Spotted Knapweed Responses to Fire: Experimental Evidence from Greenhouse and Field Studies

Burning Issues Symposium II

Invasives and Fire

January 13, 2015

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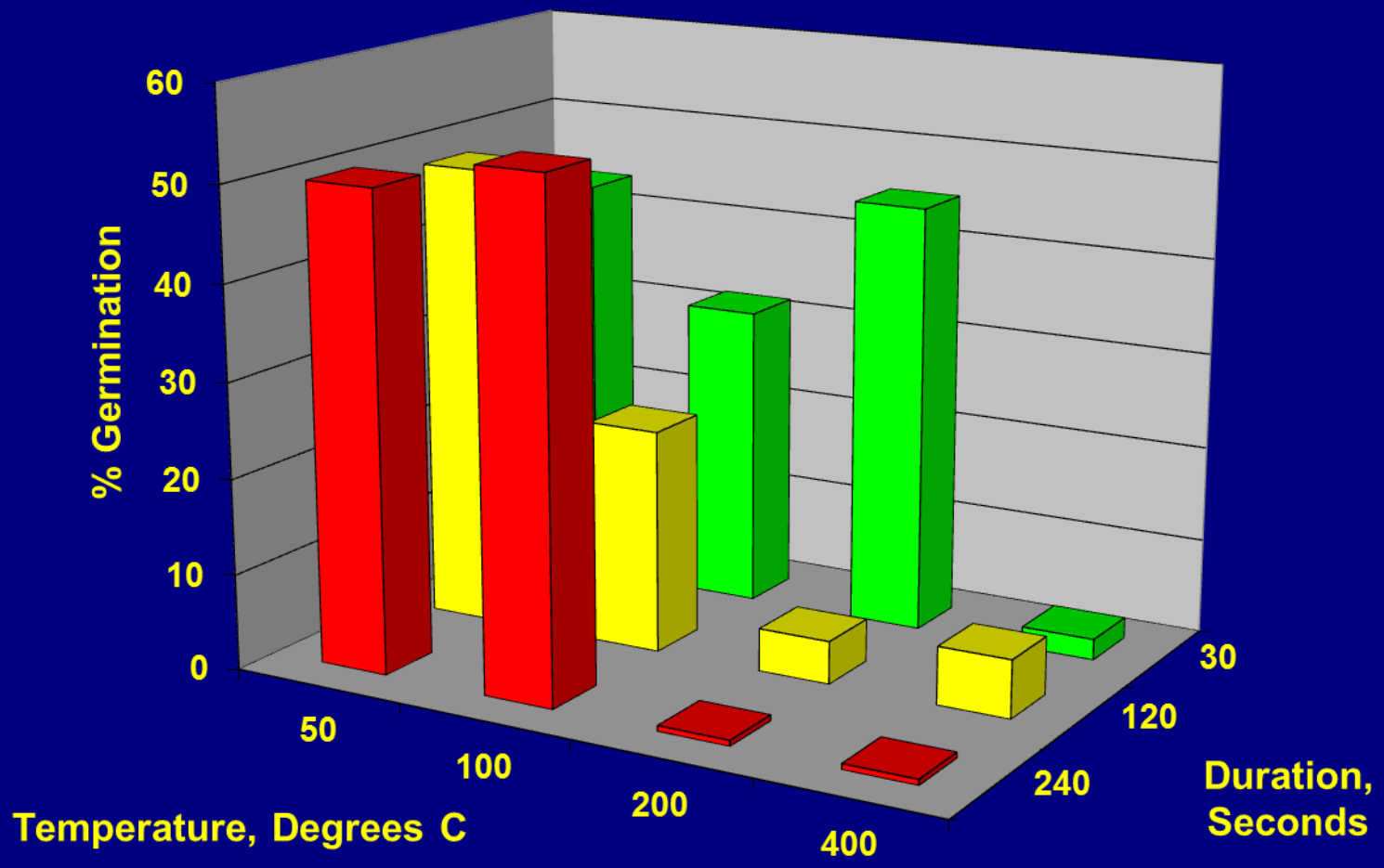
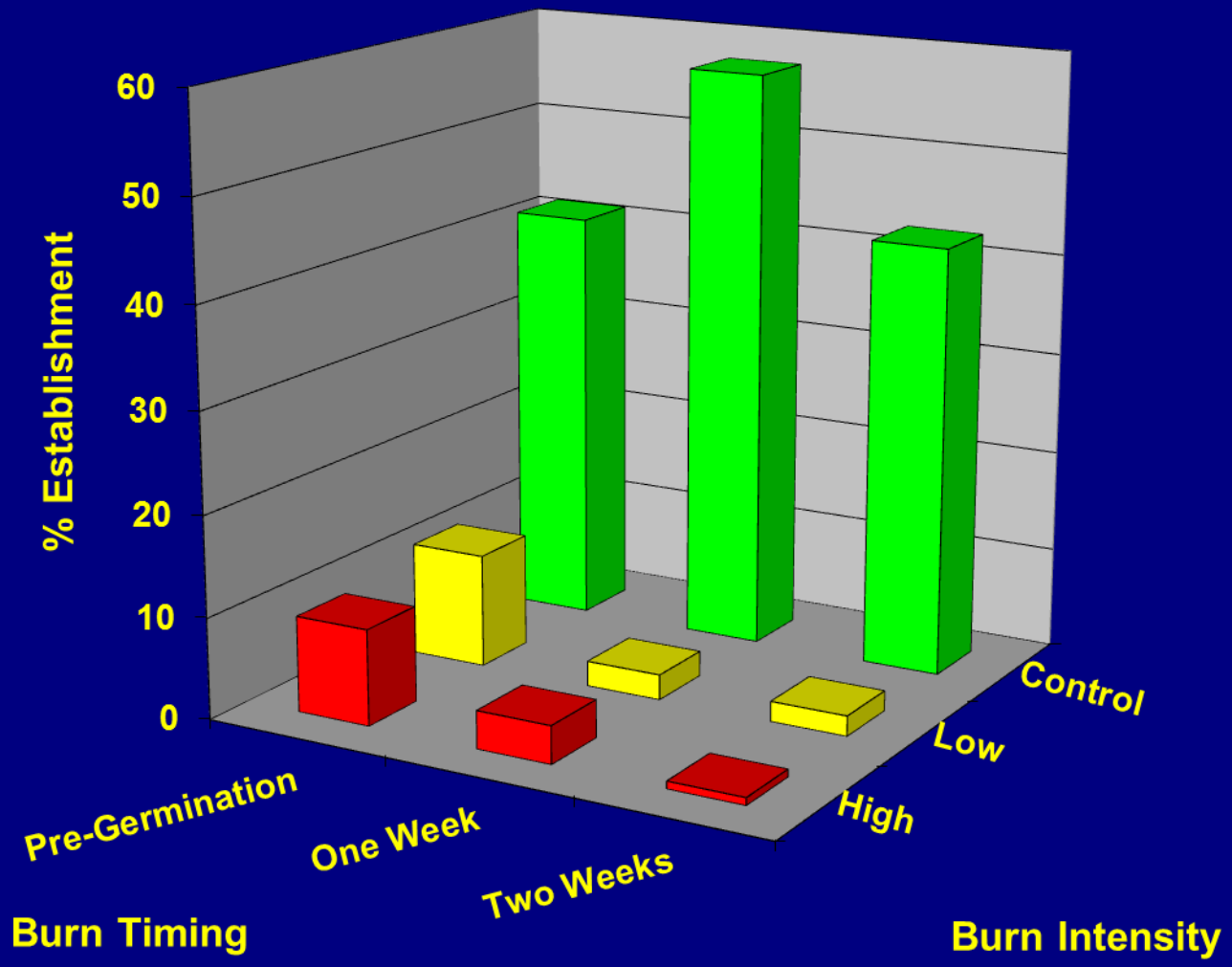
Experimental Effects of Burning on Spotted Knapweed – Greenhouse Studies

Effect of Temperature and Duration of Heating on Spotted Knapweed Seed Germination



Abella and MacDonald, 2000. Ecological Restoration 18(3):203-205

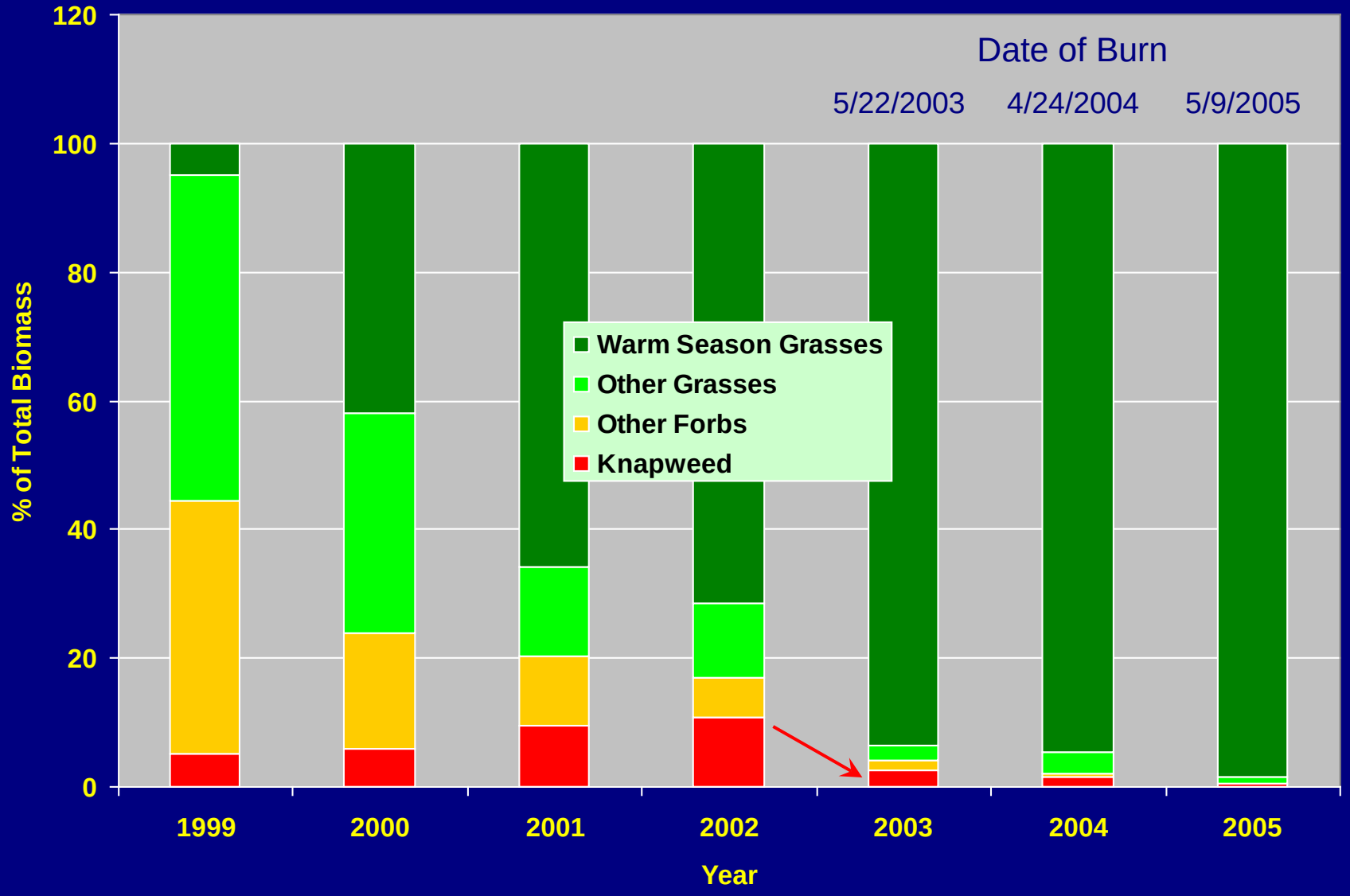
Effect of Burn Timing and Intensity on Establishment of Spotted Knapweed Seedlings



MacDonald et al., 2001. Ecological Restoration 19(4):262-263

Experimental Burning Effects on Spotted Knapweed in a Native Grass Community

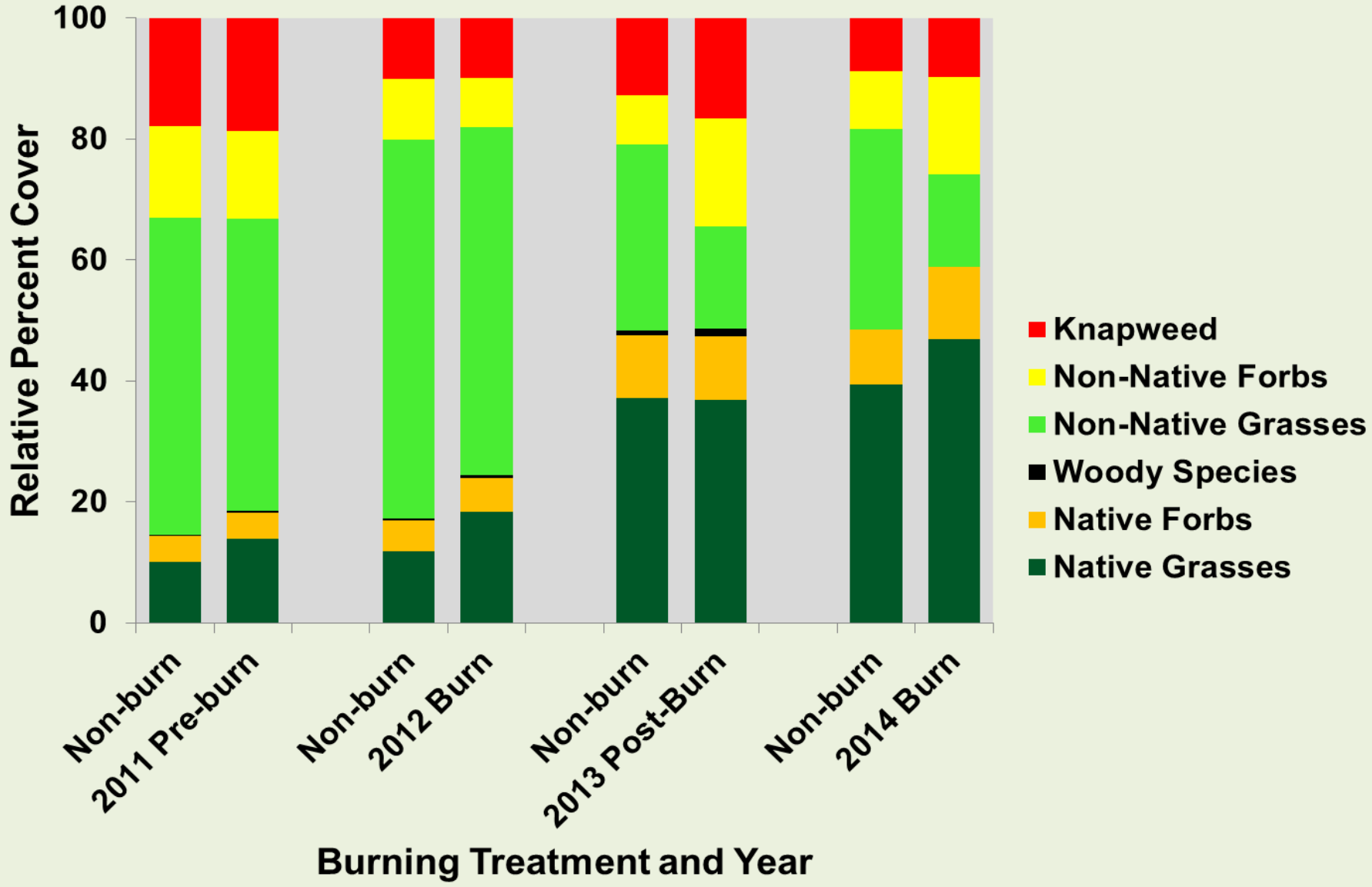
Progression of Species Dominance, Burning Beginning in 2003



MacDonald et al., 2007. Restoration Ecology 15(1):118-128

Experimental Burning Effects on Spotted Knapweed in a Diverse Native Plant Community

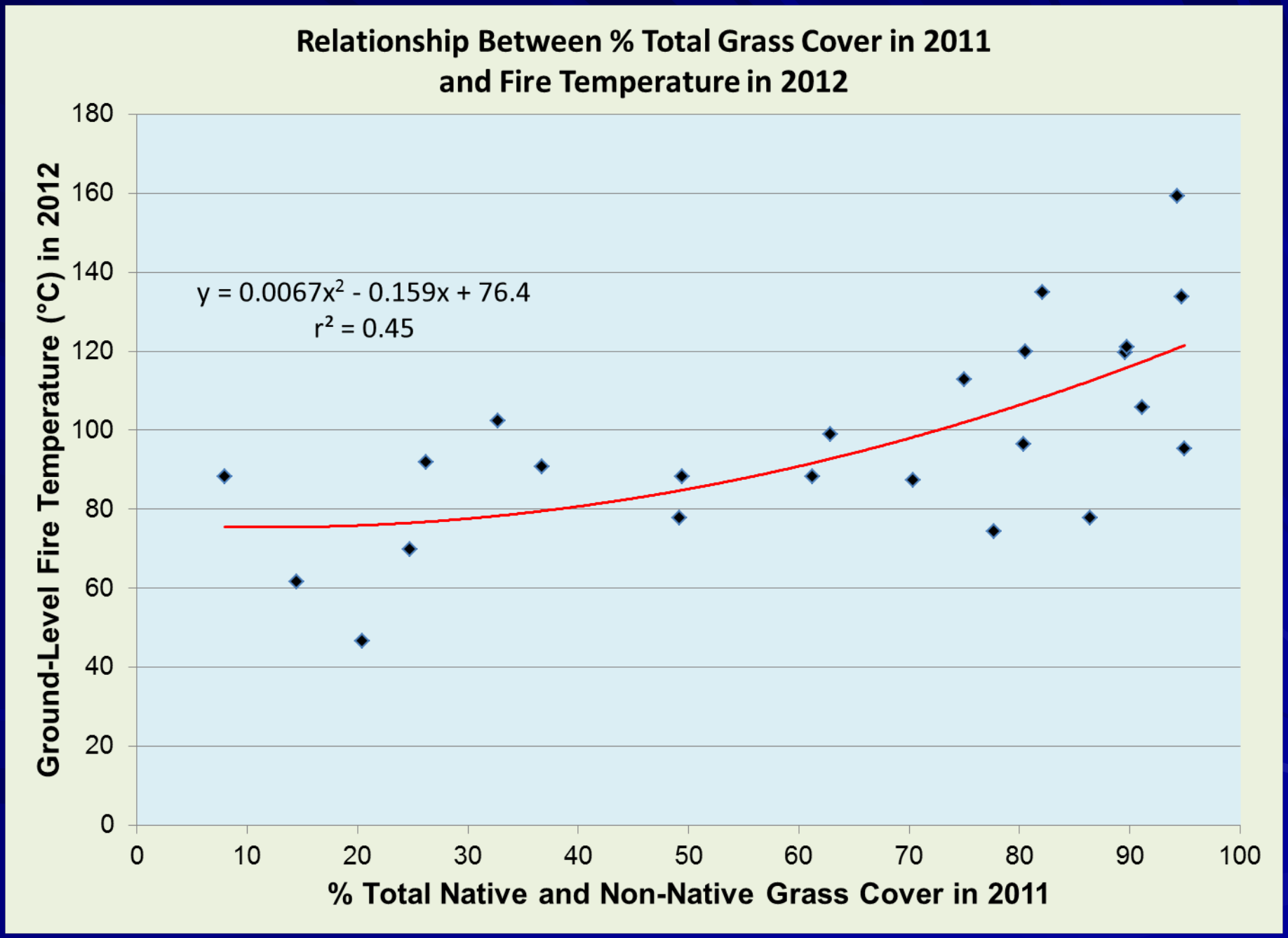
Burning Effects on Community Composition

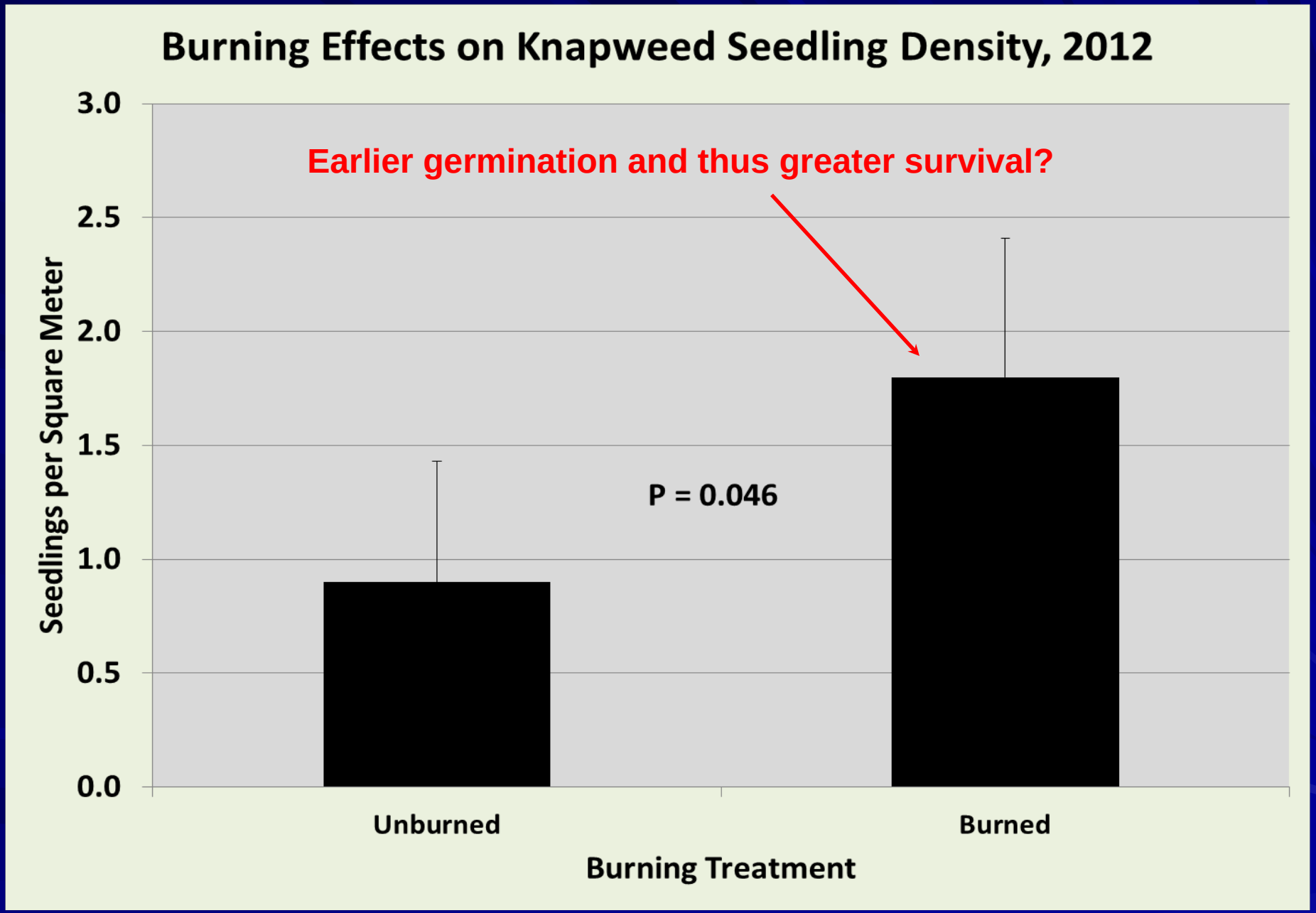


2011 and 2012 data from Martin et al., 2014. Ecological Restoration 32(3):282-294

2012 Burn

- April 2, 2012
- Air temperature 57 ºF
- 49% relative humidity
- 1-4 p.m.
- Summer drought followed


Relationship Between % Total Grass Cover in 2011
and Fire Temperature in 2012
Ground-Level Fire Temperature (°C) in 2012
% Total Native and Non-Native Grass Cover in 2011
y = 0.0067x² - 0.159x + 76.4
r² = 0.45
0
20
40
60
80
100
120
140
160
180
0
10
20
30
40
50
60
70
80
90
100

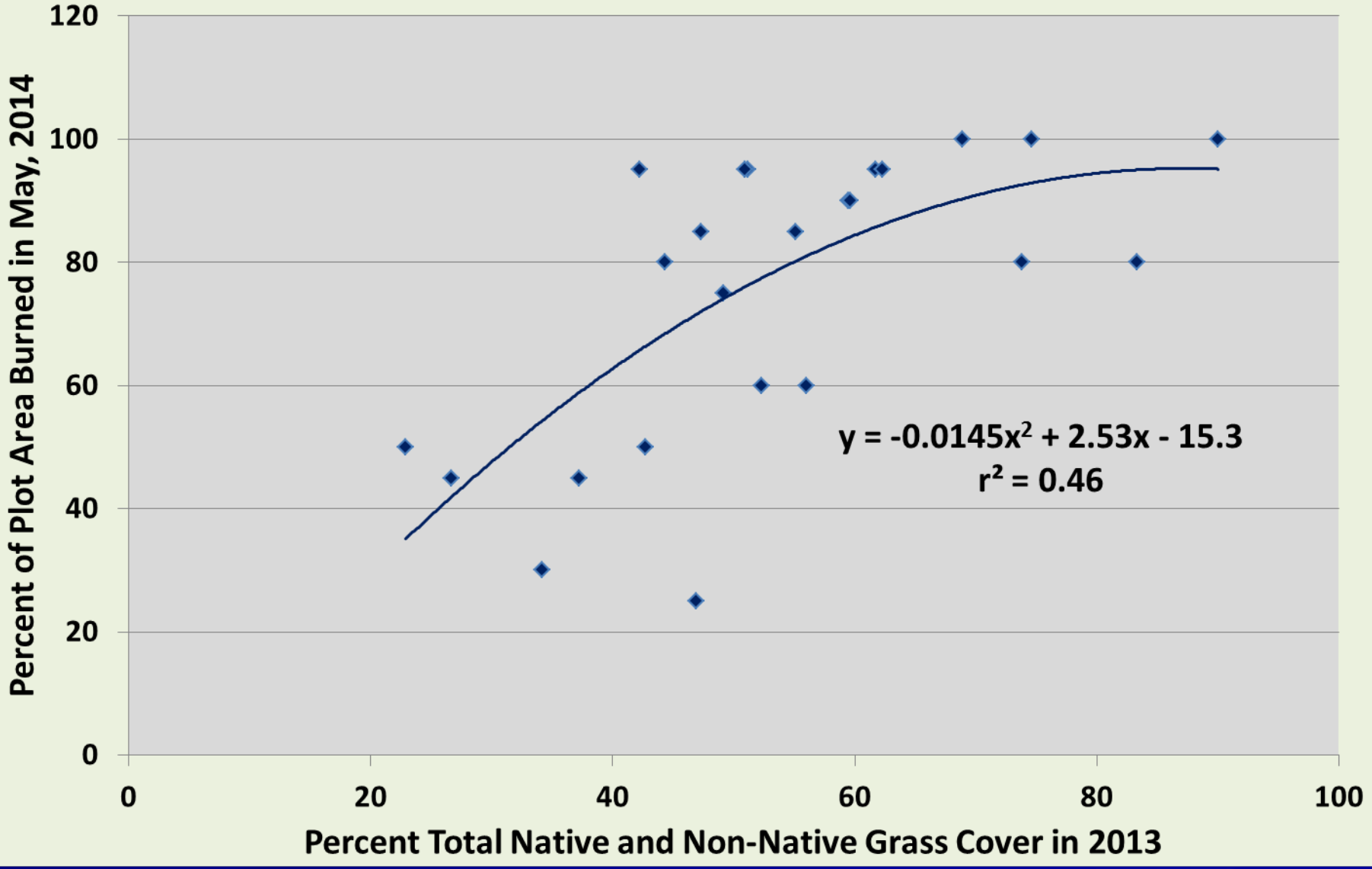


MacDonald et al., 2013. Invasive Plant Science and Management 6:470-479

2014 Burn

- May 11, 2014
- Air temperature 81 ºF
- 45% relative humidity
- 3:00-5:30 p.m.
- Normal rainfall during following summer

Relationship of Percent of Plot Area Burned in 2014 to Percent Total Grass Cover in 2013, BRRA



Relationship Between Percent Total Grass in 2013 and Percent Knapweed in 2014 on Non-Pulled Plots