Prescribed burning to improve management for brushland dependent species

Rebecca Montgomery
Associate professor
University of Minnesota
Department of Forest Resources

ENVIRONMENT AND NATURAL RESOURCES TRUST FUND

DEPARTMENT OF NATURAL RESOURCES

Our amazing field crew!!!

Paul Ojanen, Terry Serres, Ellie McNairy,
Marlene Walters, Annie Hawkinson, Lori Knosalla

Intern: Ellie McNairy
University of Minnesota

Lindsey Shartell
Minnesota DNR

Lee Frelich
University of Minnesota

Charlotte Roy
Minnesota DNR

Diverse ecosystem

Goal: Keep dense shrubs at bay

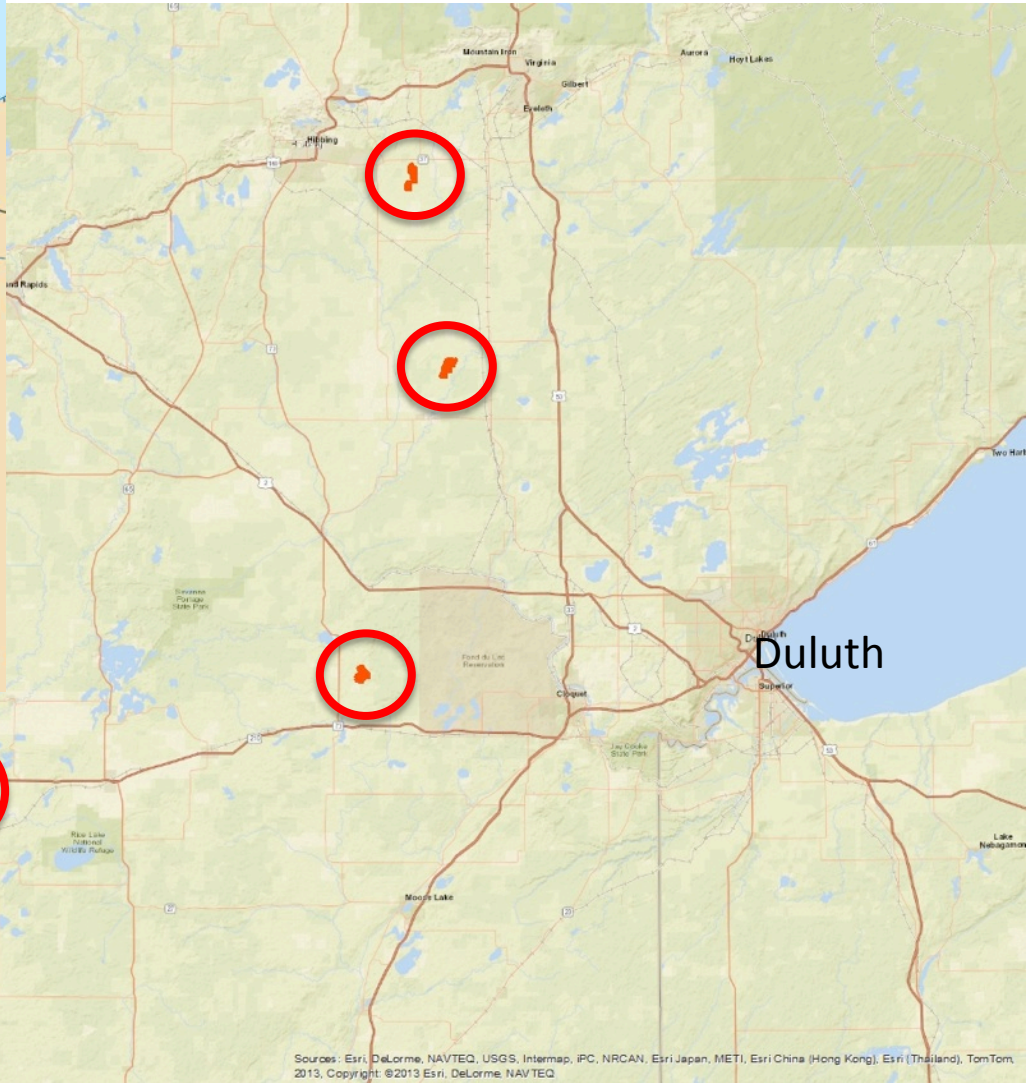
and maintain a mosaic of shrub and open patches

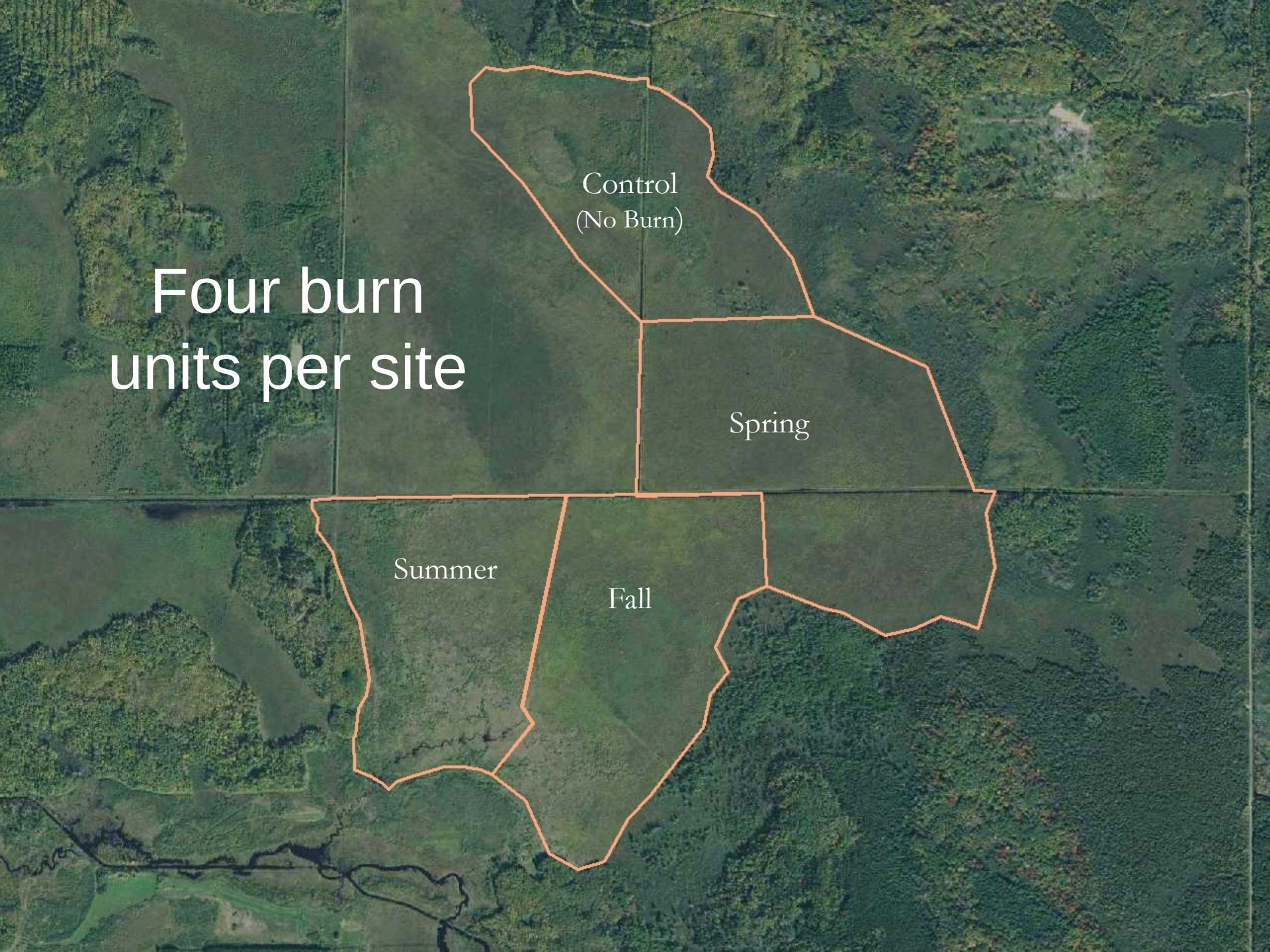

Prescribed burns in spring

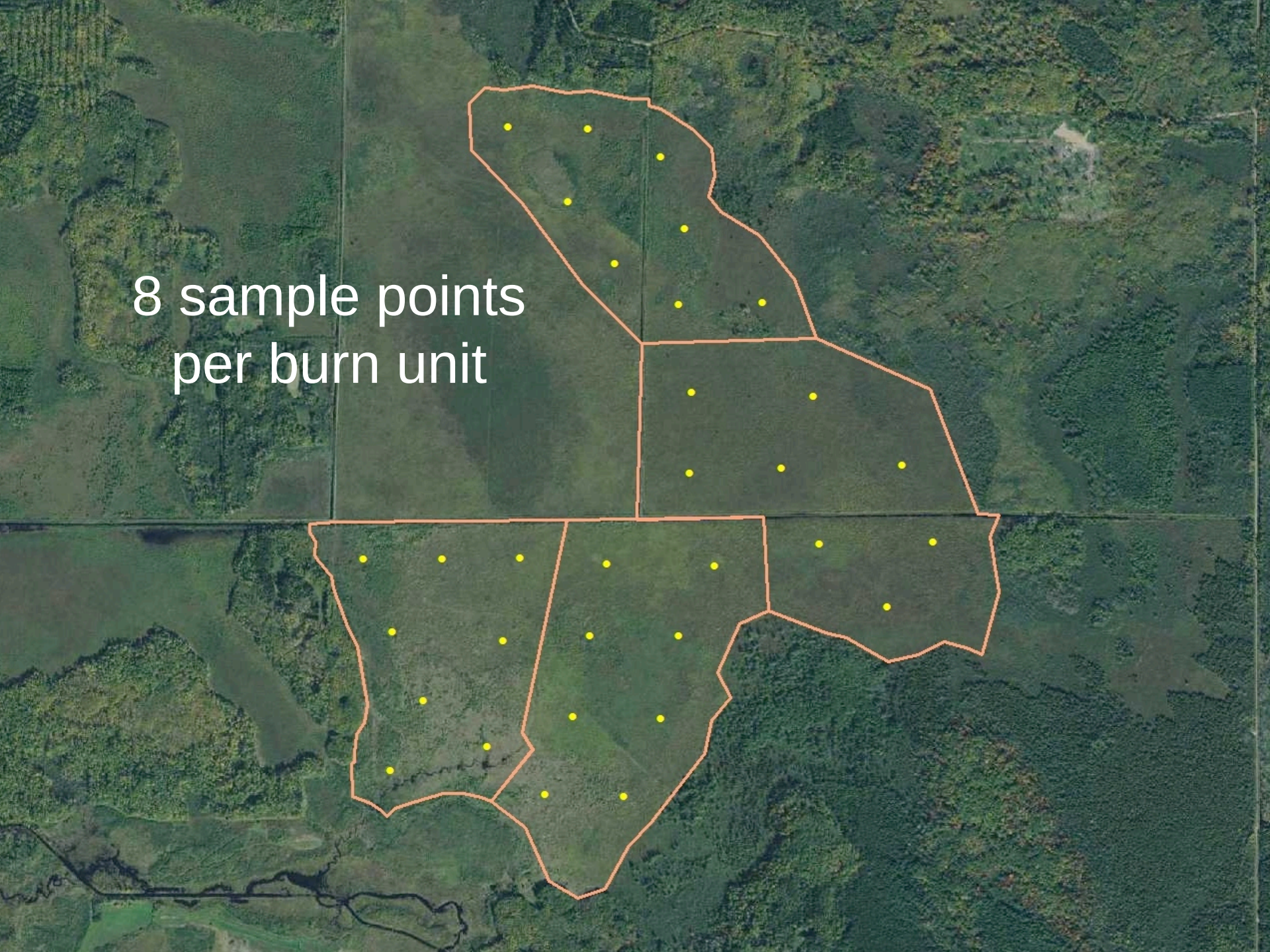
Historically fire in all seasons except winter

Might spring and summer burns be more effective at meeting goals?


Ontario
Minnesota
North Dakota
South Dakota
Wisconsin
Iowa


Duluth
Sources: Esri, DeLorme, NAVTEQ, USGS, Intermap, iPC, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom, 2013, Copyright ©2013 Esri, DeLorme, NAVTEQ


Four burn units per site
Control
(No Burn)
Spring
Summer
Fall


8 sample points
per burn unit

Avian Point Counts

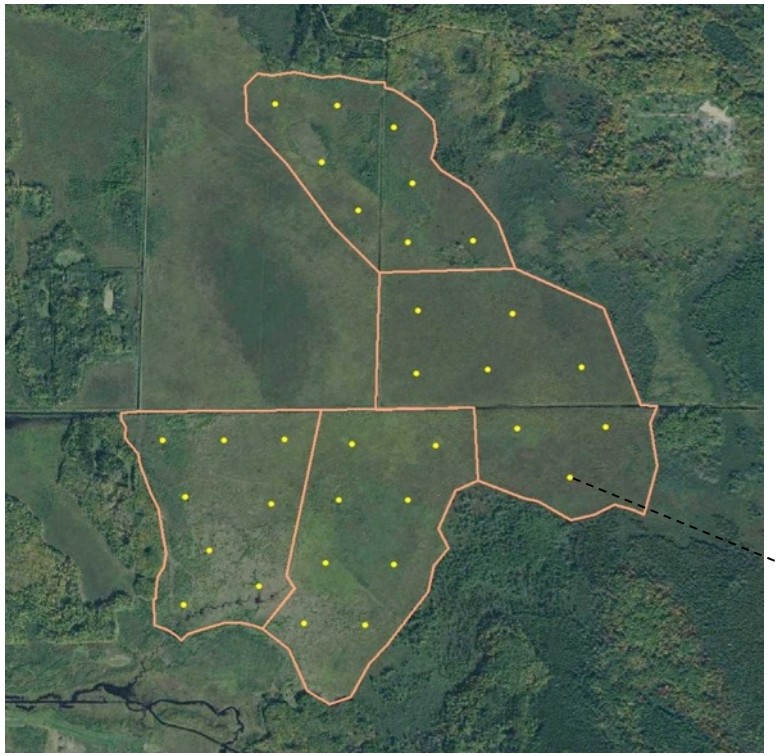


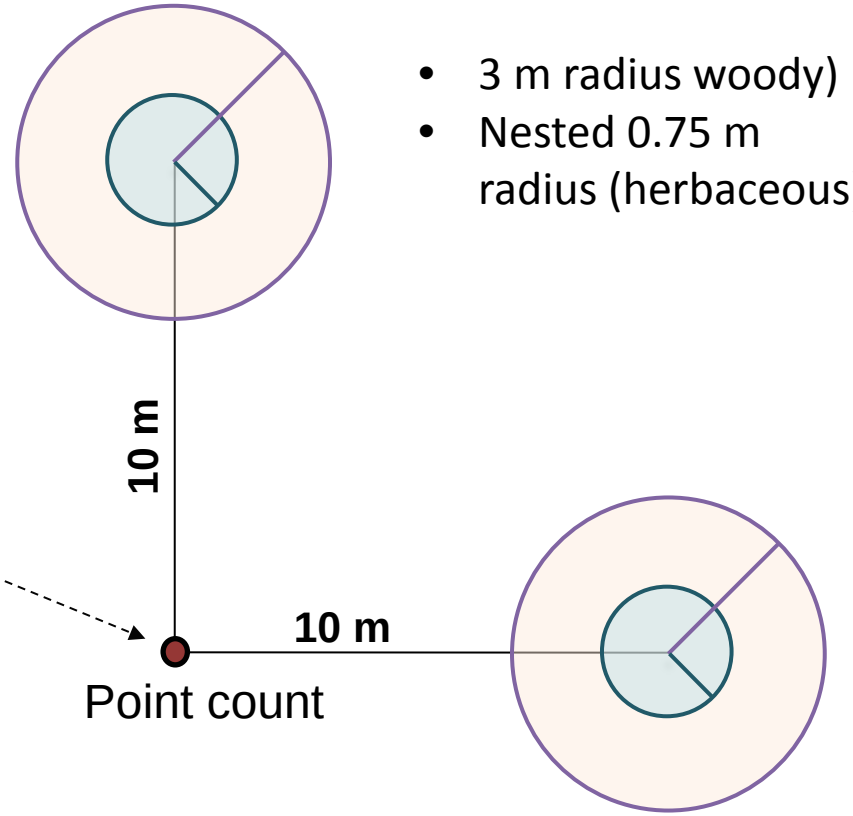





Vegetation and Burn Surveys

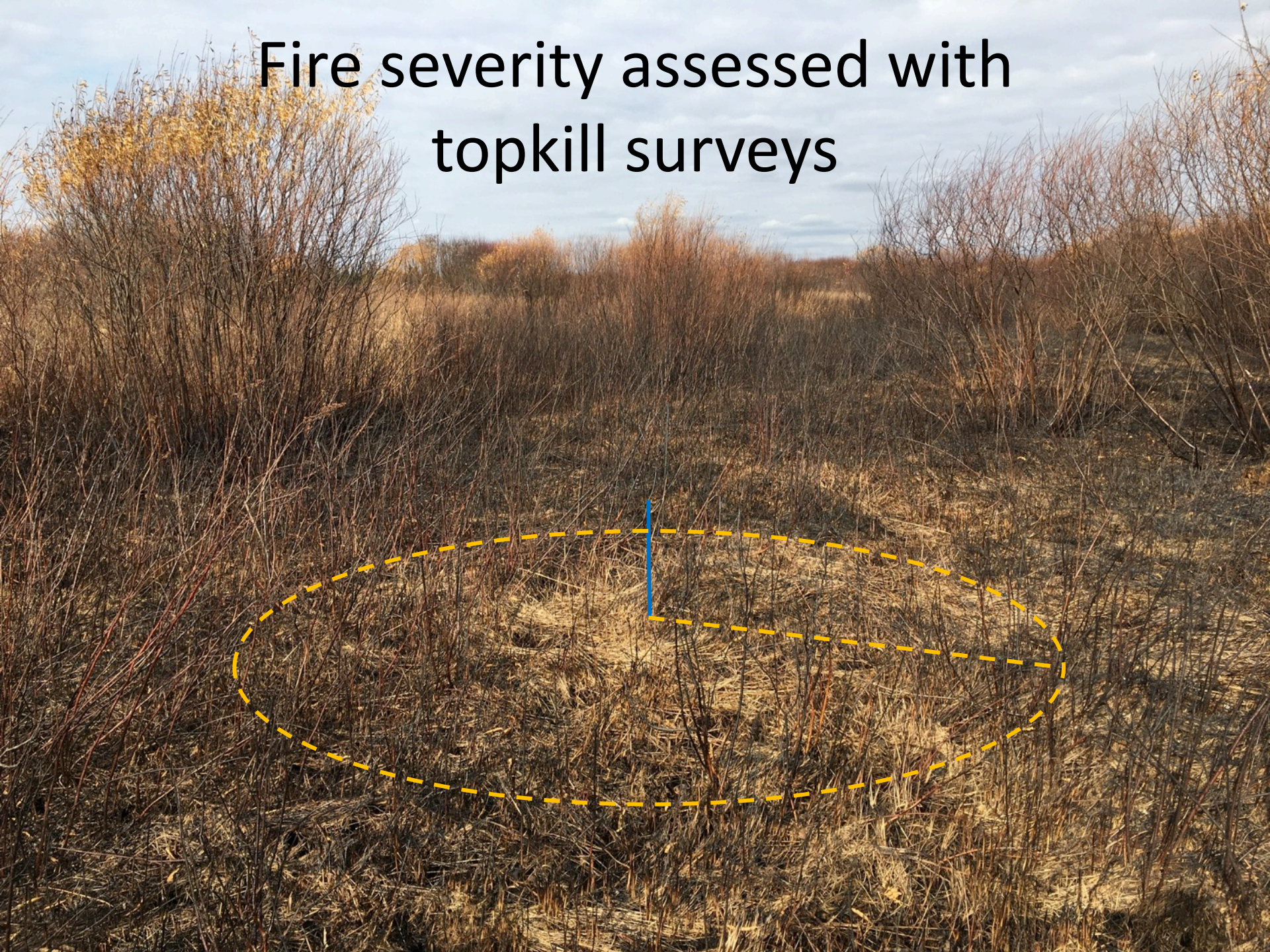
Vegetation surveys





- 3 m radius woody)
- Nested 0.75 m radius (herbaceous)

Fire severity assessed with topkill surveys



Burns to Date

Spring

- May 10, 2017
- May 12, 2017

Summer

- August 11, 2017
- September 12, 2017

Fall

- November 16, 2016
- October 19, 2017

Early results

Common yellowthroat was most common bird detected in 2016 (pre-burn)

Sedge Wren was most common bird detected in 2017

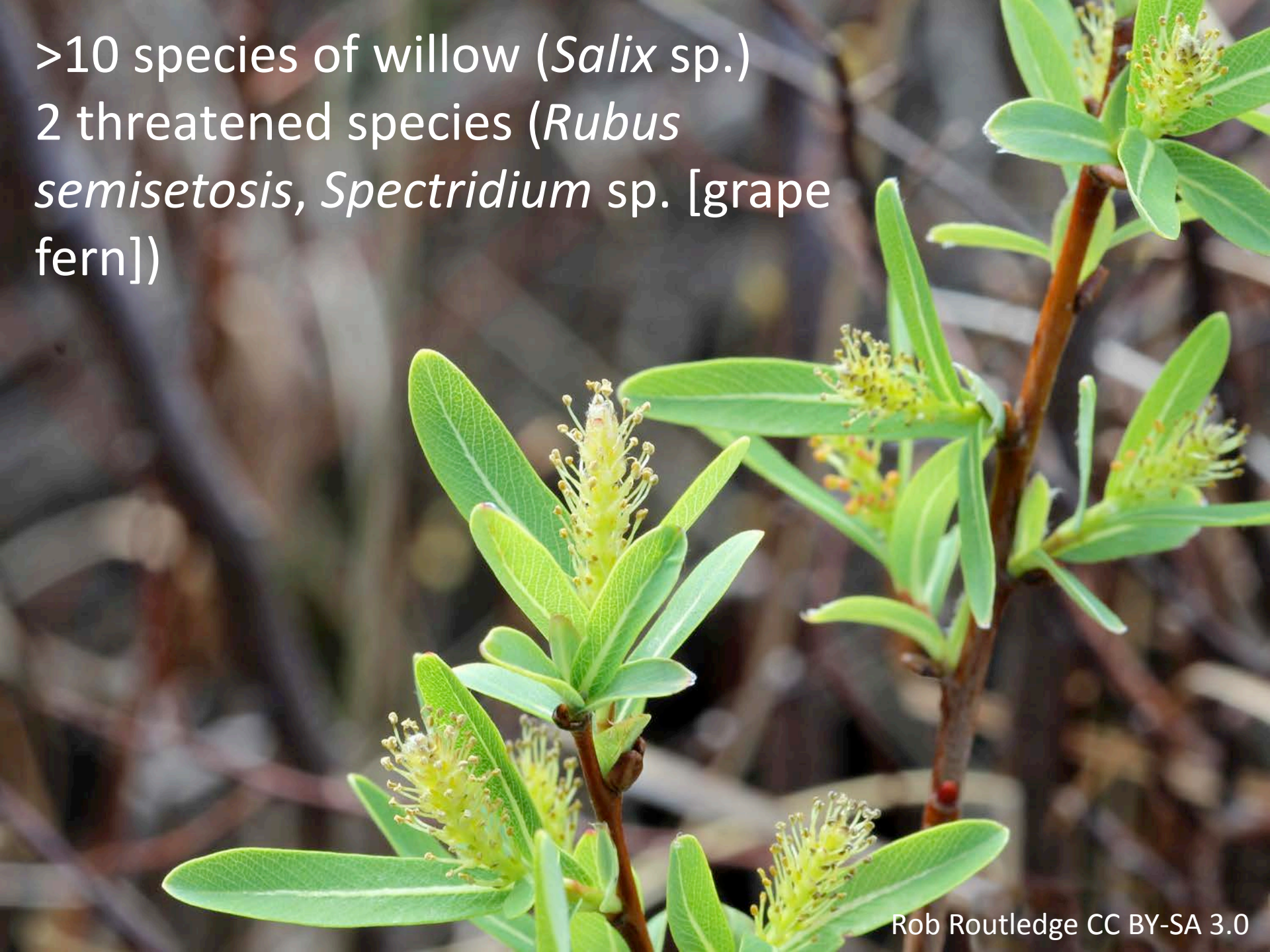
Andrew Cannizaro, CC 2.0

106 total species

24 SGCN  

9 LSFSC  

 fire-dependent

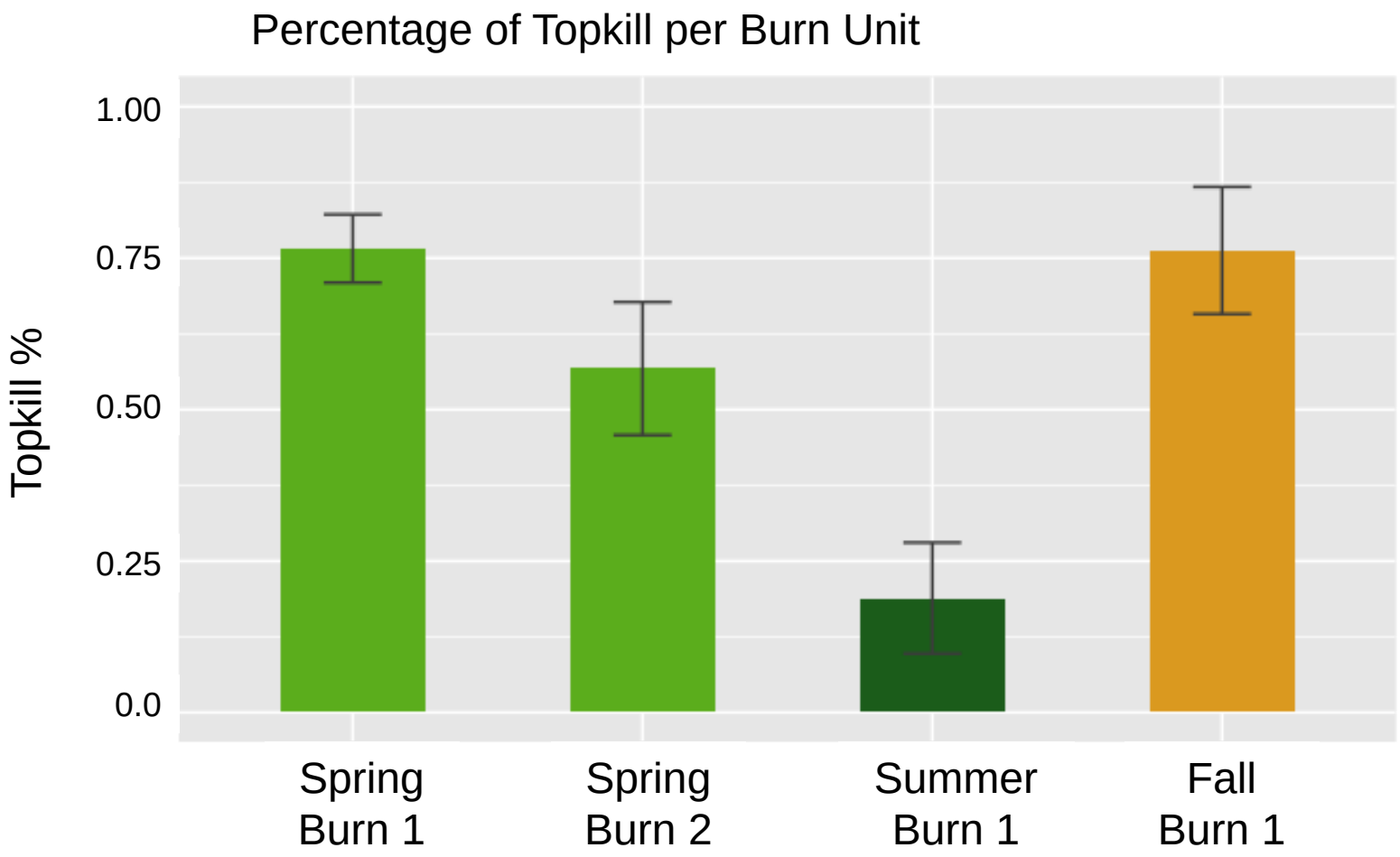

>10 species of willow (*Salix* sp.)
2 threatened species (*Rubus semisetosis*, *Spectridium* sp. [grape fern])
Rob Routledge CC BY-SA 3.0


Cody Hough - Own work, CC BY-SA 3.0

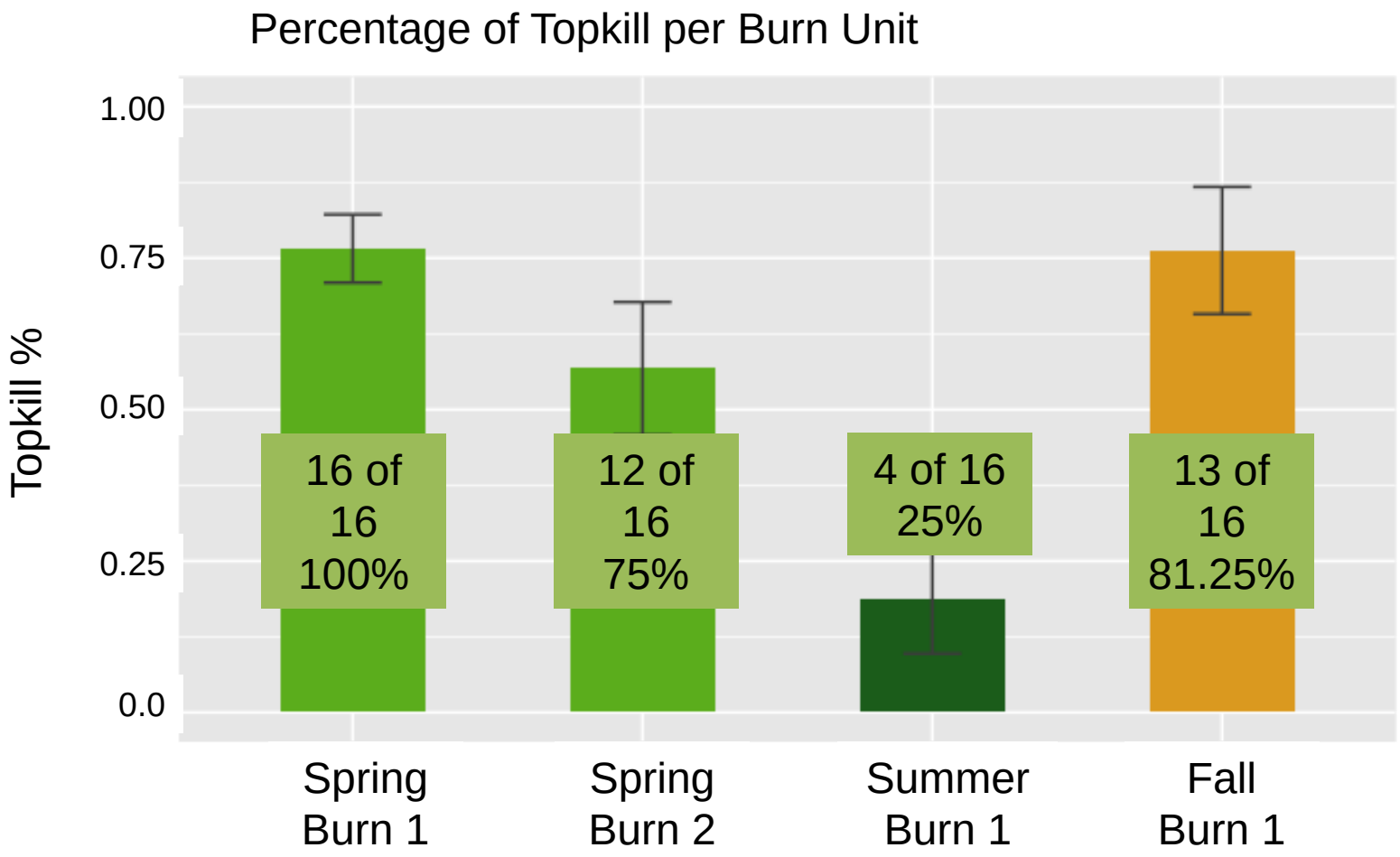

Montana Statewide Noxious Weed Awareness and Education Program , Montana State University, Bugwood.org, CC BY-SA 3.0
UGA2154003

Burn survey early results

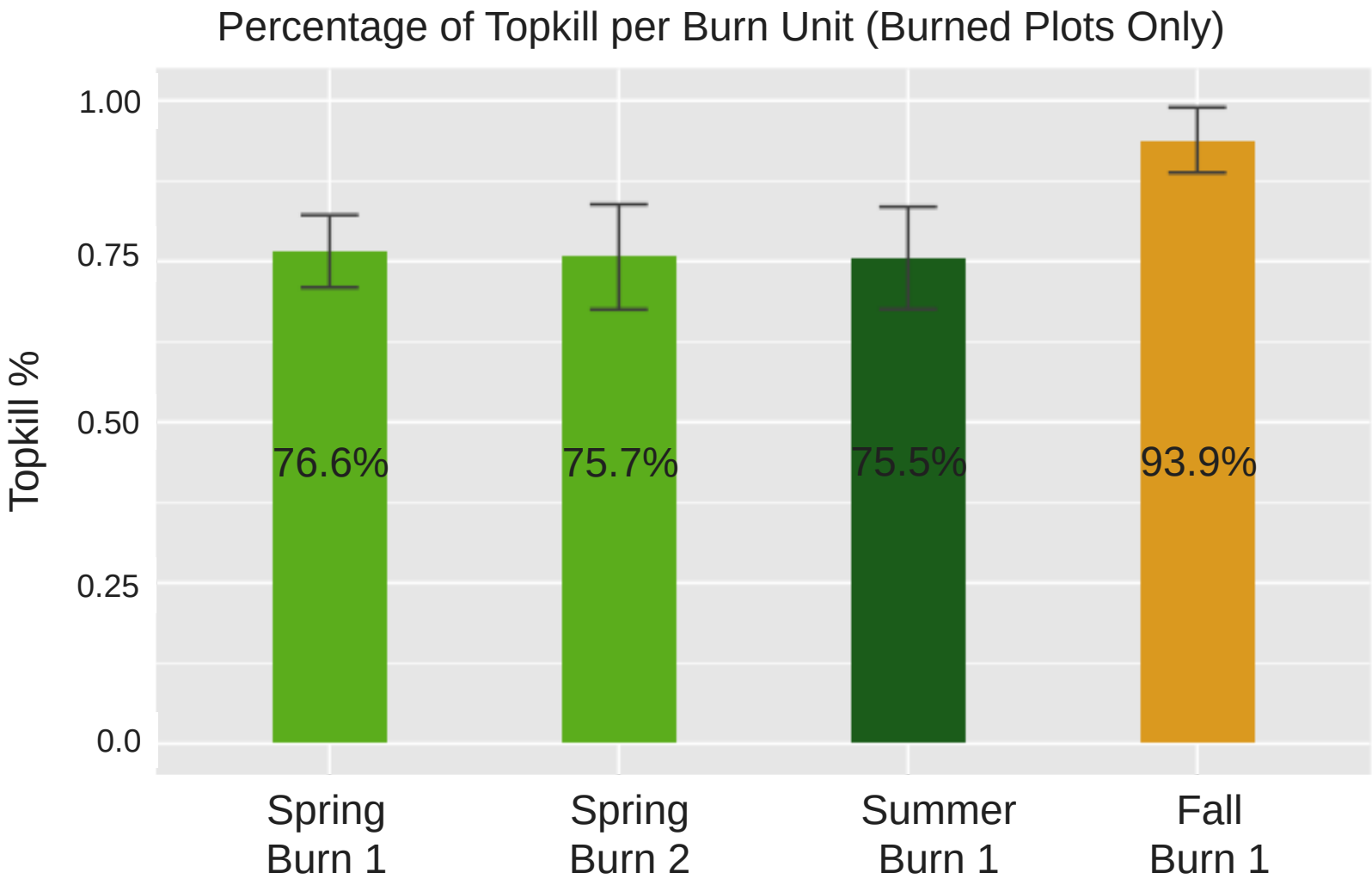
Topkill per Burn Unit



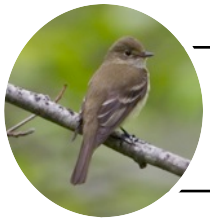
Plots Burned per Site



Topkill per burn unit (burned only)



Change in detections after treatment



Species	No burn	Fall burn	Spring burn
Common Yellowthroat	-	+	+
Sedge Wren*	+	-	+
Alder Flycatcher	-	+	+
Veery*	+	+	+
Nashville Warbler	-	-	+
Golden-winged Warbler*	+	-	-

SGCN*

Acknowledgements

Investigators:
Rebecca Montgomery (PI)[1], Lee Frelich[1], Lori Knosalla[1], Annie Hawkinson[1], Charlotte Roy[2], Lindsey Shartell[2]

[1]University of Minnesota
[2]MN Department of Natural Resources

Funding:

- Lake States Fire Science Consortium
- MN Environment and Natural Resources Trust Fund
- MN DNR (in-kind)

Our wonderful field technicians, volunteers and lab staff:

Terry Serres, **Marlene Walters, Ellie McNairy,** Paul Ojanen, Dan Stangle, Ryan Sullivan, Marisol Cruz, Theodore Brauer, Kelvin Tryon, Dan Petters, Maria DeLandreau, Kealy Porter, Kris Moore