

# Rangeland Seeding and Ecosystem Service Restoration

# Collaborative Team and Storyline

- George Gamble – Landowner / Producer
- Phil Blake – DC, NRCS Napa Co. (retired)
- Chip Bouril – NRCS Napa Co.
- Morgan Doran – Livestock & NR Advisor, UCCE
- Dave Dyer – NRCS PMC Director (retired)
- Leslie Roche – UCCE Specialist, UC Davis
- D.J. Eastburn – Asst. Specialist, UC Davis
- Elise Gornish – UCCE Specialist, UC Davis



Lake  
Berryessa  
Napa Co.



Lake  
Berryessa  
Napa Co.



Lake  
Berryessa  
Napa Co.



42-acre field

Lake  
Berryessa  
Napa Co.

# Site History

## Working Cattle Ranch

– Cow-calf beef



University of California

Agriculture and Natural Resources | Cooperative Extension

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- 2001 – Jointed Goatgrass and Medusahead
- Engaged NRCS & UCCE
- Site burned 2003 & 2004





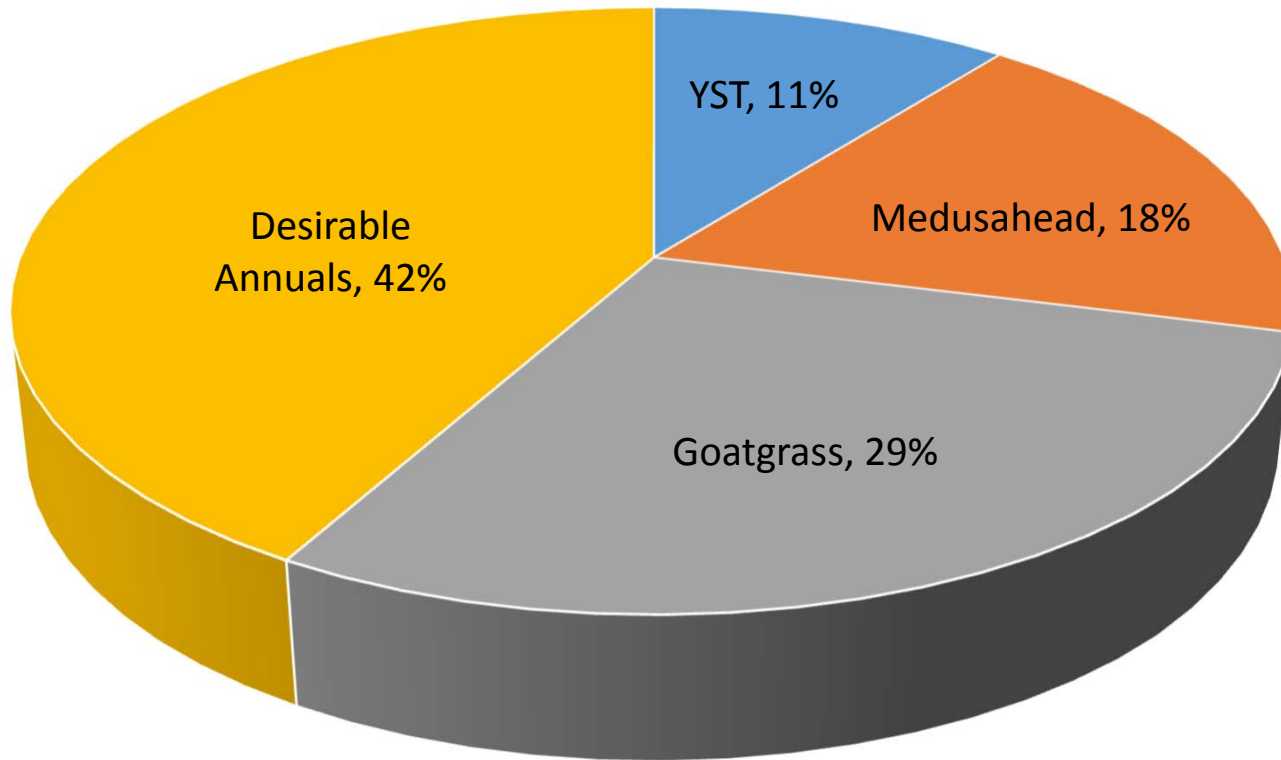
## Turning project into research

### Created replicated seeding trial

- **Annual seed mix**
  - *Annual ryegrass + vetch*
- **Native perennial mix**
  - *Purple needlegrass + blue wildrye + CA onion grass + CA brome*
- **Exotic perennial mix**
  - *Berber orchardgrass + Harding grass*
- **Native & Exotic perennial mix**
- **Seeding control**

**Plots = 1.3 acres each**  
**Drill seeded fall 2004**

## Cover of Invasive and Other Annual Species, Pre-burn 2003



# Data Collection

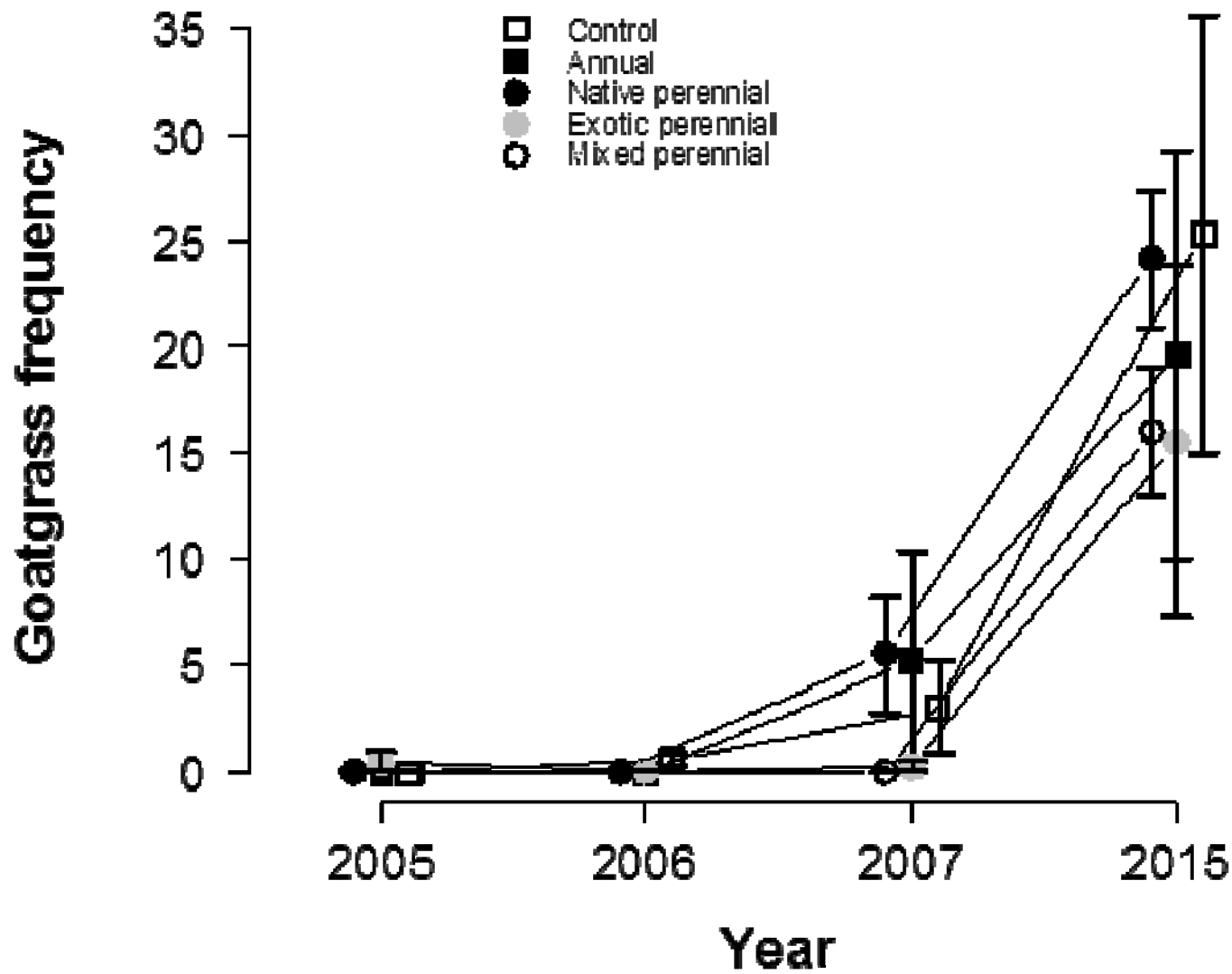
Line-point intercept

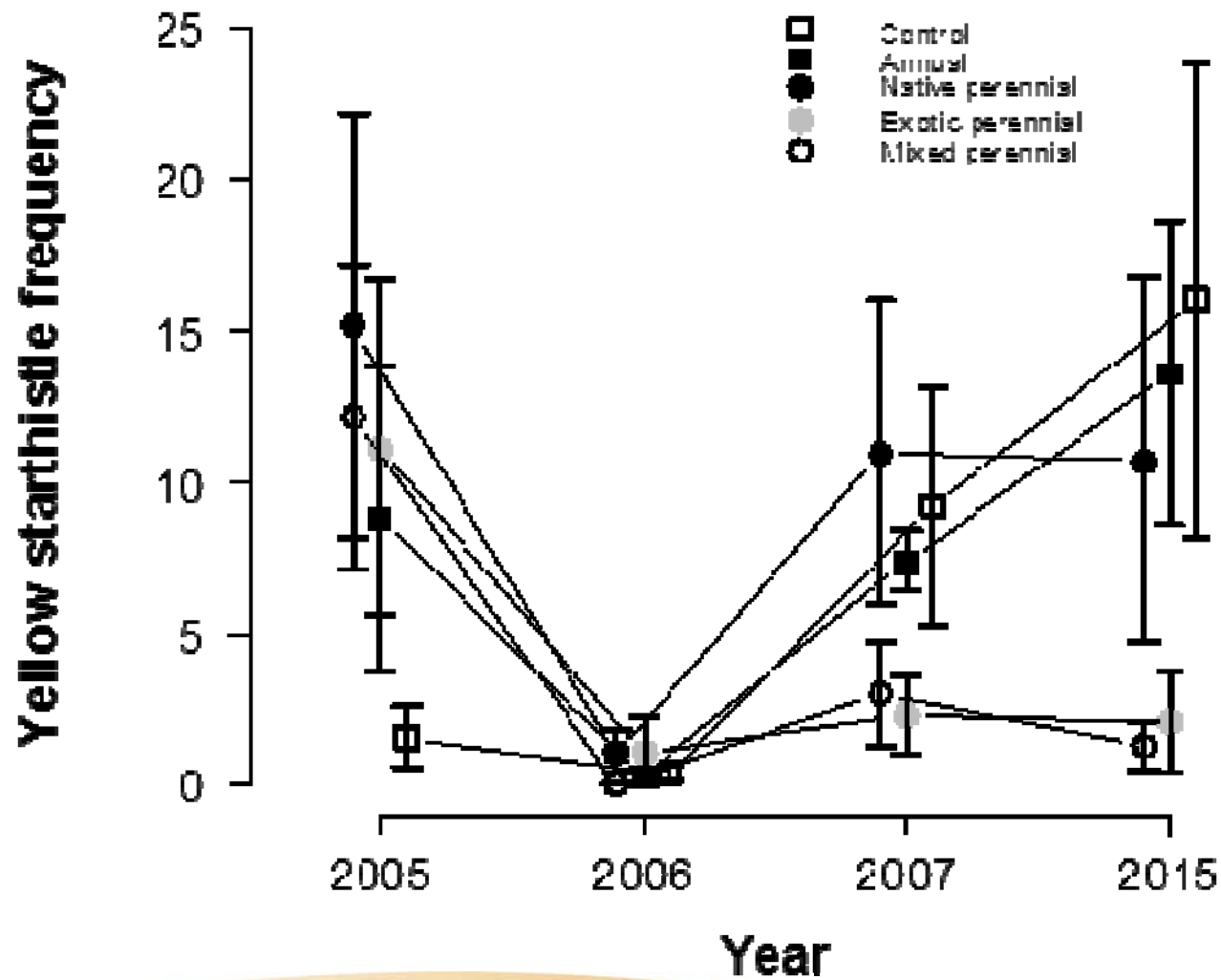
4 transects per plot

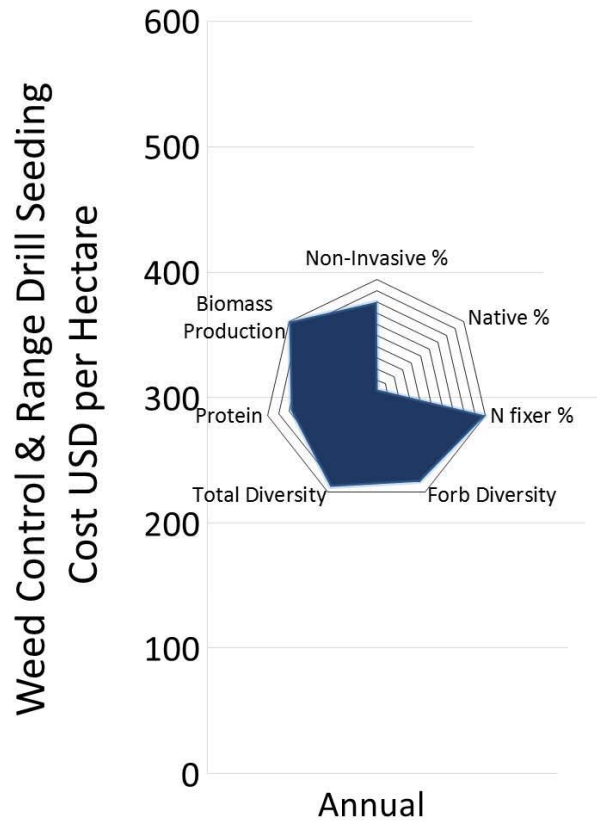
2005, 2006, 2007, 2015



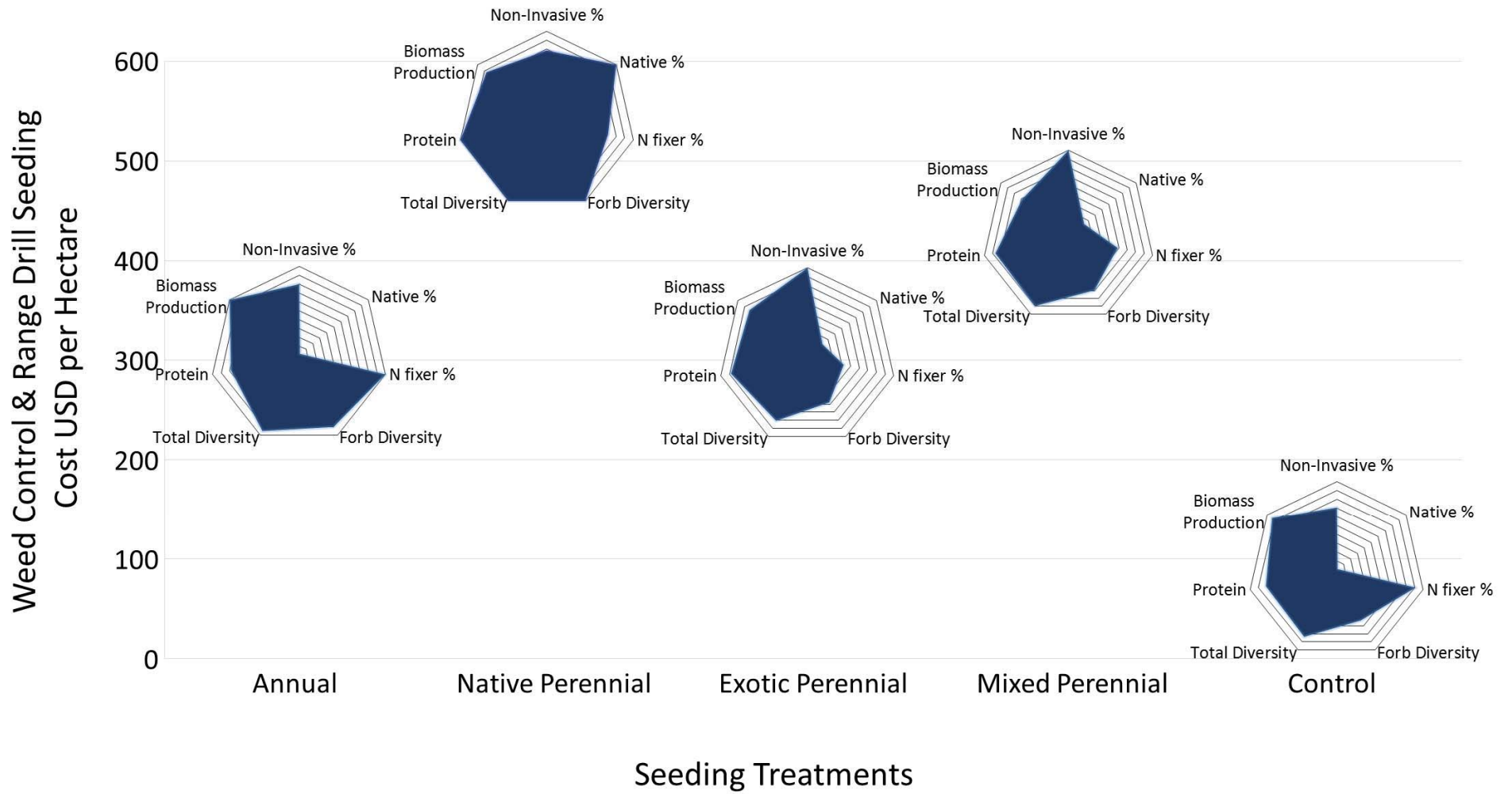








Seeding Treatments



## Take Home Messages:

- Species selection
  - Ability to survive and thrive
  - Desired outcomes/services
  - Cost
- Functional traits determine resistance to invasion
- Success is site dependent
- George Gamble's perspective

- Next Steps

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- Functional traits determine resistance to invasion
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- Aerial images

- Biomass
- Livestock utilization



- Other rangeland sites



Morgan Doran  
mpdoran@ucanr.edu