

White Bark Pine Regeneration

Theresa Jain, John Schwandt, Paul Zambino



Seedling Versus Direct Seed

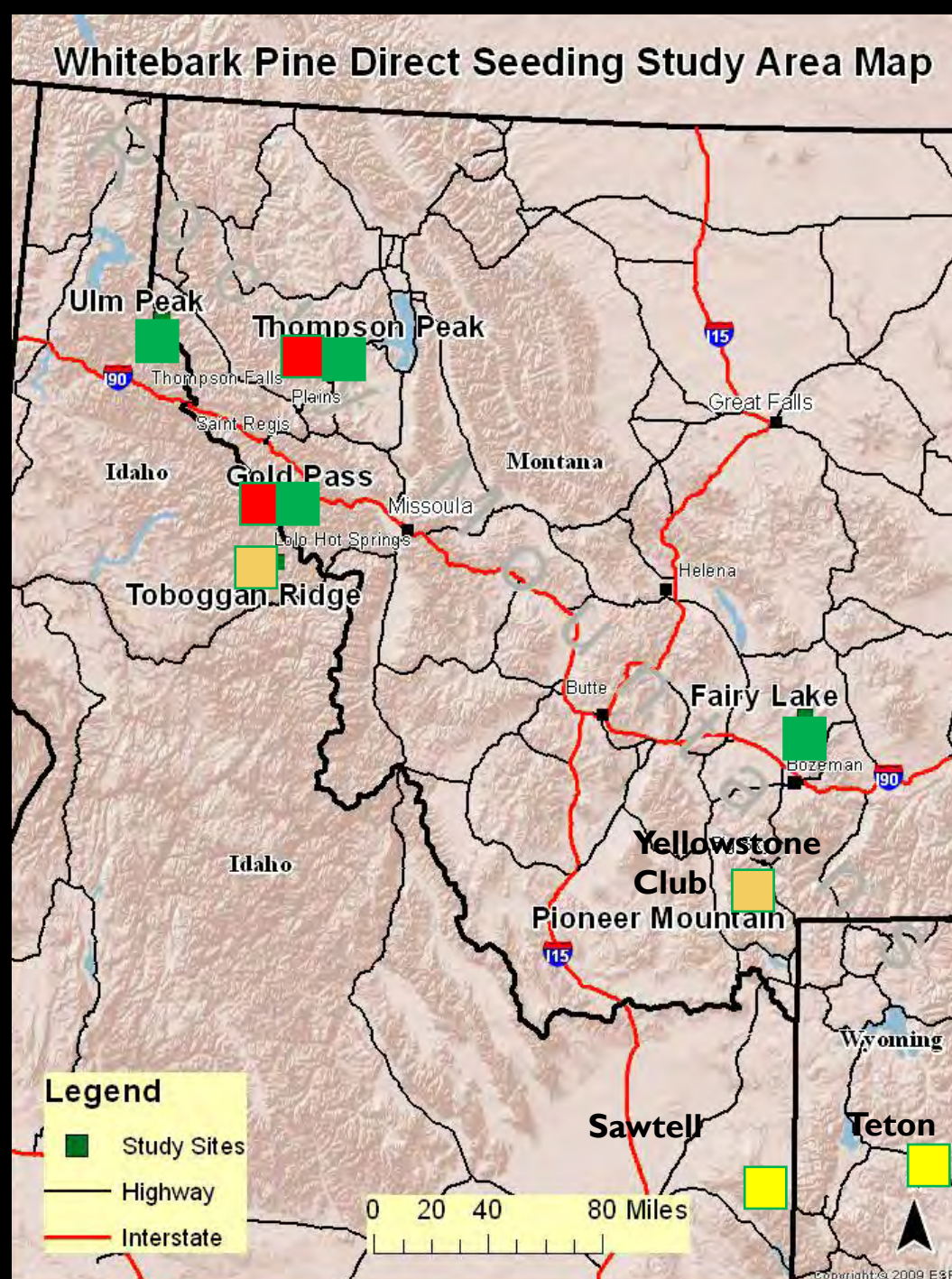
Direct Seeding

2009, 2010, 2012

	Caged	Not caged
Warm Stratified	X	X
Scarified	X	X
Warm stratified/ scarified	X	X

2013

Time	Warm stratified		Not Stratified	
	0.75"	1.5"	0.75"	1.5"
Late June	X	X	X	X
Late July	X	X	X	X
Late Sept.	X	X	X	X



Planted Seedlings



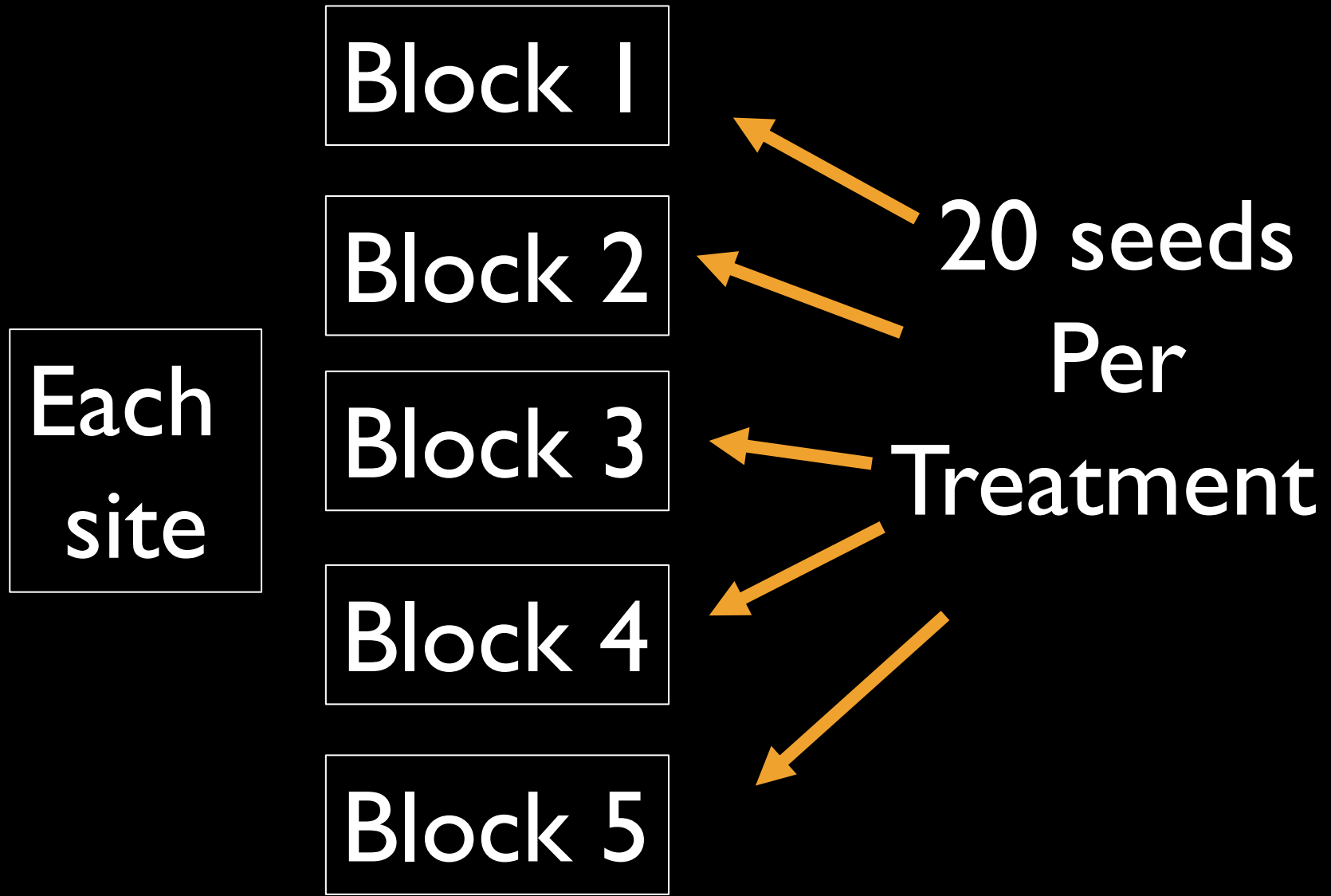
Seed Caches

3 seed per cache



Experimental Design

2009, 2010, 2012



Direct Seed Results

Year Implemented	2014 Measurement
2009	5-year
2010	4-year
2012	2-year
2013	1-year

Direct Seeding

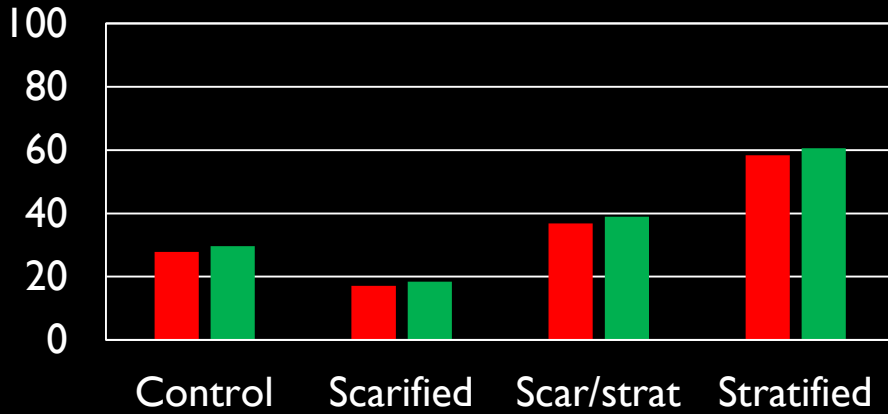


Caged Seed versus Not Caged Seed

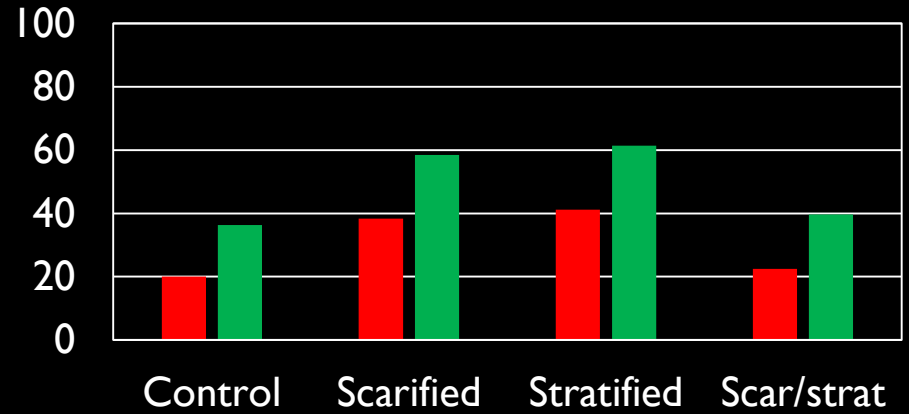


Germination: Cage vs No Cage

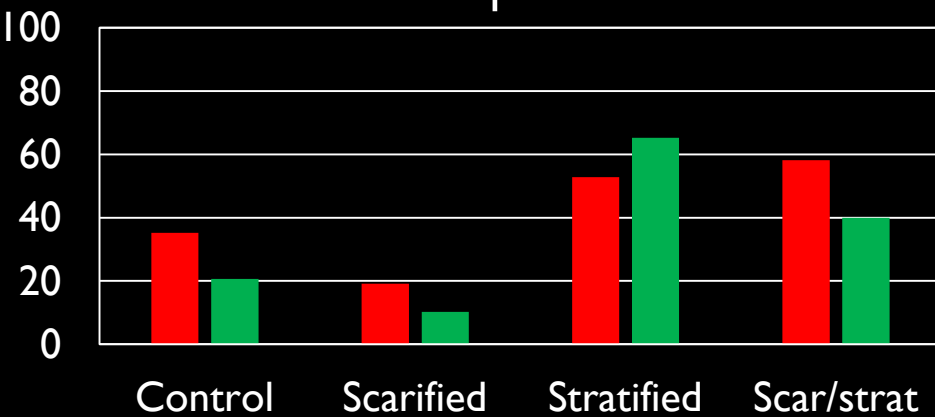
Gold Pass



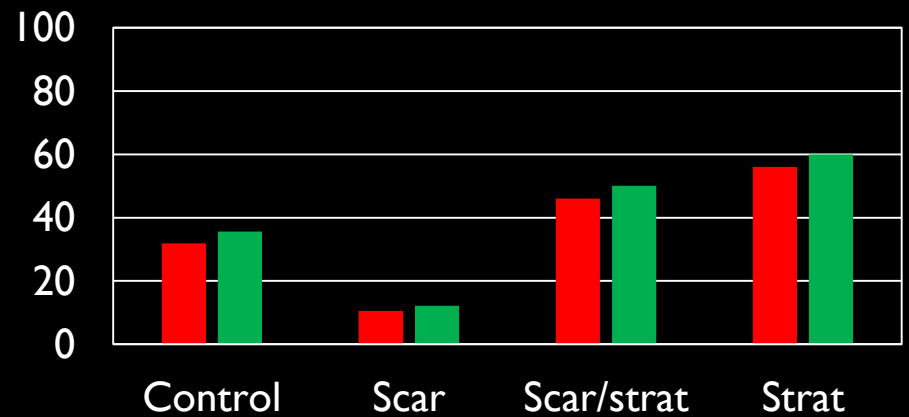
Yellowstone Club



Thompson Peak



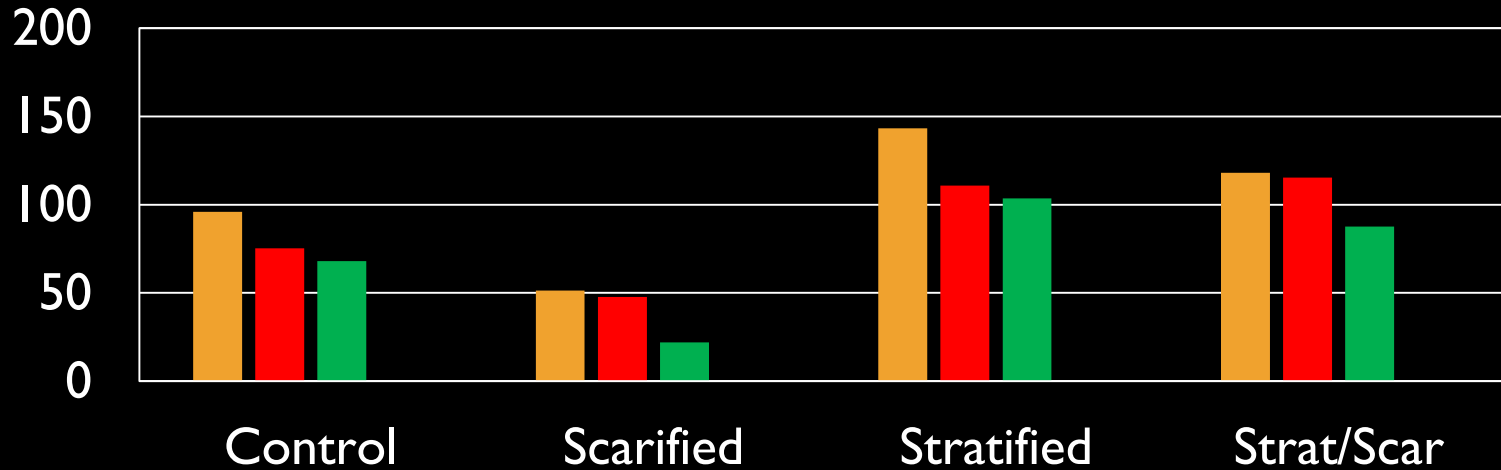
Ulm Peak



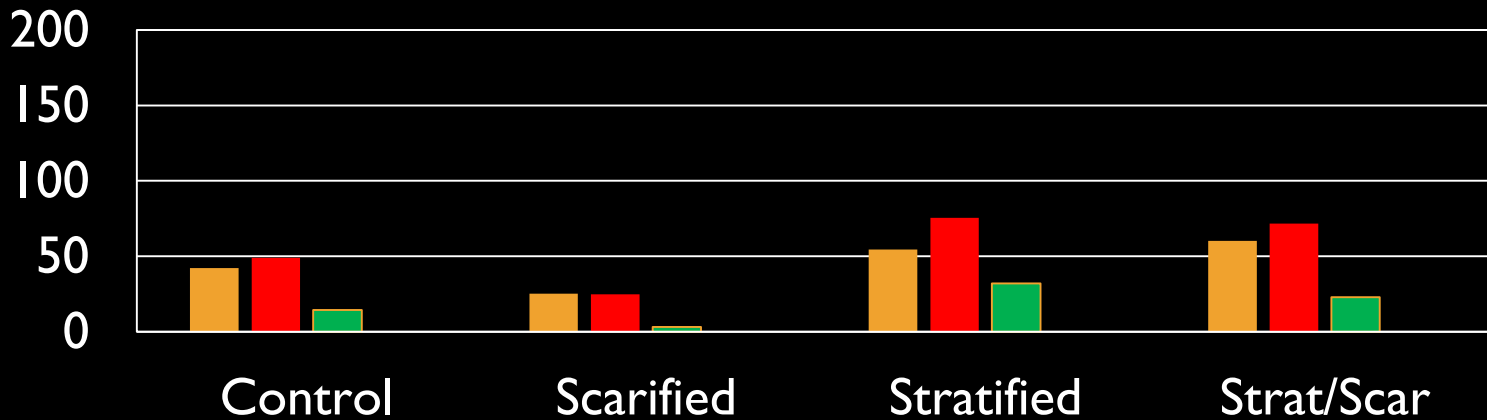
Germination



5-Year Germination Results

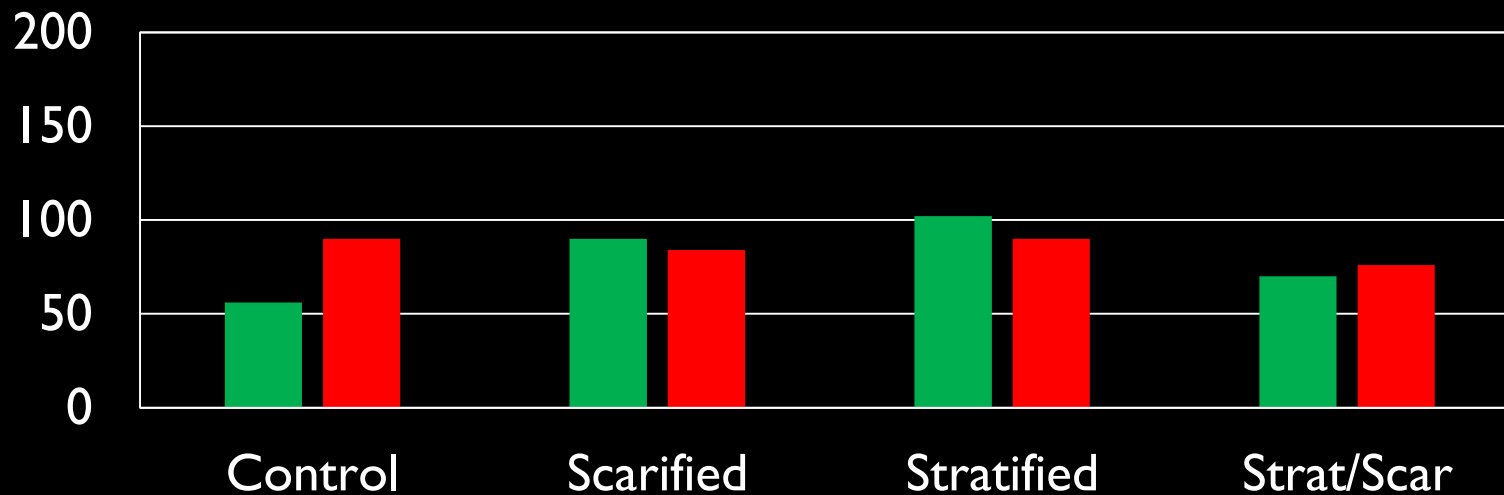


5-Year Germinant Survival

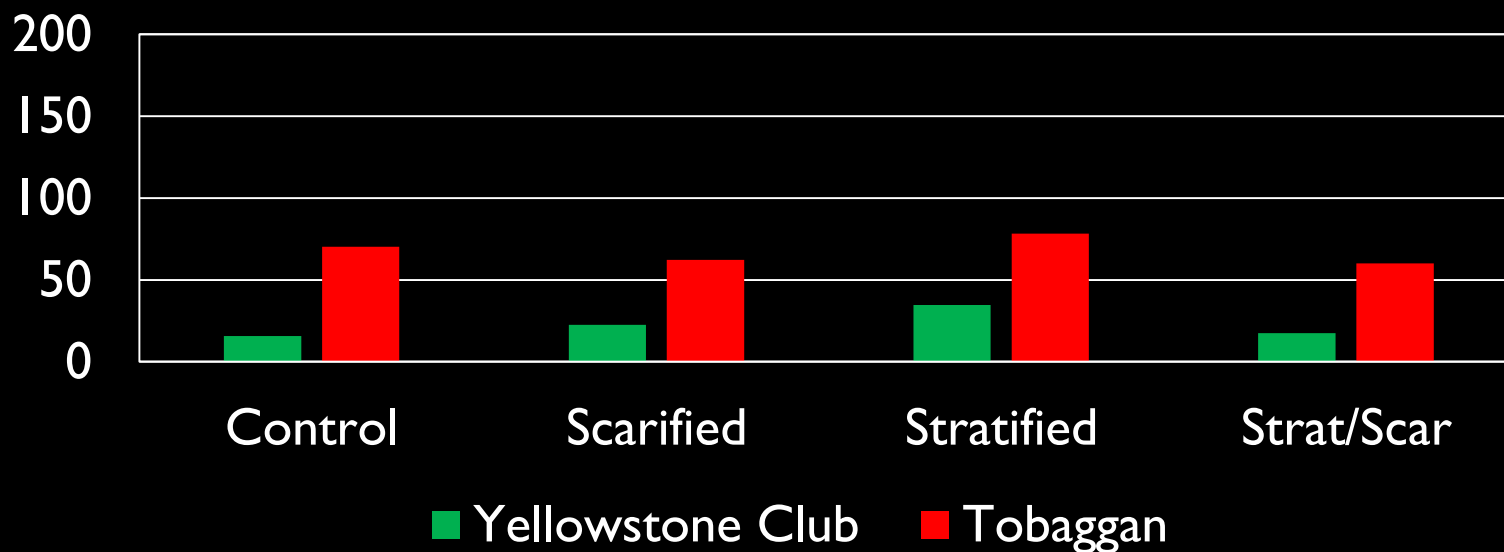


■ Gold Pass ■ Thompson Peak ■ Ulm ■ Ferry Lake

4-Year Germination Results



4-Year Germinant Survival



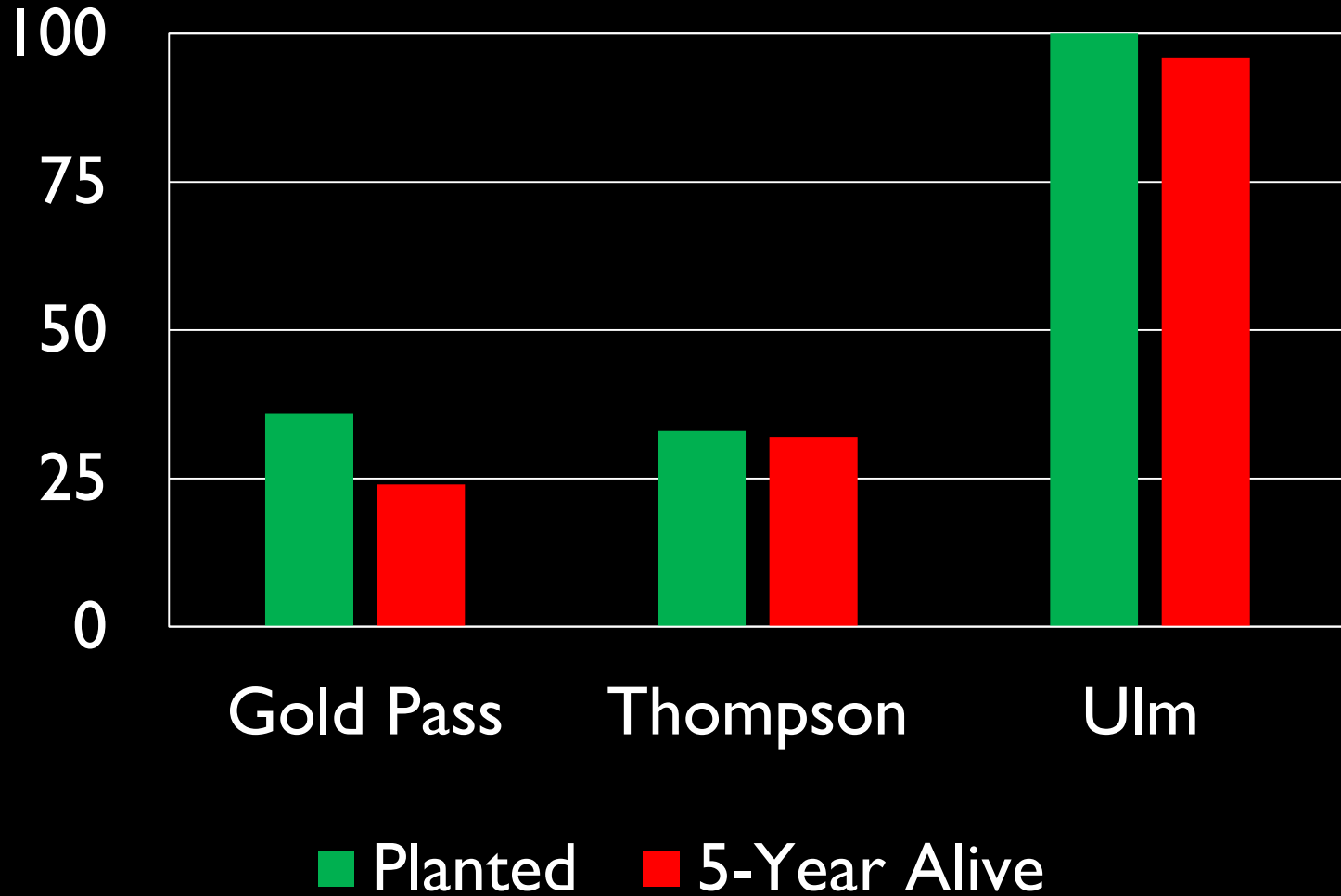
Seed Caches
Poor Response
Individual Seeds
More Successful

Seedlings

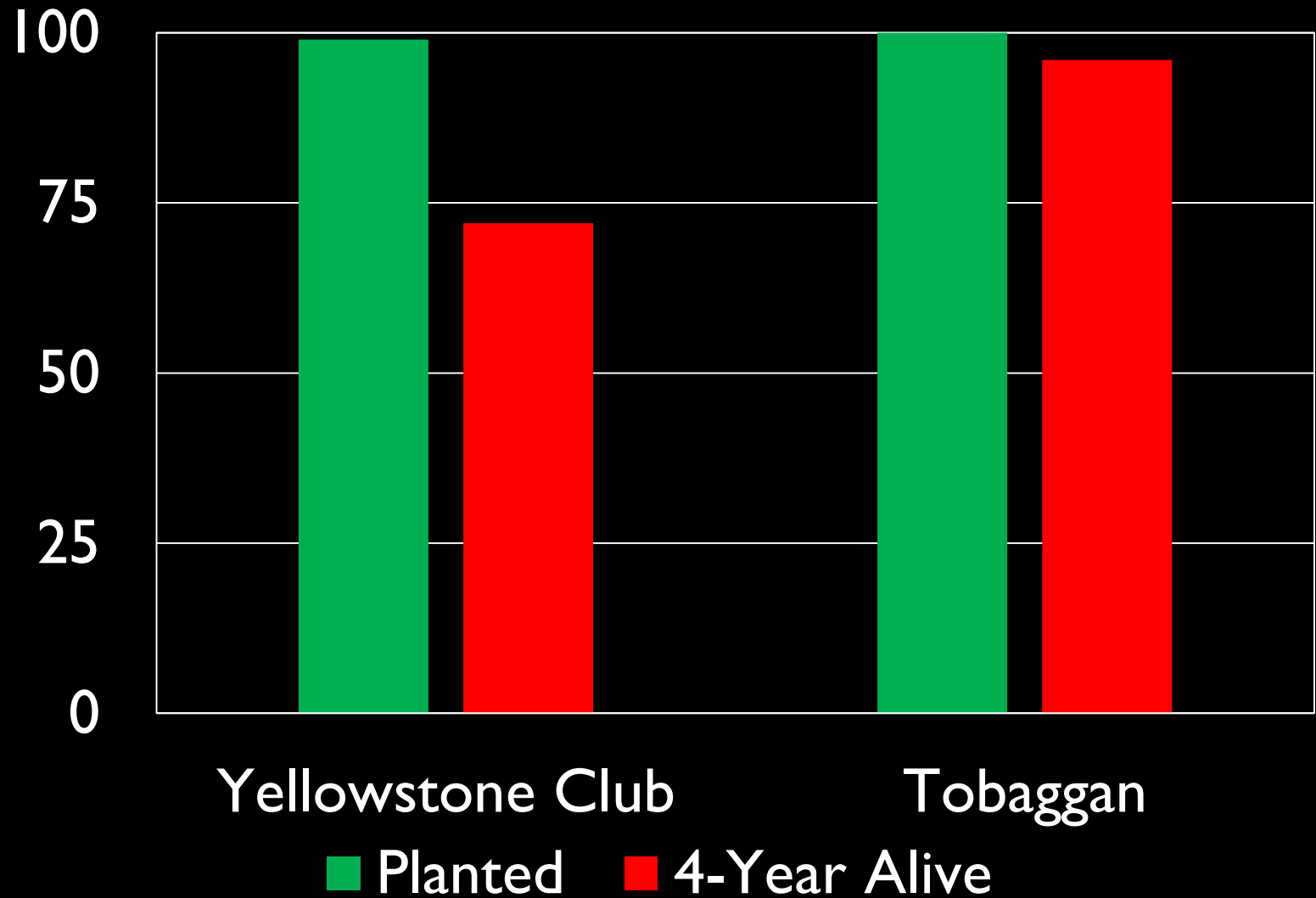


Seedling Survival

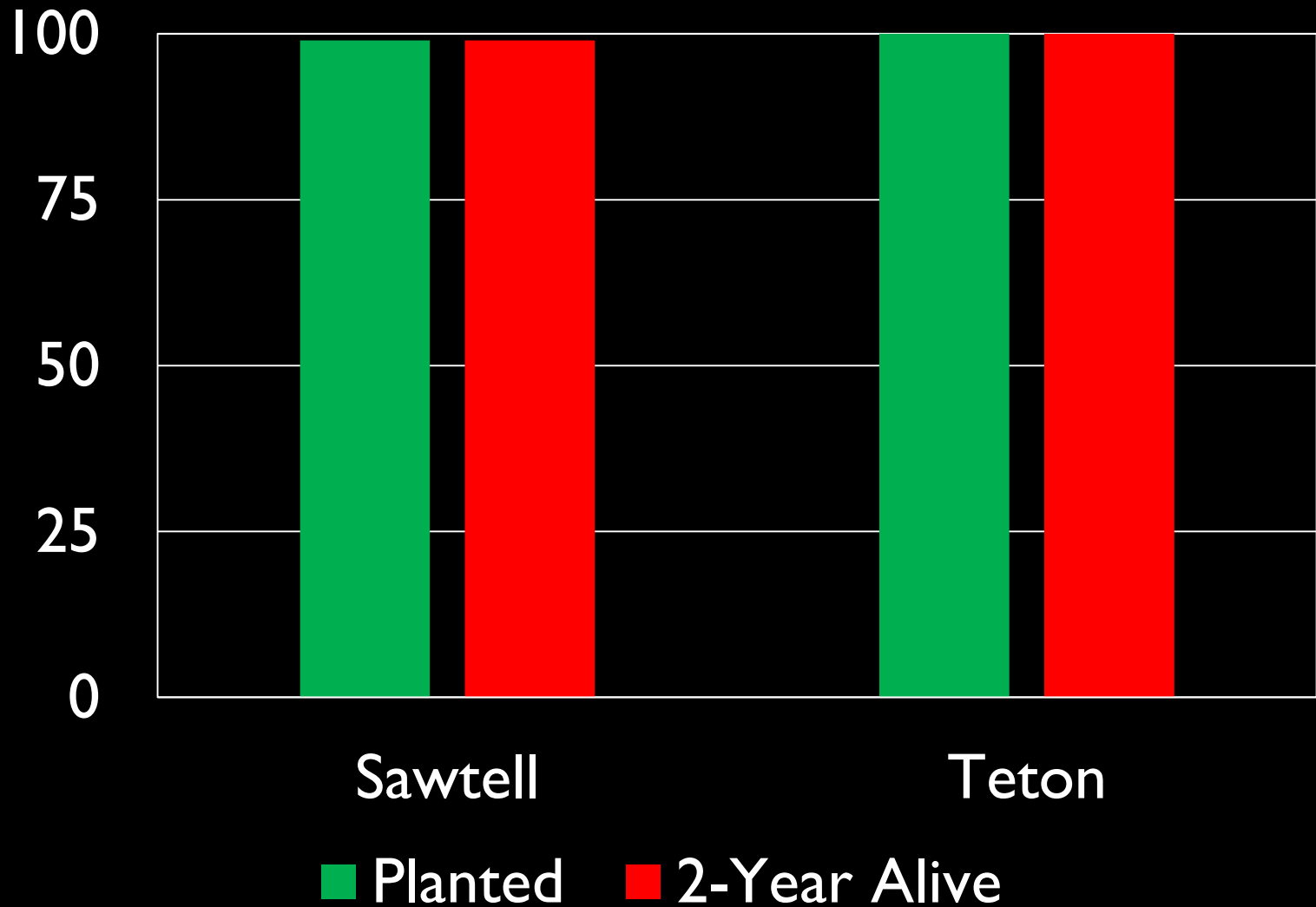
5-Year Results



4-Year Results



2-Year Results



Conclusion

