

# Greater Sage-Grouse Response to Season-long and Prescribed Rotational Livestock Grazing on Paired Ecological Sites



Nigel Malcolm Stone

Seth J. Dettenmaier

# ○ Background

- Background
- Study Design

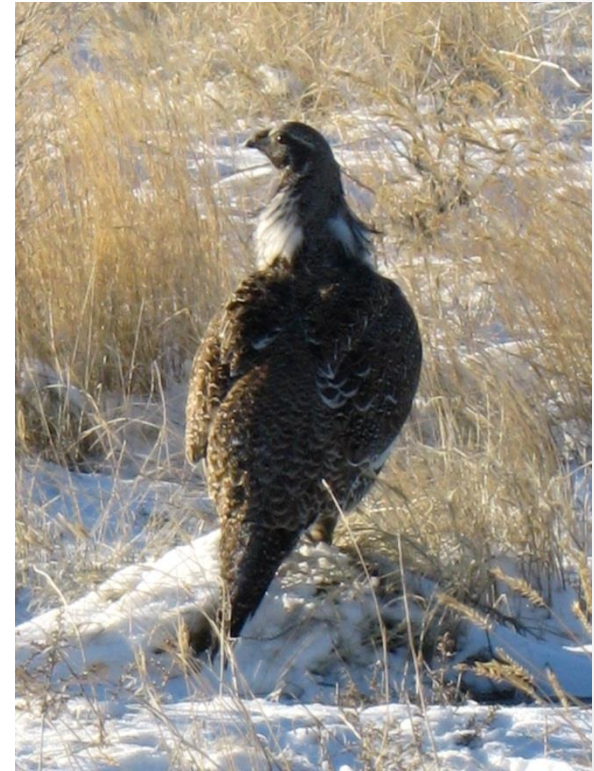
- Background
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- Research Methods

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# Background

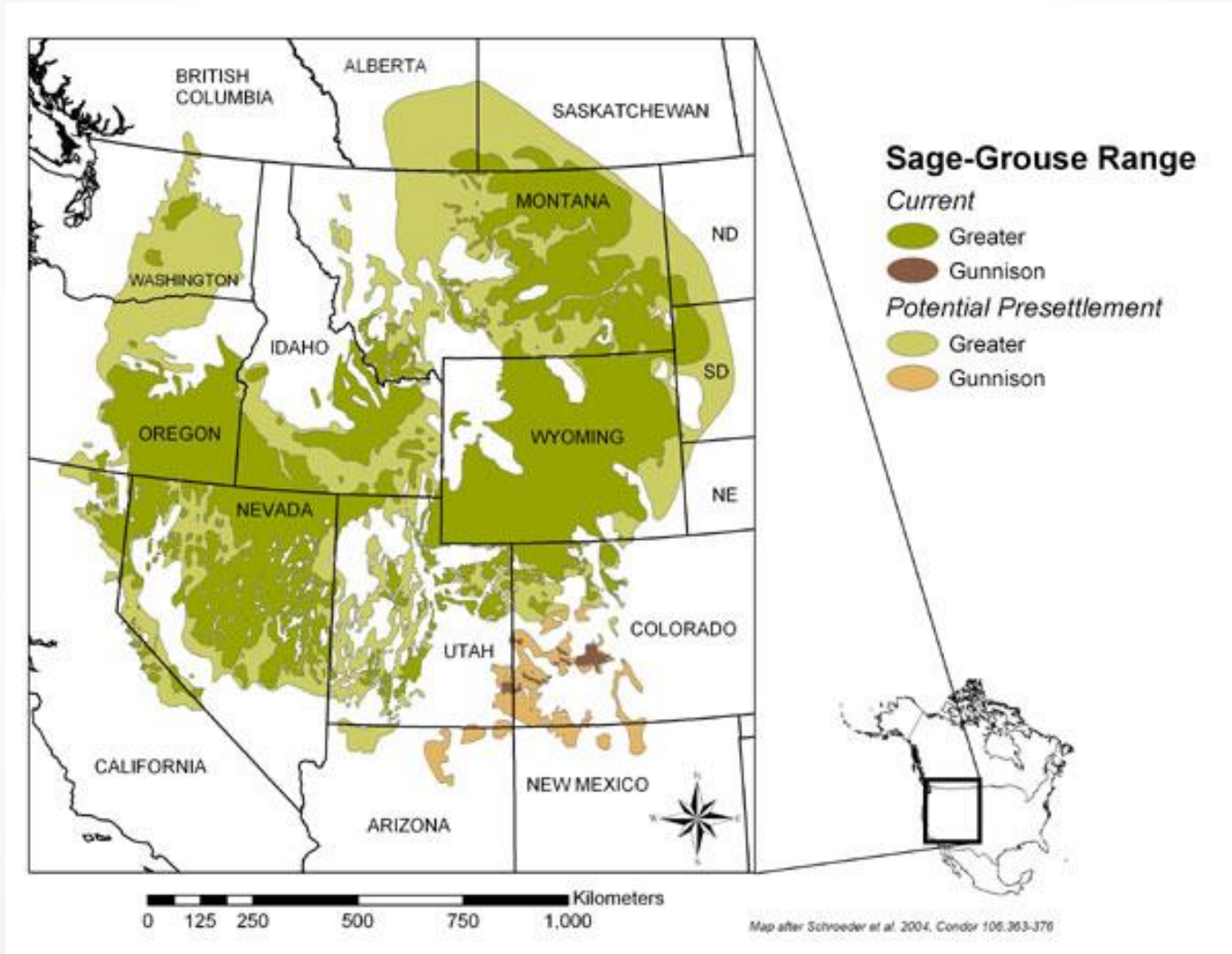
- USFWS 2010 designation
  - “warranted but precluded”
- 3 main factors (Connelly and Braun 2007)
  - Fire
  - Weather
  - **Livestock grazing**





# Background

## ○ Grazing and grouse in the West





# Background

## ○ Influences of livestock grazing on sage grouse habitat (2000 Beck and Mitchell)

- “...identified positive and negative impacts of livestock on sage grouse and habitat.”

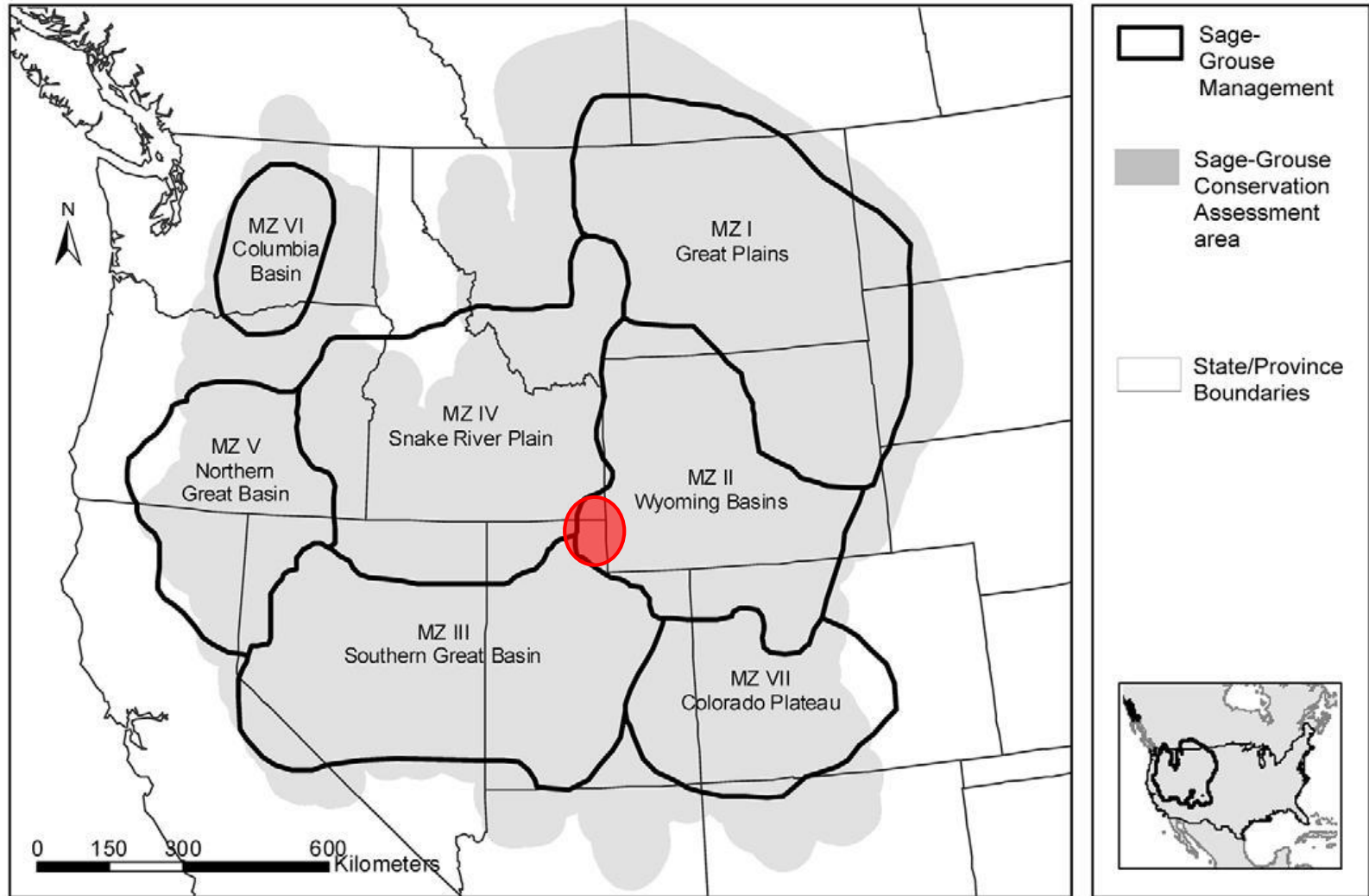
# Background

## ○ Influences of livestock grazing on sage grouse habitat (2000 Beck and Mitchell)

- “...identified positive and negative impacts of livestock on sage grouse and habitat.”
- “Replicated **field experiments are needed** to determine widespread relative effects of grazing treatments...on sage grouse...”

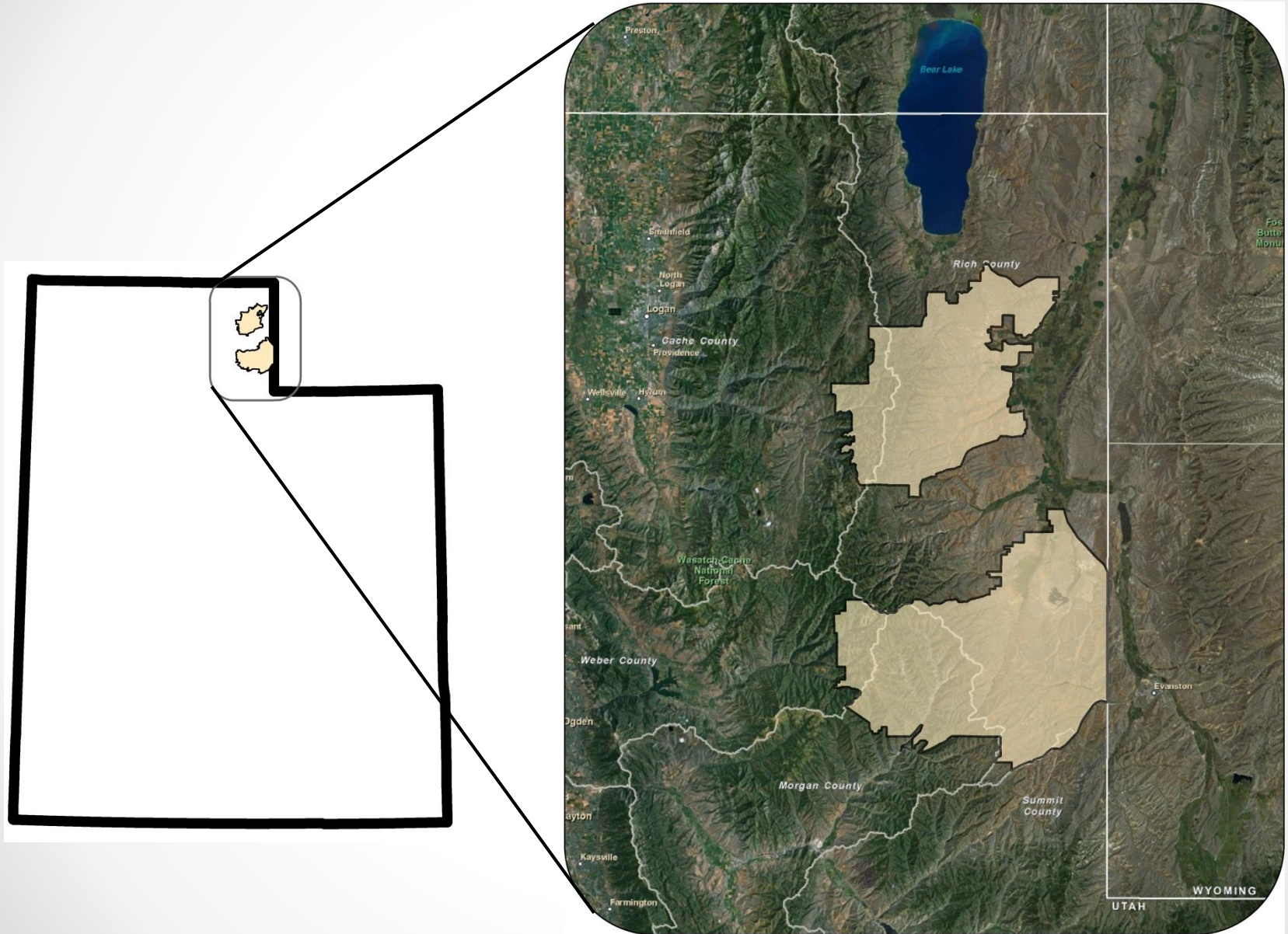
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# Study Design



Connelly et al. 2004

# Study Design





# Study Design

## Three Creeks

- 10 BLM/USFS allotments
- 146,000 acres
- season-long grazing

## Deseret Land & Livestock

- private
- 200,000 acres
- rotational grazing





# Study Design

## Three Creeks

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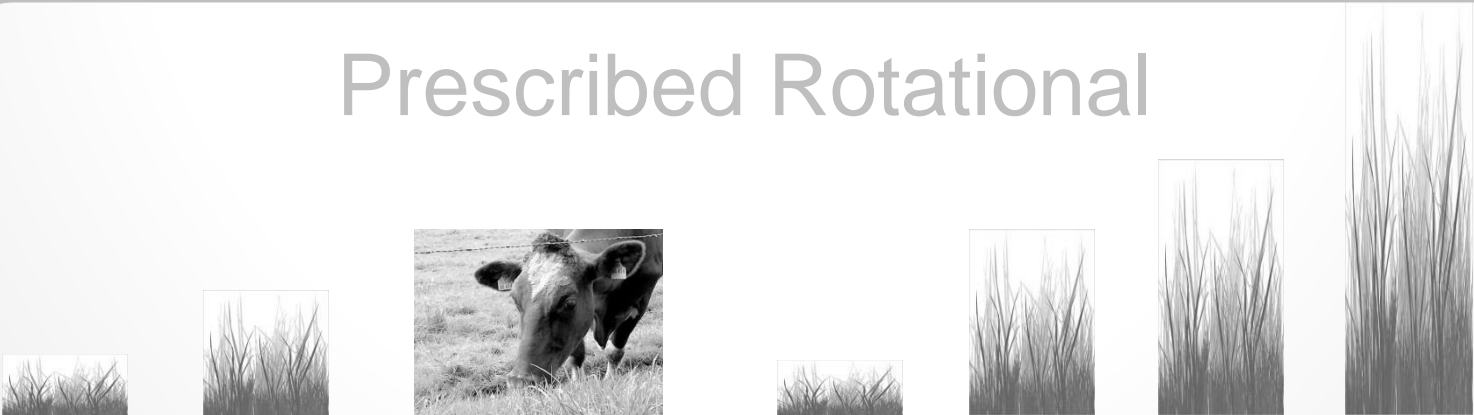
# Grazing Management Systems

## Season-long



March → April → May → June → July → August

## Prescribed Rotational



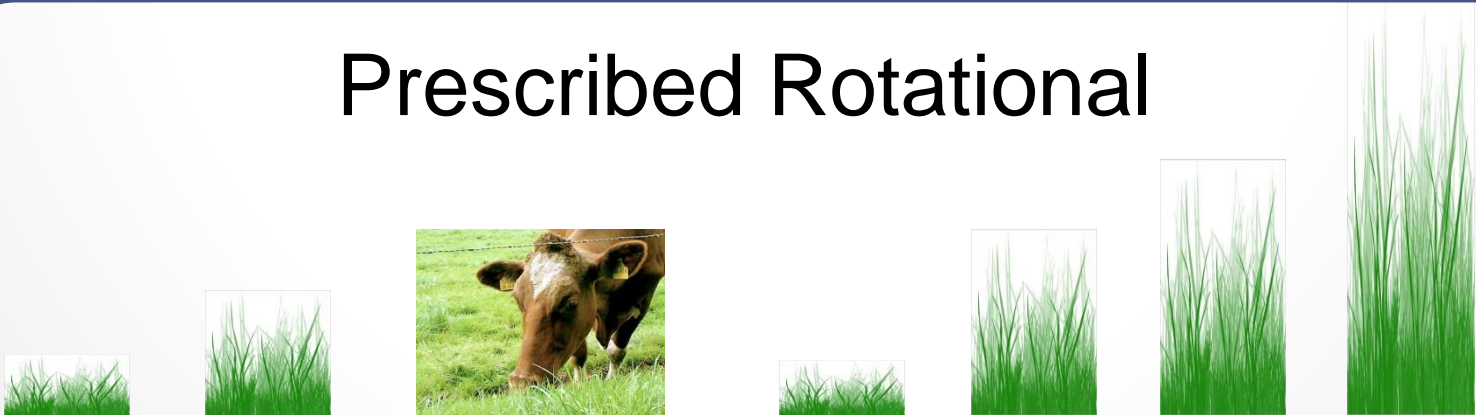
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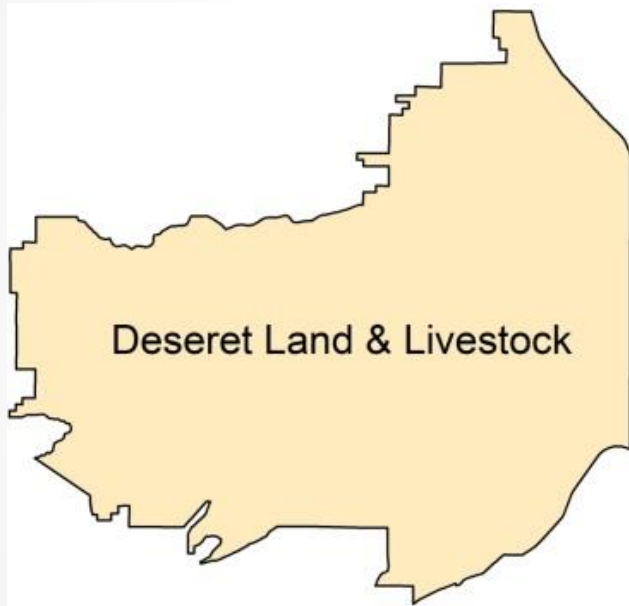
## Prescribed Rotational



# Study Design

## 2012-2015

- Paired study
  - habitat quality, nesting success, brood survival



?

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Treatment



Control



# Hypotheses

- 1) Rotational grazing results in increased grass height/cover and higher abundance of forbs.
- 2) Rotational grazing practices have higher sage-grouse nesting success, survival, and population vital rates.

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# Research Methods

- Lek counts
  - population est./trends
- Vegetation monitoring
  - vegetation composition
  - habitat quality
- Predator survey's
  - predator abundance
  - population impacts
- Radio-telemetry
  - habit selection
  - home range
  - vital rates



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Alan Vernon



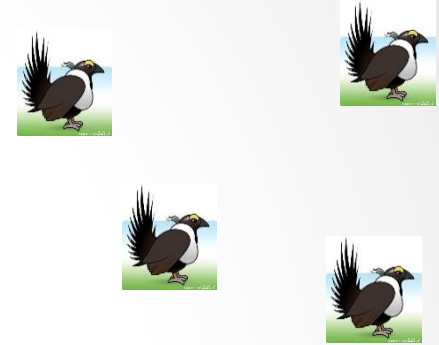
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# Expected Results

## Season-long



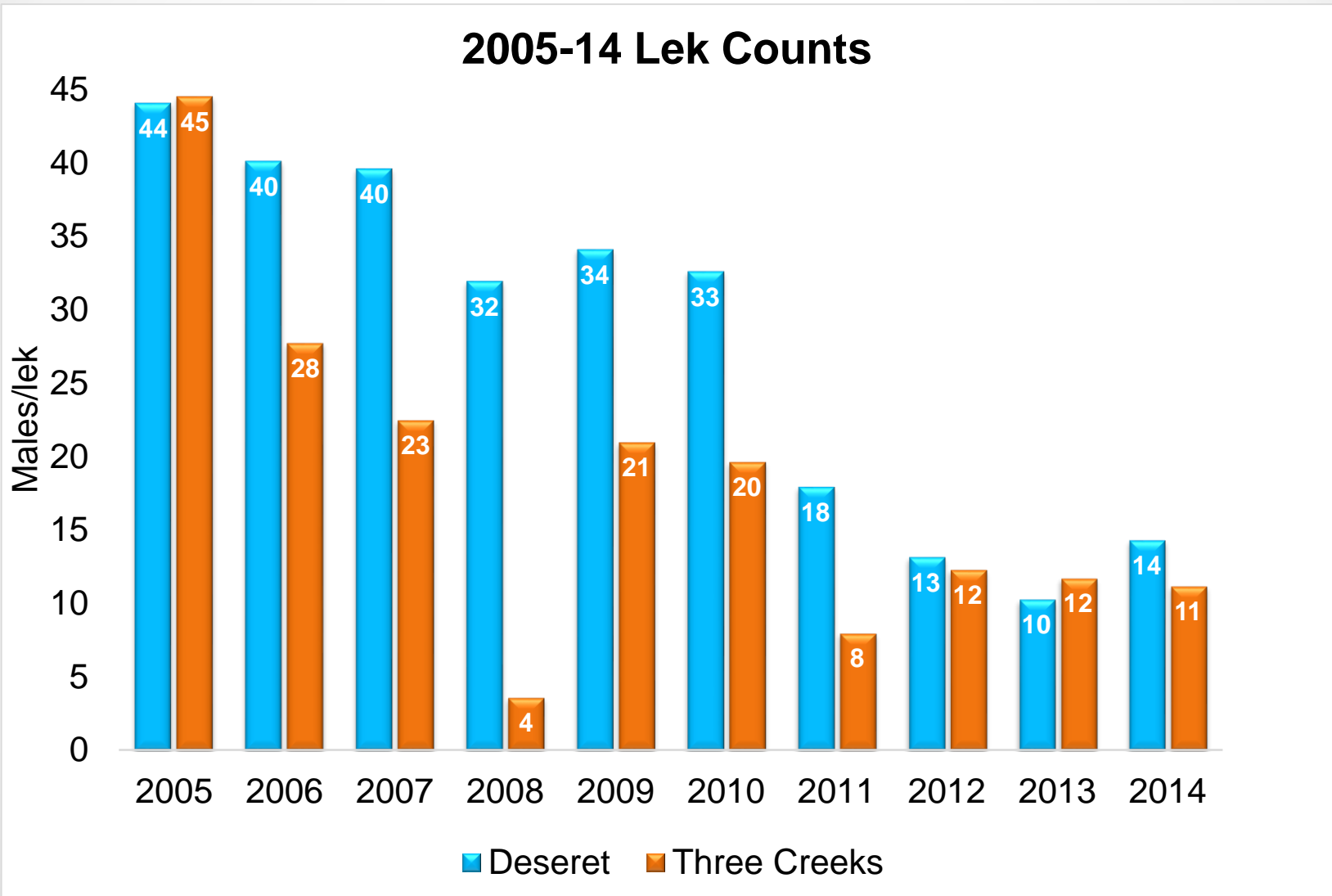
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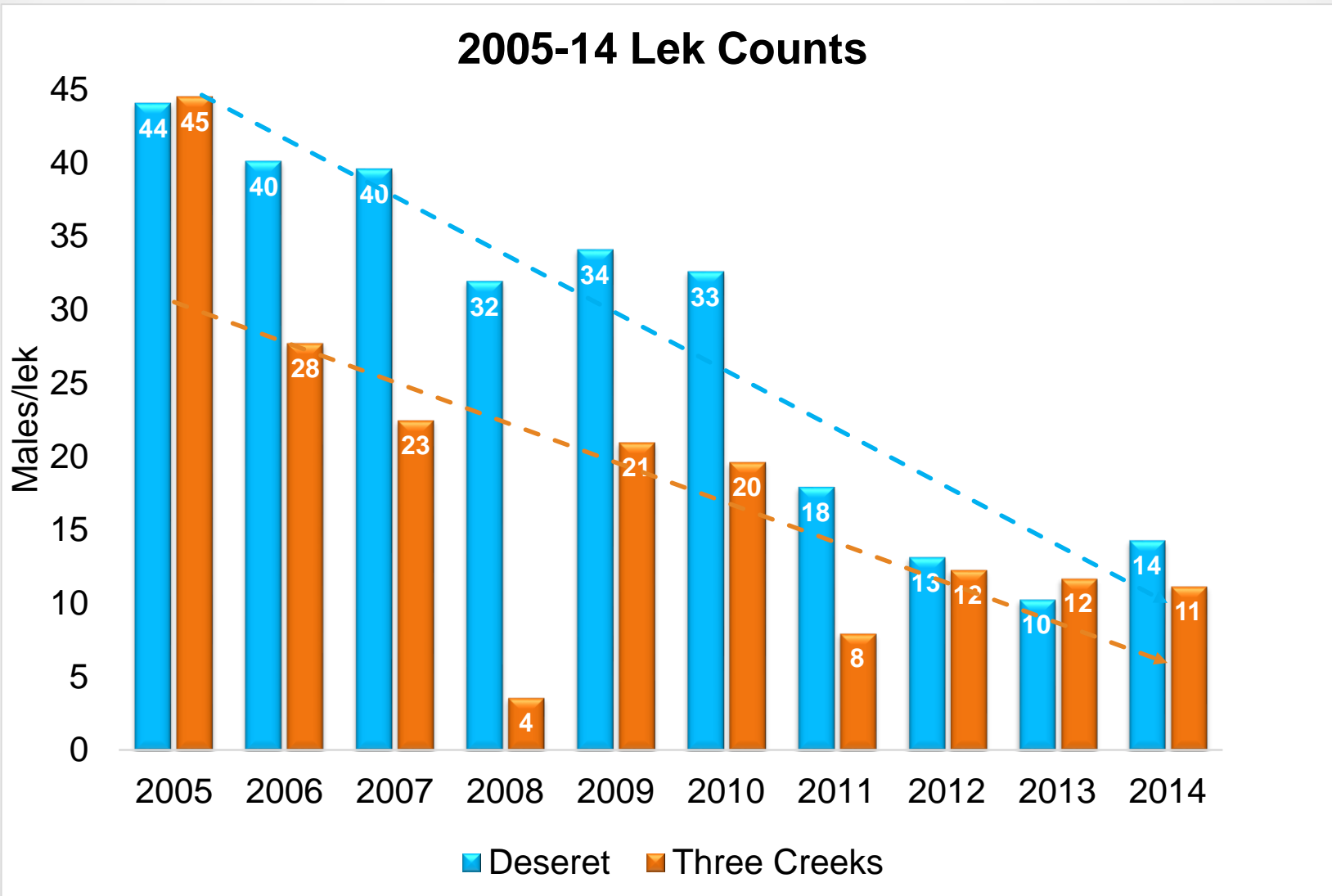


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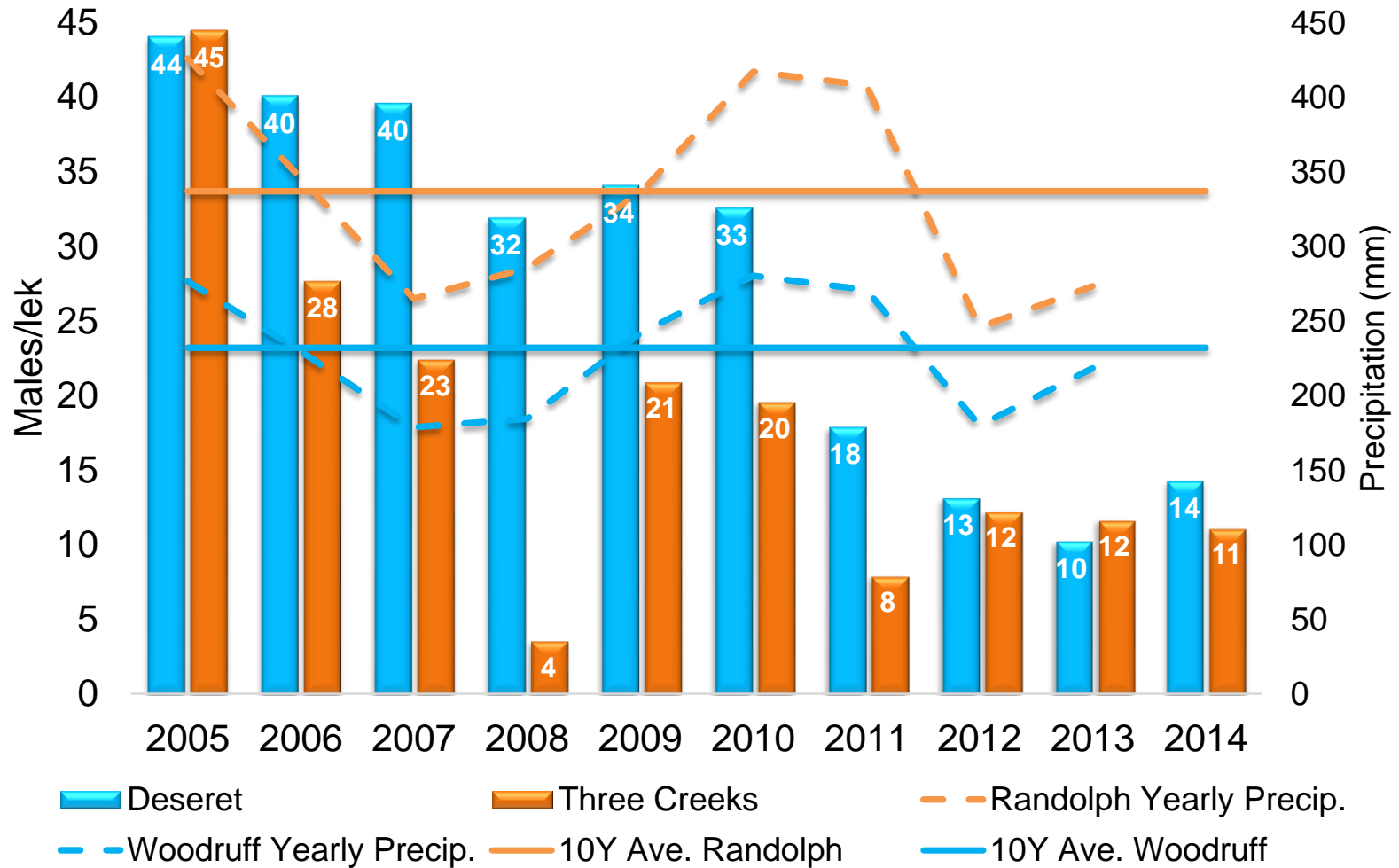


# Preliminary Results



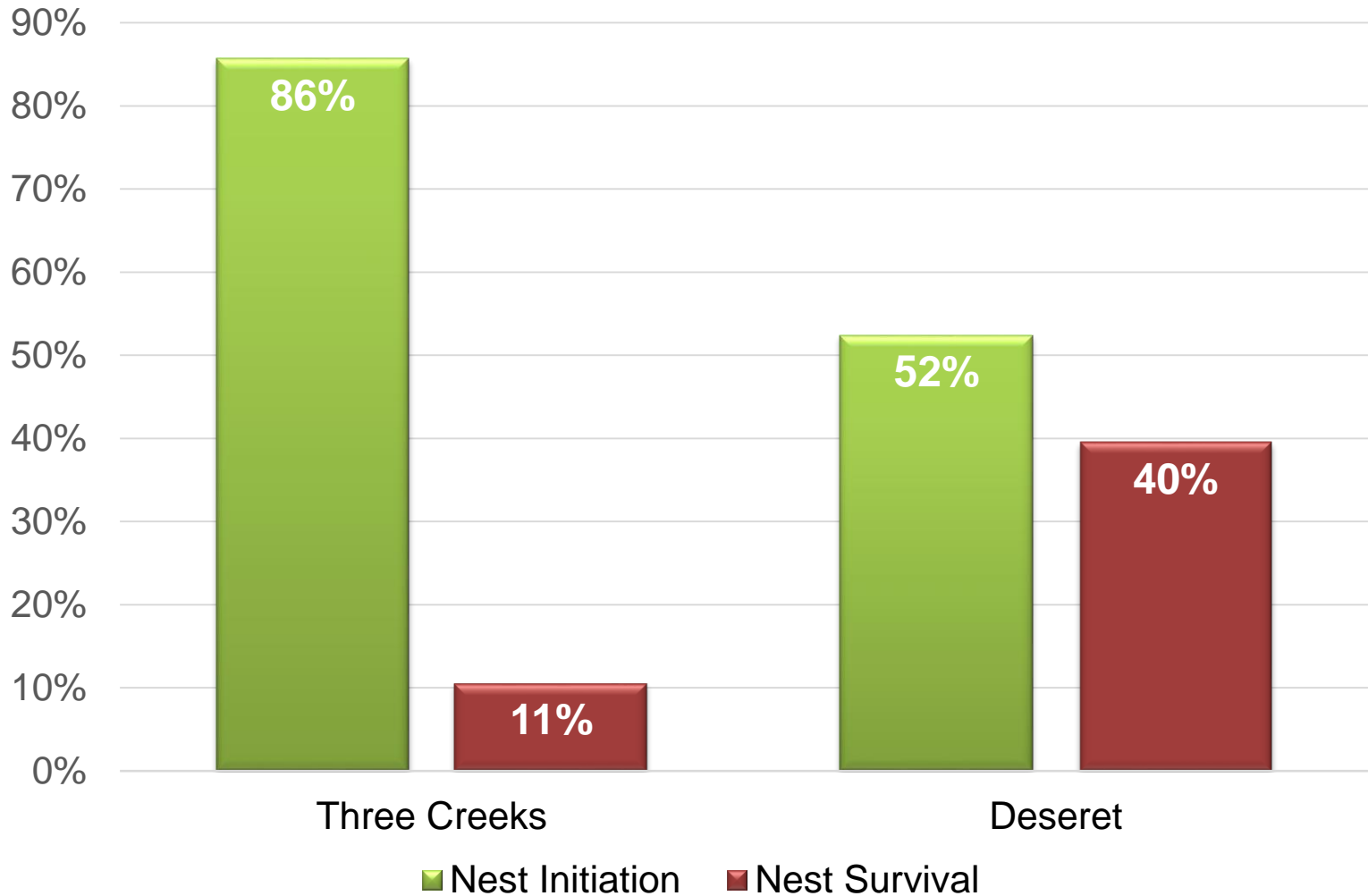
# Preliminary Results

## 2005-14 Lek Counts with Precipitation Data



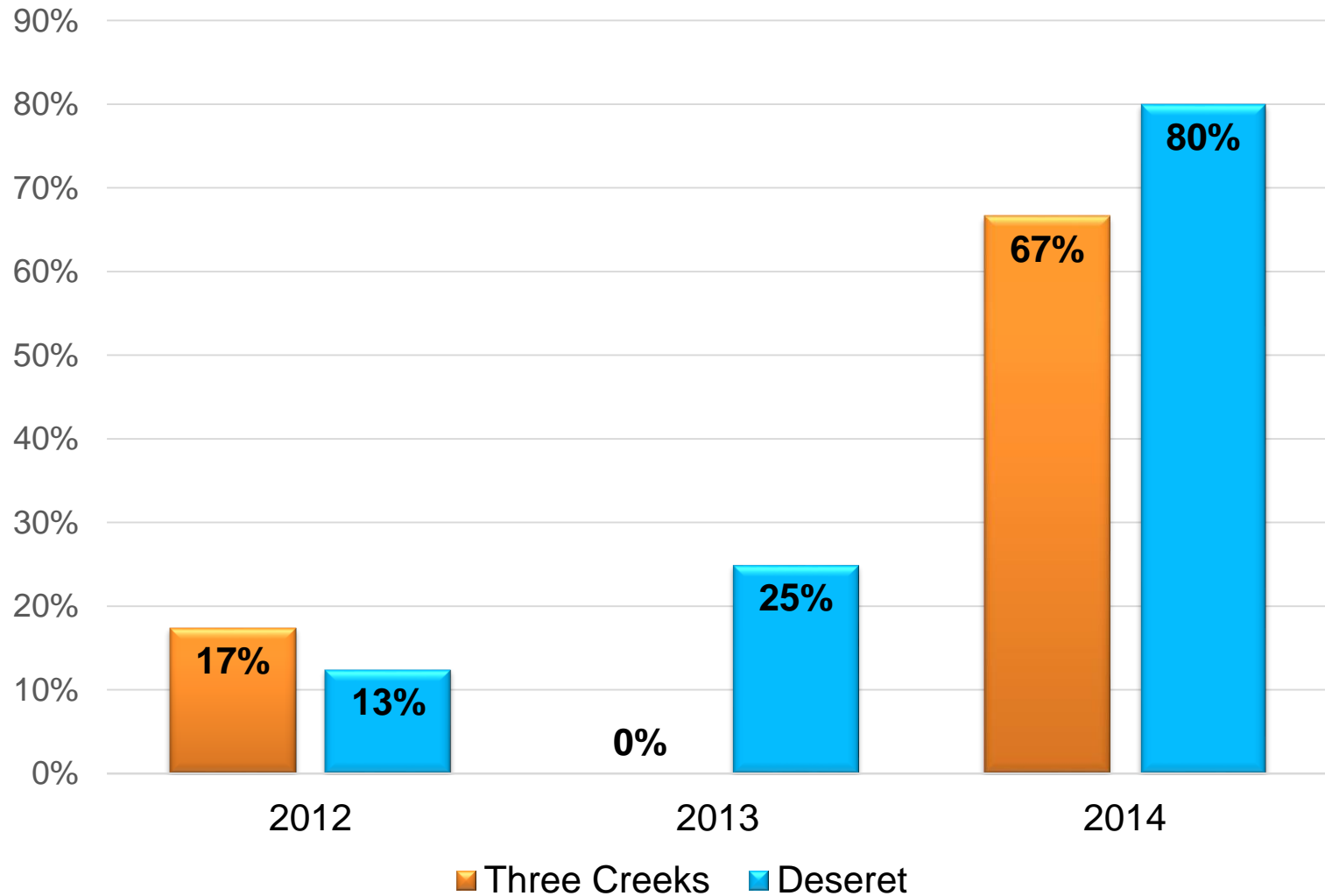
# Preliminary Results

## 2014 Nest Initiation and Nest Survival Rates



# Preliminary Results

## Brood Success 2012-2014





# Vegetation Results

## 2012-2013

	Deseret Land & Livestock					Three Creeks			
	Nest	Paired	Brood	Paired		Nest	Paired	Brood	Paired
<b>%Cover</b>									
Shrub	30.0	26.8	17.7	20.4		29.0	29.8	32.4	28.5
Grass	16.5	13.0	21.8	14.2		16.0	15.5	18.7	12.3
Forb	5.4	5.3	9.3	7.4		7.2	7.3	9.4	8.2
Litter	73.0	70.0	75.0	74.5		70.4	72.8	72.9	65.5
Bare Ground	21.3	24.2	19.4	22.3		16.5	19.2	17.7	22.4
<b>Height (cm)</b>									
<b>Grass</b>	<b>11.8</b>	<b>11.8</b>	<b>12.2</b>	<b>12.5</b>		<b>9.5</b>	<b>9.7</b>	<b>11.5</b>	<b>10.6</b>
Forb	4.6	4.5	5.8	6.0		4.2	4.6	5.6	5.0
Robel (cm)	57.2	49.4				58.1	49.0		

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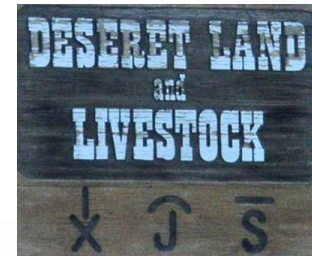
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# Thank You!



Rich County Commission



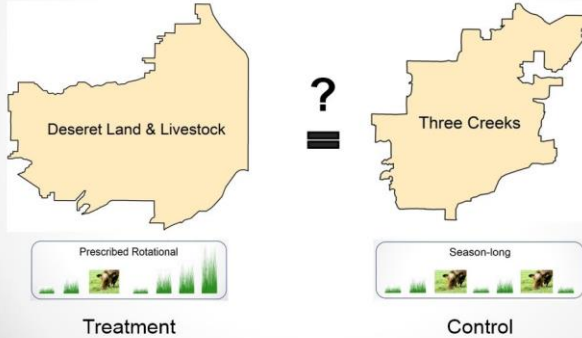
# Questions

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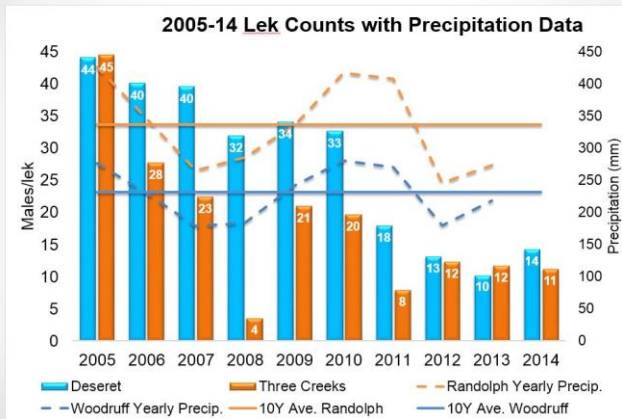


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