

# Brush management of a whitethorn acacia-encroached grassland enhances resource-conserving 'shrub islands'

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## RESEARCH QUESTIONS

Five years after a whitethorn acacia shrubland was treated with **tebuthiuron** and transitioned to a grassland:

How did vegetation changes differ between areas previously occupied by shrubs and their interspaces?

Did those changes influence the potential for runoff generation and splash-sheet erosion processes?

## METHODS

Site: Walnut Gulch Experimental Watershed  
Treatment: **Tebuthiuron** (0.84 kg/ha a.i); 2013

Vegetation Sampling: line-point intercept  
Rainfall Simulations: Successive events @ 64, 100, & 120 mm/hr for 45 min; n=41

Overland Flow Simulations: Successive trials @ 15, 30, & 40 L/min for 12 min; n=12

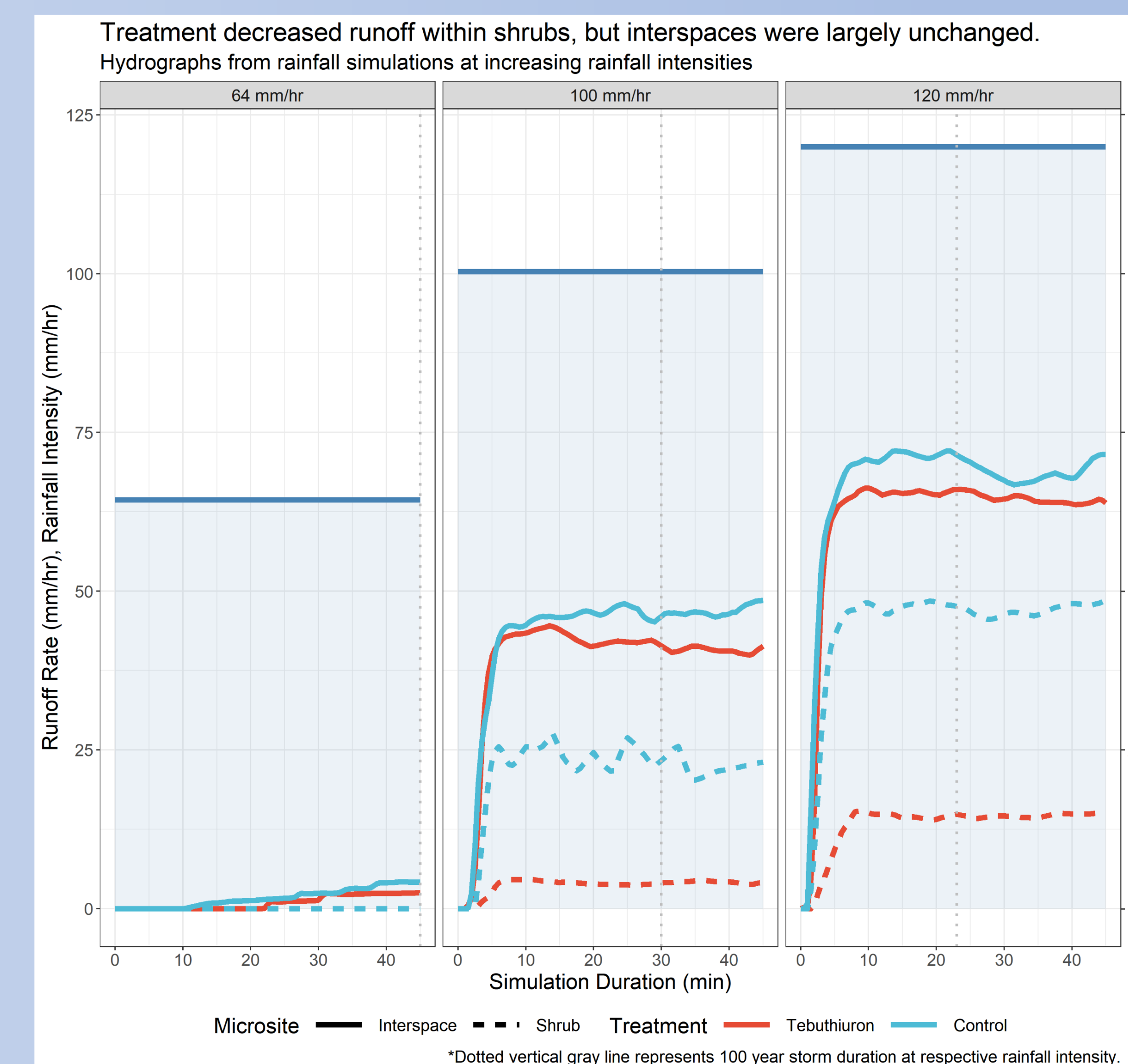
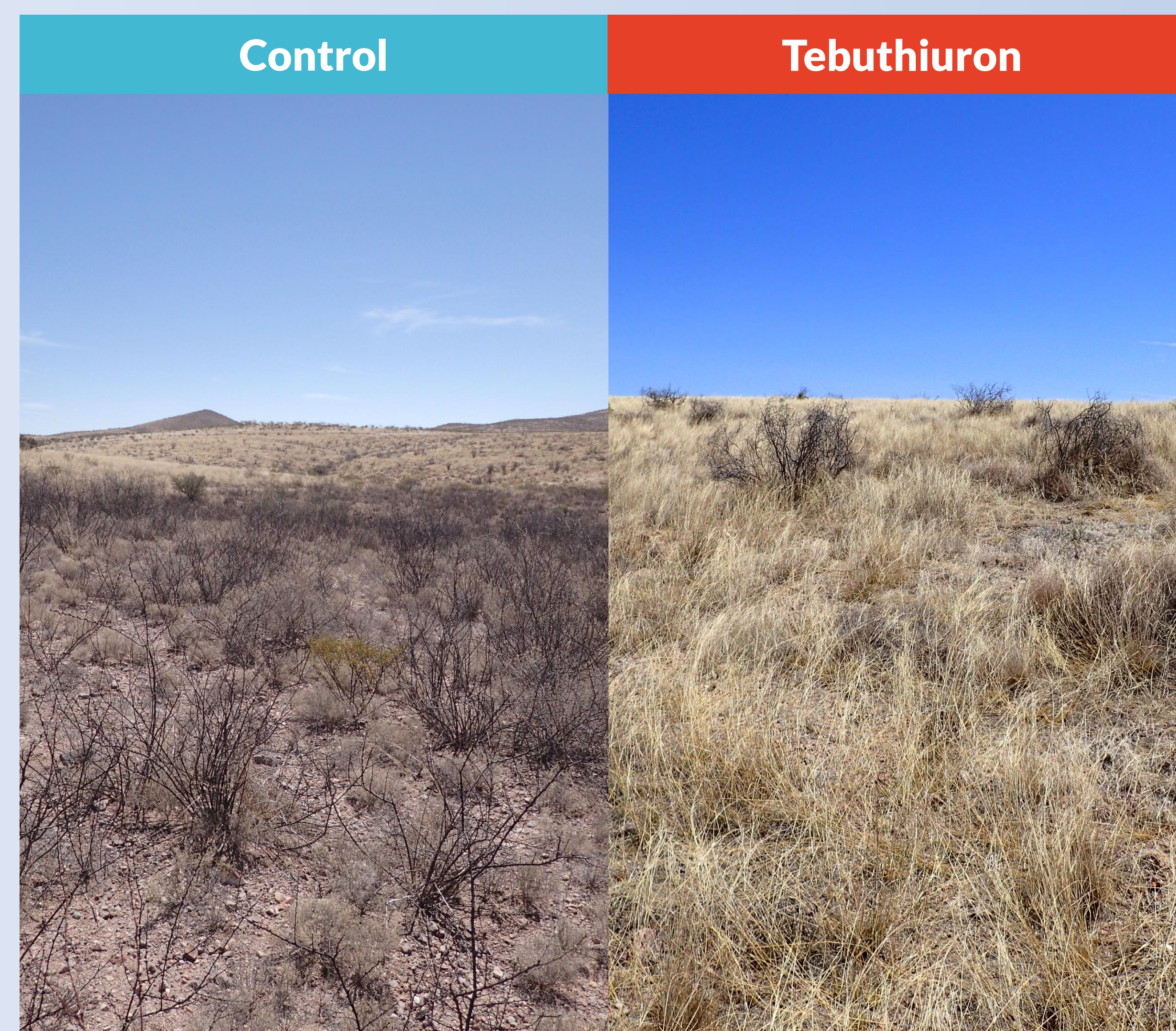


## RESULTS

Metric	Control	Tebuthiuron
Lehmann lovegrass	0%	40%
Shrub cover	40%	<1%
Total Runoff**		
Shrubs	33 (mm) +/- 3	10 mm +/- 3
Interspaces	50 (mm) +/- 2	47 +/- 2
Total Sediment**		
Shrubs	52 (g/m <sup>2</sup> ) +/- 12	6 (g/m <sup>2</sup> ) +/- 1
Interspaces	57 (g/m <sup>2</sup> ) +/- 9	47 (g/m <sup>2</sup> ) +/- 6
Concentrated Flow	NS*	NS*

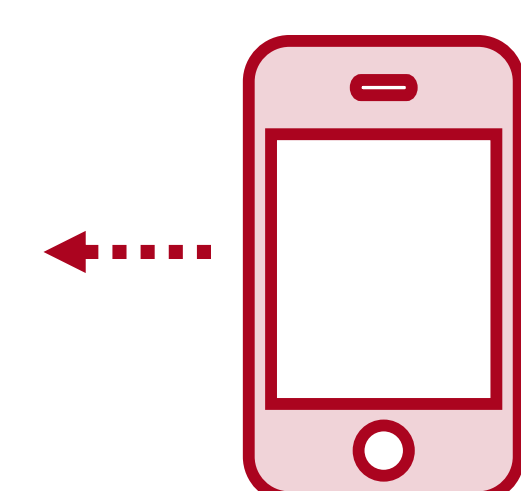
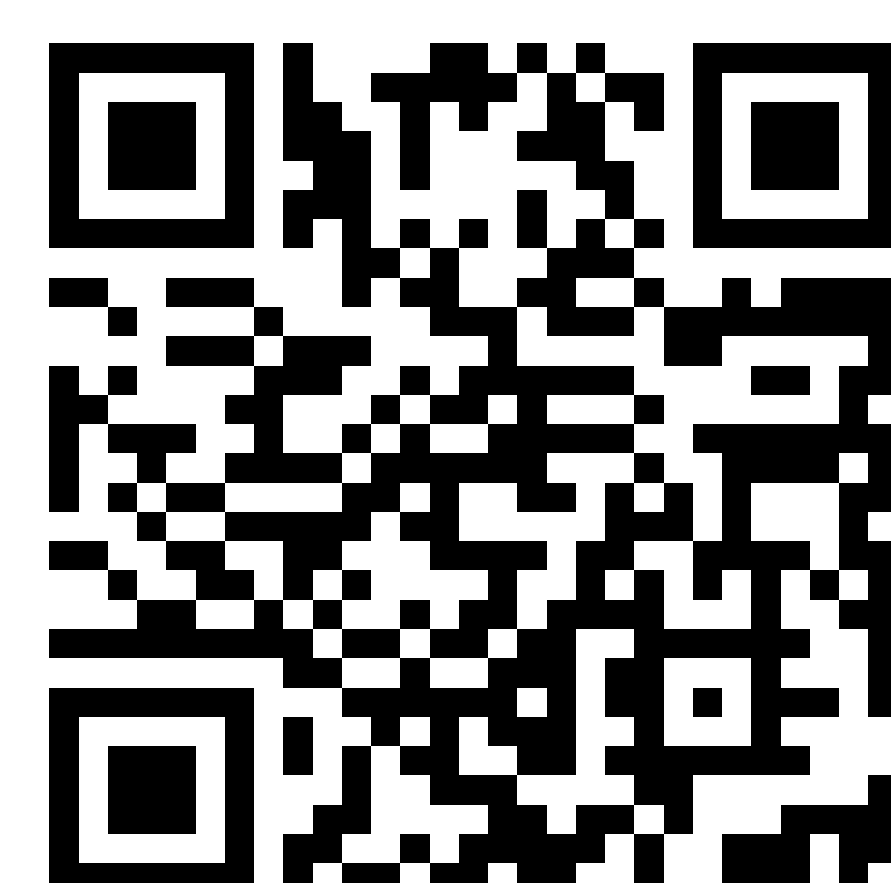
\*Differences in concentrated flow measurements were not statistically significant, except for decreased cumulative runoff and sediment during the 40 L/min trial within the treated area.  
\*\*Values reported from the 120 mm/hour event.

# Remnant fertile islands increase infiltration capacity five years post-brush management



## CONCLUSIONS

- Areas previously occupied by shrubs, preferentially recruited and expanded grass cover.
- These “remnant fertile islands” have enhanced infiltration capacity and conserve resources more effectively post-treatment.
- **Vegetation** changes in interspaces between shrubs were **not considerable** enough five years post-treatment to significantly impact overland flow and splash-sheet runoff and erosion processes.



We're running an **experiment**. Let us know what you think of **non-traditional poster** formats.



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## The Side Bar

For those who want to dig into the details.

