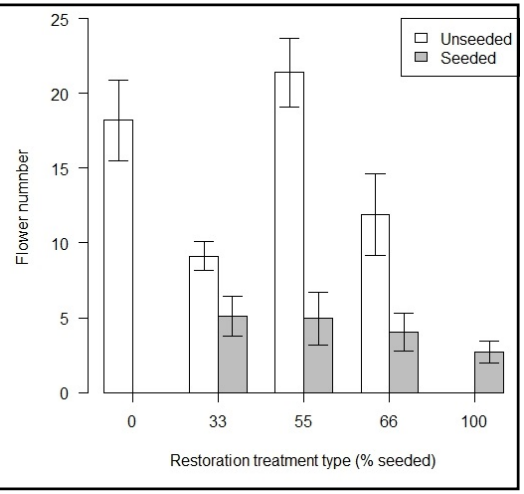
Invasive plant management

- Seeded



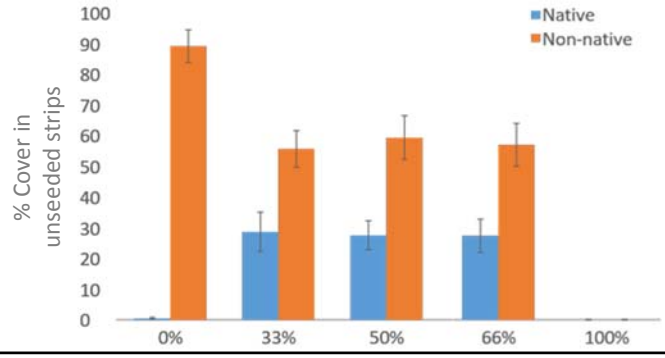
Dechen Silva et al. in review

Invasive plant management
- Seeded



Dechen Silva et al. in review

Invasive plant management
- Un seeded



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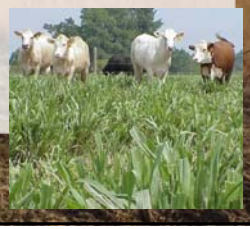
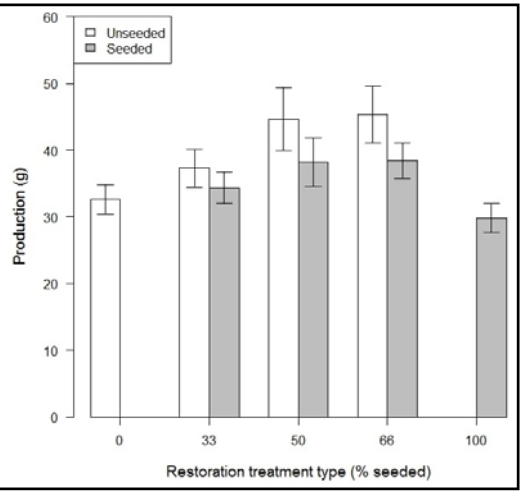


Production



Overview

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Biodiversity enhancement	✓	⊘
Invasive plant management	✓	⊘
Forage production	⊘	⊘

Overview

The use of seeding of native species provides utility for:

- Enhancing biodiversity
- Reducing invasive species
- Providing invasion resilience

So far, we have not found evidence that area seeded matters, so we suggest that seeding 33% of degraded areas in a strip seeding program could provide effective achievement of management goals within 5 years

THANK YOU!

Collaborators
Leslie Roche
Julea Shaw

Funding
University of California, Davis
University of California Division of Agriculture and Natural Resources

Acknowledgments
DJ Eastburn

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