

25 Years of fire at Nachusa Grasslands



Bill Kleiman and Cody Considine

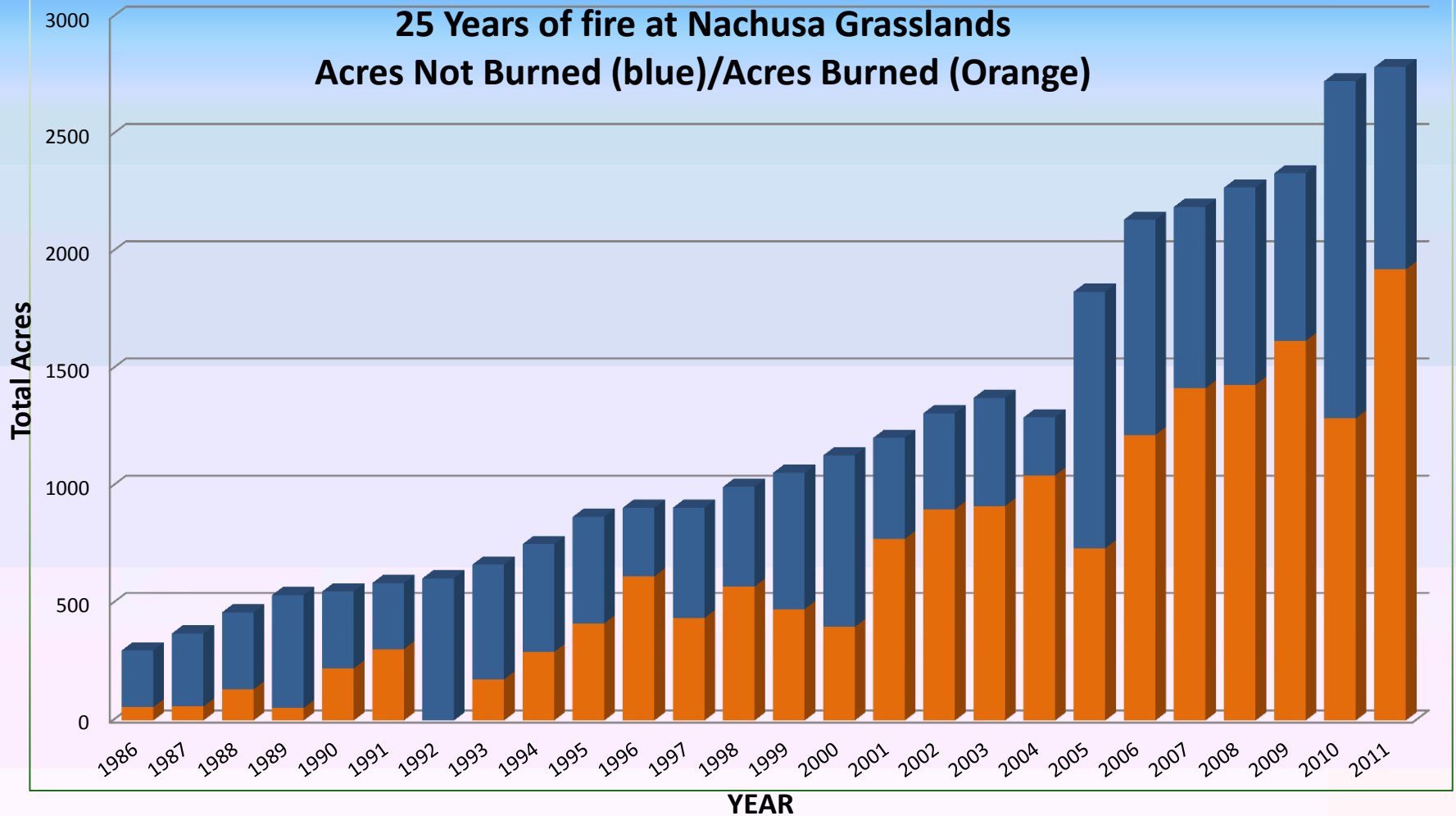


Discussion 1: How much fire is enough?



Bill Kleiman and Cody Considine

25 Years of fire at Nachusa Grasslands
Acres Not Burned (blue)/Acres Burned (Orange)



Nachusa Grasslands
25 Year Fire History

Flagg Rd

1986



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

1987



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

1988_1989_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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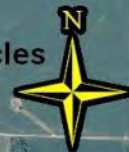
Nachusa Grasslands
25 Year Fire History

Flagg Rd

Legend

1989_1990_burn_units

lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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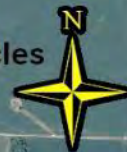
Nachusa Grasslands
25 Year Fire History

Flagg Rd

Legend

1990_1991_burn_units

lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

T:\Nachusa Project\GIS Projects\Nachusa Office\Fire\Burn_Units

Nachusa Grasslands
25 Year Fire History

Flagg Rd

Legend

1991_1992_burn_units

lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

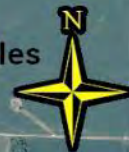
Nachusa Grasslands
25 Year Fire History

Flagg Rd

No fires 1992

Legend

— lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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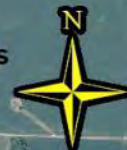
Nachusa Grasslands
25 Year Fire History

Flagg Rd

Legend

1993_1994_burn_units

lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

Legend

- 1994_1995_burn_units
- lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

Legend

- 1995_1996_burn_units
- lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

1996_1997_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

1997_1998_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

1998_1999_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

1999_2000_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

2000_2001_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

2001_2002_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

2002_2003_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

2003_2004_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

2004_2005_burn_units
lanes for stewardship vehicles



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

fall_2005_spring_2006_burn_areas



0 2,950 5,900 11,800 Feet

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Nachusa Grasslands
25 Year Fire History

Flagg Rd

2006



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

2007



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

2008



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

2009



0 2,950 5,900 11,800 Feet

Nachusa Grasslands
25 Year Fire History

Flagg Rd

2010



0 2,950 5,900 11,800 Feet

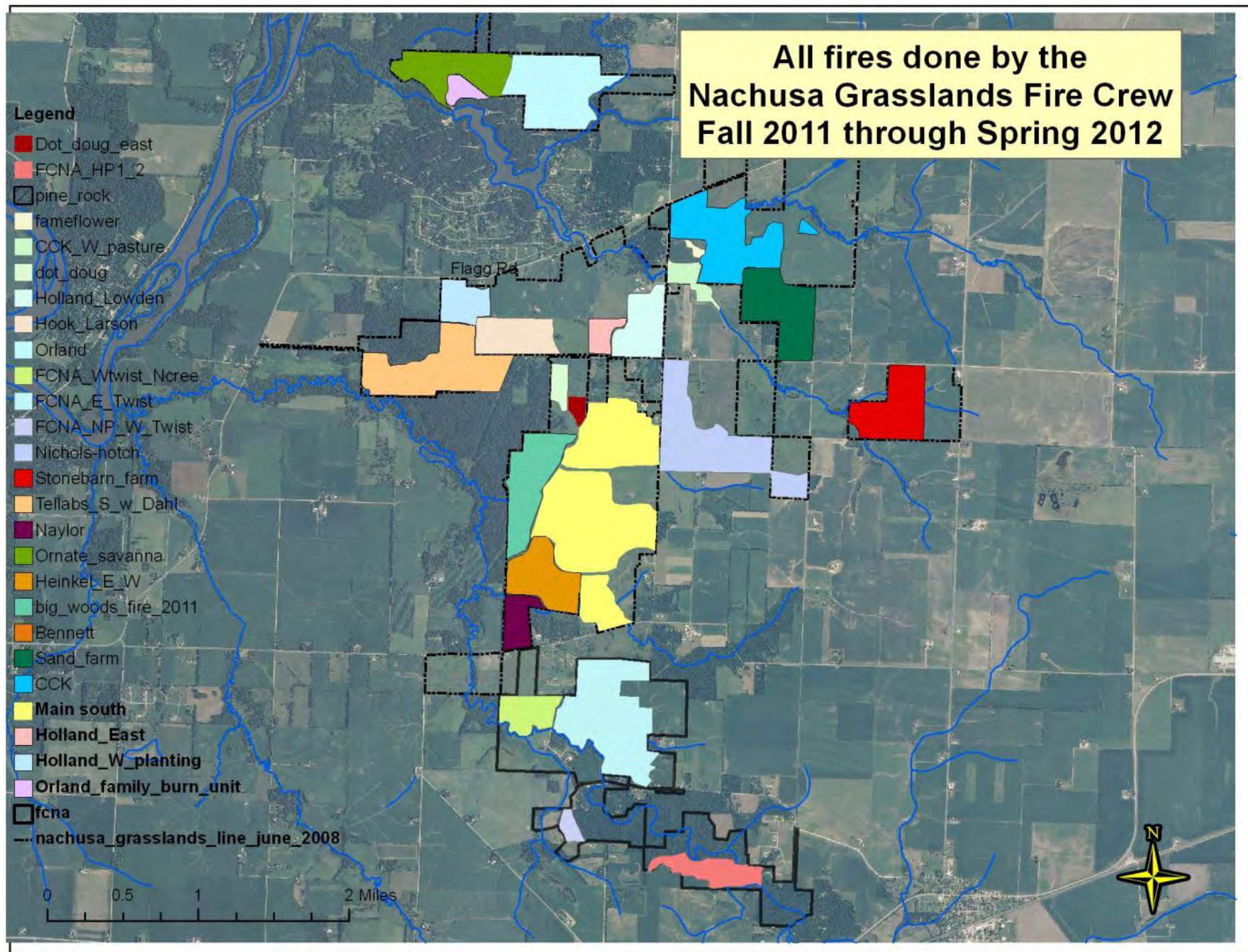
**All fires done by the
Nachusa Grasslands Fire Crew
Fall 2011 through Spring 2012**

Legend

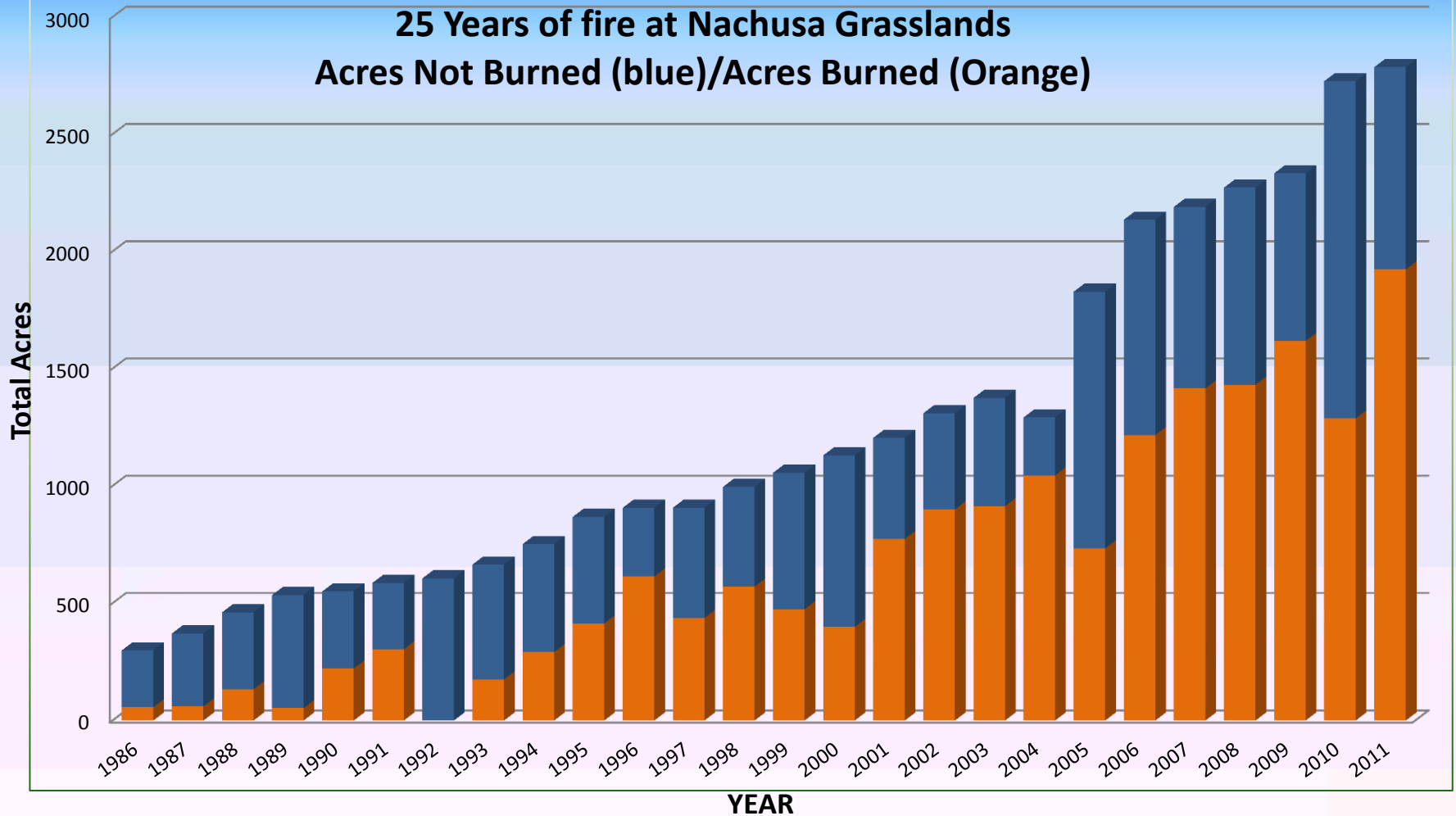
- Dot_doug_east
- FCNA_HP1_2
- pine_rock
- fameflower
- CCK_W_pasture
- dot_doug
- Holland_Lowden
- Hook_Larson
- Orland
- FCNA_Wtwist_Ncree
- FCNA_E_Twist
- FCNA_NP_W_Twist
- Nichols-hotch
- Stonebarn_farm
- Tellabs_S_w_Daht
- Naylor
- Ornate_savanna
- Heinkel_E_W
- big_woods_fire_2011
- Bennett
- Sand_farm
- CCK
- Main_south
- Holland_East
- Holland_W_planting
- Orland_family_burn_unit
- fcna
- nachusa_grasslands_line_june_2008

Flagg Rd

0 0.5 1 2 Miles



25 Years of fire at Nachusa Grasslands Acres Not Burned (blue)/Acres Burned (Orange)



Discussion 1: How much fire is enough?



Bill Kleiman and Cody Considine

Summary thoughts: How much fire is enough?



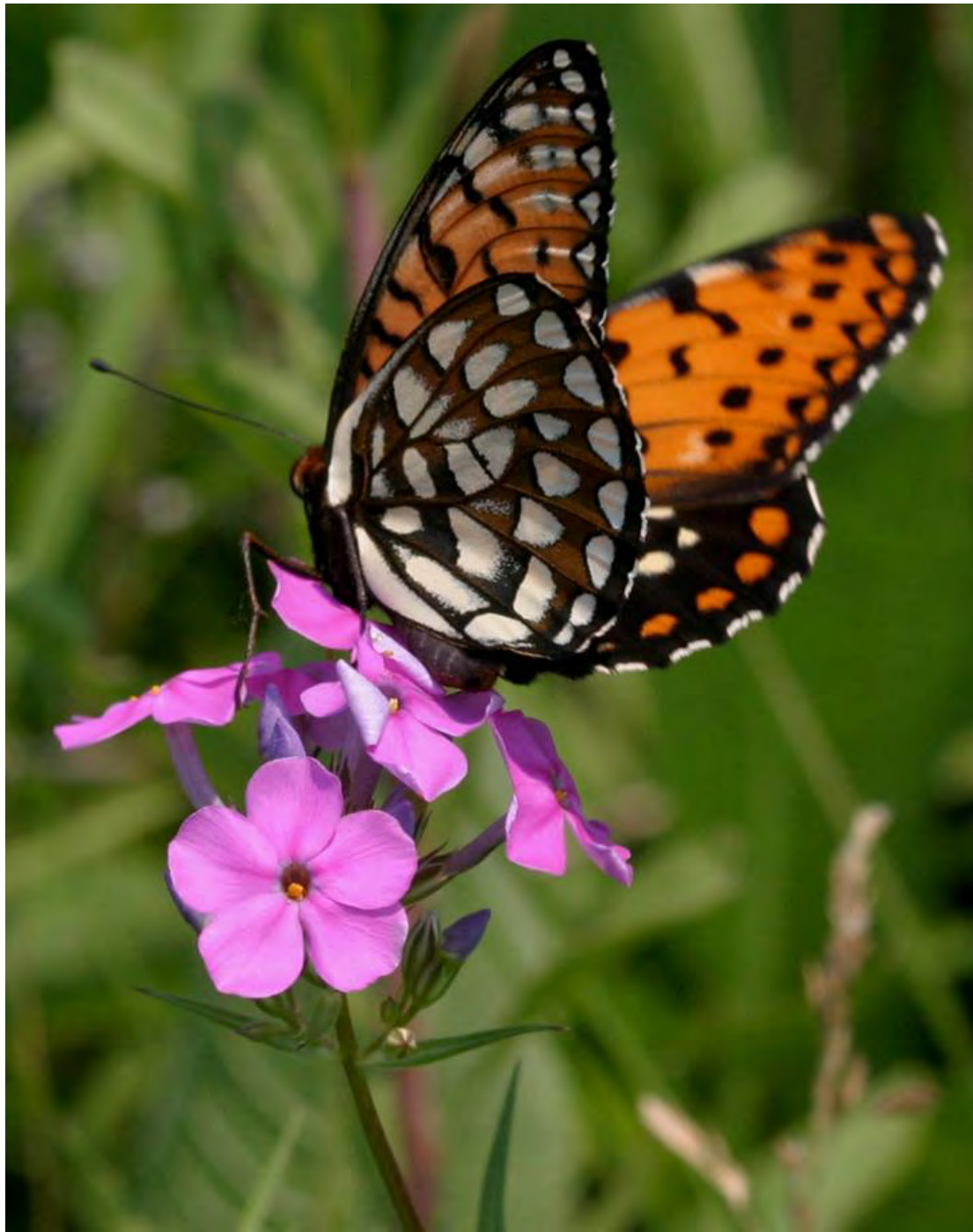
Bill Kleiman and Cody Considine





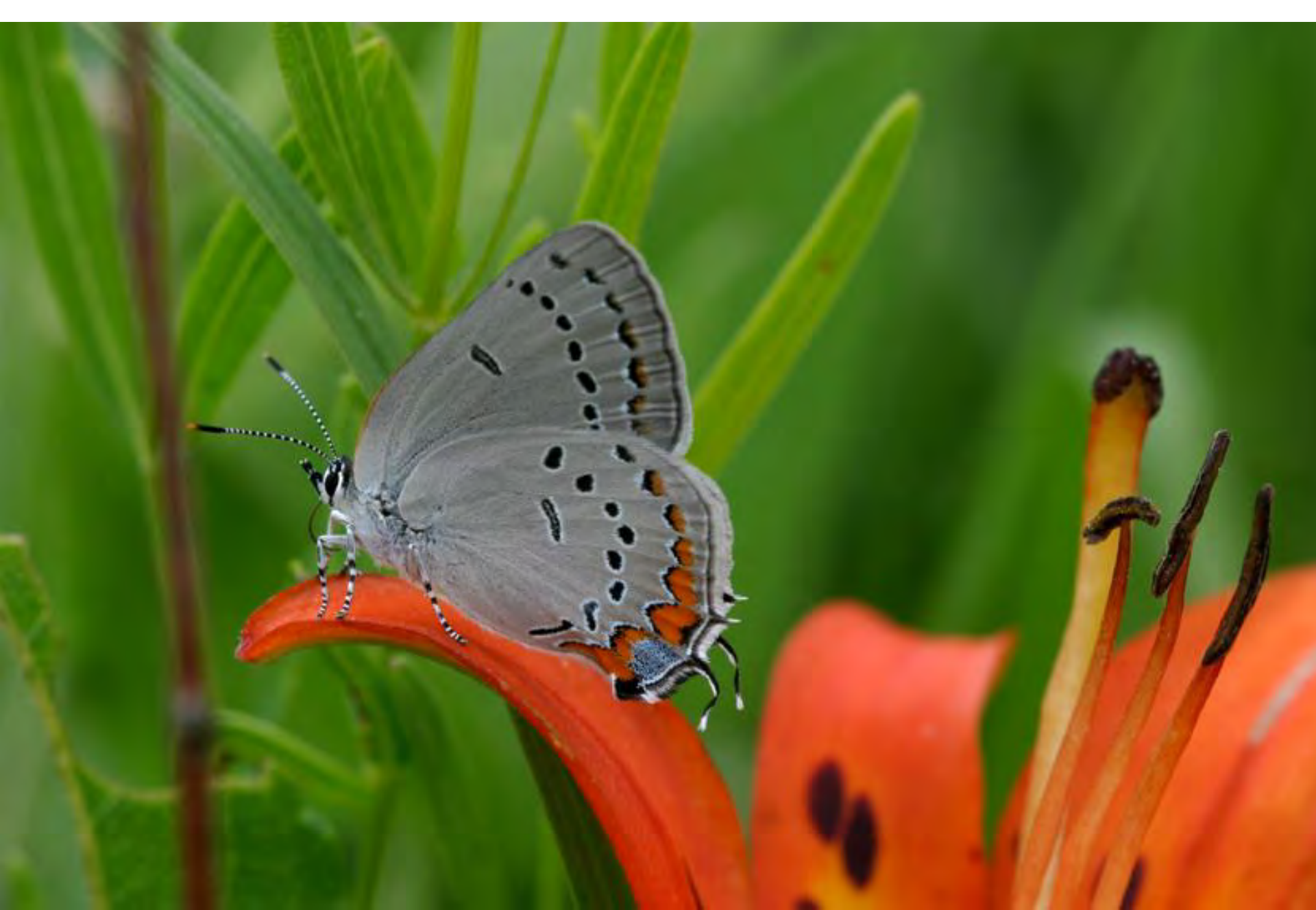
Ron Panzer



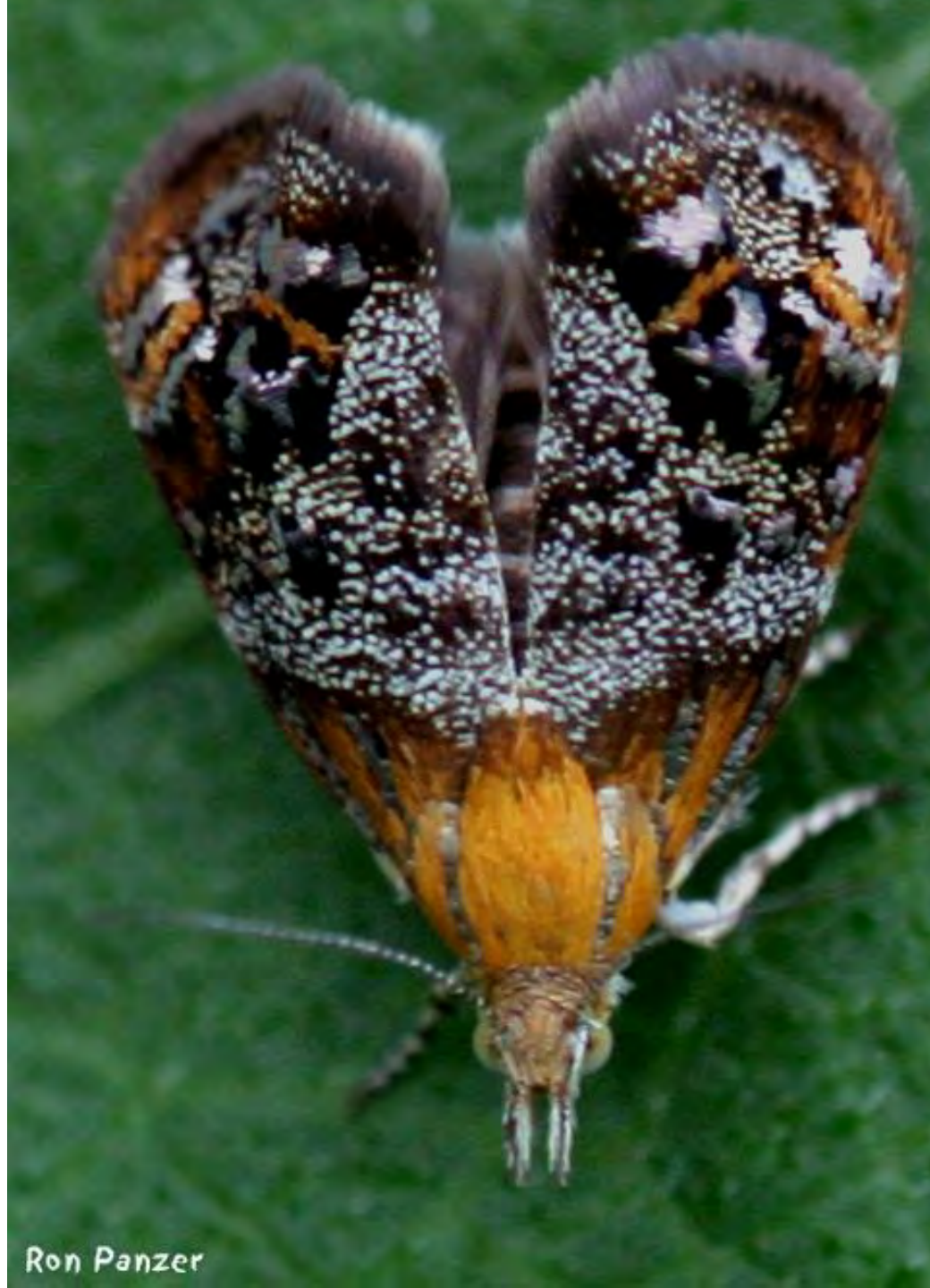




Ron Panzer







Ron Panzer



Panzer & Derkovitz

Compatibility of Prescribed Burning with the Conservation of Insects in Small, Isolated Prairie Reserves

RON PANZER

Biology Department, Northeastern Illinois University, 5500 N. St. Louis Ave., Chicago, IL 60452, U.S.A.,
email rpanzer@earthlink.net

Abstract: *Entomologists have expressed concern that prescribed burning is incompatible with the conservation of insect species richness on small prairie sites. To address this issue, I examined the response and recovery of insect populations after fire within small, isolated tallgrass prairie remnants in northern Illinois, northwestern Indiana, and southeastern Wisconsin. I conducted this research over seven seasons, focused on responses at the species level, distinguished between remnant-dependent and remnant-independent species, and included multiple fire events and sites. I used sweep nets, light traps, sticky traps, and visual searches to gauge population responses and to track negatively affected populations to recovery. Most species (93%) responded consistently to prescribed fires. Postfire responses ranged from positive (26%) to negative (40%) for 151 species representing 33 families and seven orders. Three attributes—remnant-dependence, upland inhabitation, and nonvagility—were significant predictors of negative postfire response. Among negatively affected populations, 68% recovered within 1 year; all 163 populations tracked to recovery did so in 2 years or less. My results support the judicious use of rotational cool-season burning within small, isolated grassland sites.*

Compatibilidad de Incendios Reglamentados con la Conservación de Insectos en Reservas de Praderas Pequeñas y Aisladas

Resumen: *Los entomólogos han manifestado una preocupación con respecto a los incendios reglamentados y la incompatibilidad de los mismos con la conservación de la riqueza de especies de insectos en praderas pequeñas. Para tratar este tema, examiné la respuesta de las poblaciones de insectos post-incendio y su recuperación dentro de remanentes pequeños y aislados de praderas con pastos altos del norte de Illinois, noroeste de Indiana y sureste de Wisconsin. Realicé esta investigación, a nivel de especie, durante siete estaciones, distinguiendo entre especies dependientes e independientes de los remanentes. También incluí eventos de incendios múltiples y sitios. Se emplearon trampas de barrido, trampas de luz, trampas pegajosas y búsquedas visuales para medir las respuestas de las poblaciones y para rastrear aquellas poblaciones que sufrieron un impacto negativo, hasta su recuperación. La mayoría de las especies (93%) respondió consistentemente a los incendios reglamentados. Las respuestas post-incendio variaron desde positivas (26%) hasta negativas (40%) para 151 especies representativas de 33 familias y siete órdenes. Tres atributos—dependencia del remanente, habitación tierras arriba y falta de movimiento—resultaron ser predictores significativos de las respuestas post-incendio negativas. Entre las poblaciones afectadas negativamente, el 68% se recuperó dentro de un año; las 163 poblaciones monitoreadas hasta su recuperación la alcanzaron en dos años o menos. Mis resultados apoyan el uso prudente de quema rotativa durante la estación fría dentro de sitios de pastizal.*

Compatibility of Prescribed Burning with the Conservation of Insects in Small, Isolated Prairie Reserves

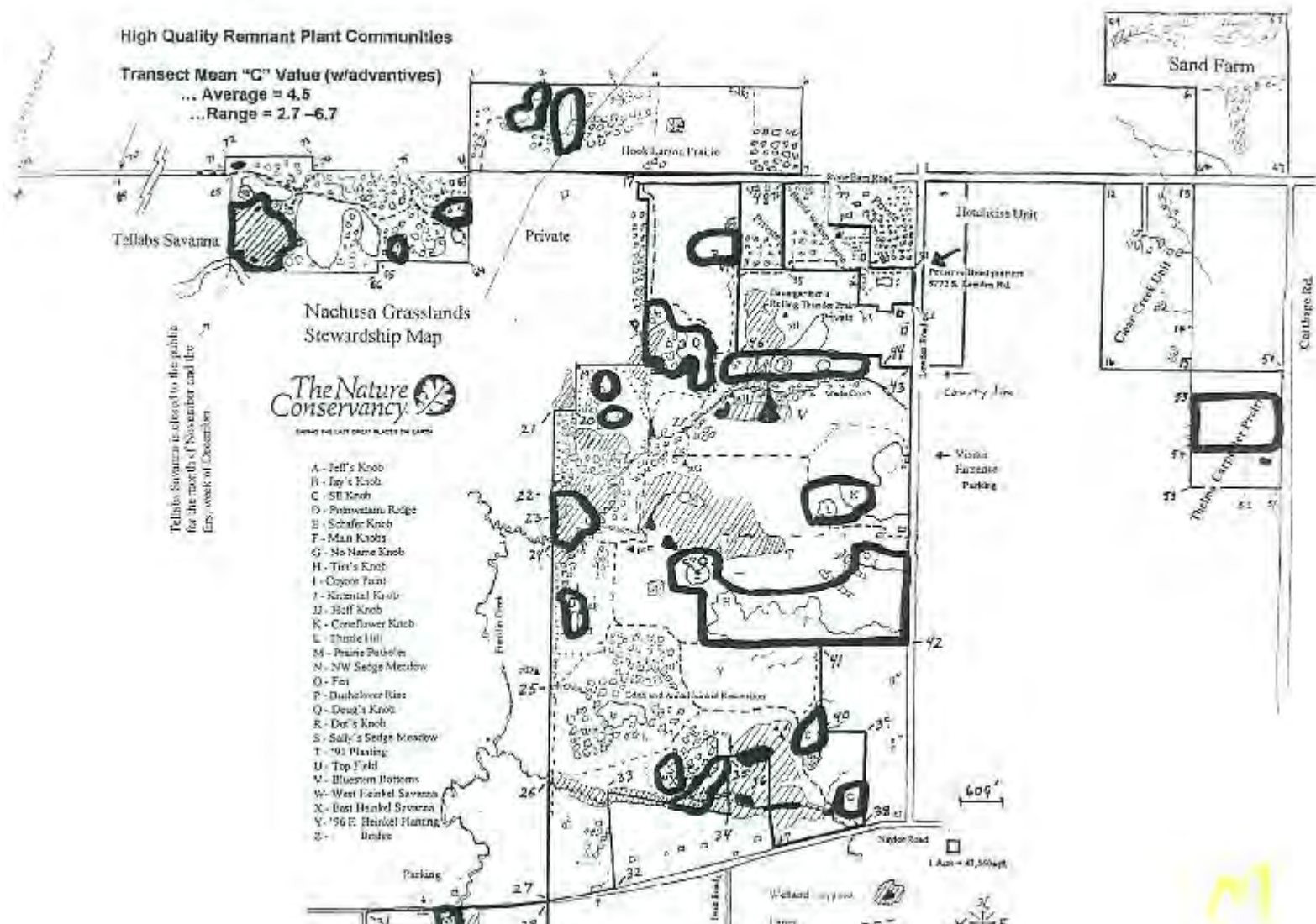
RON PANZER

Biology Department, Northeastern Illinois University, 5500 N. St. Louis Ave., Chicago, IL 60452, U.S.A.,
email rpanzer@earthlink.net

“Among negatively affected populations, 68% recovered within 1 year; all 163 populations tracked to recovery did so in 2 years or less. My results support the judicious use of rotational cool-season burning within small, isolated grassland sites.” – Ron Panzer, Conservation Biology, 2002

y la incompatibilidad de los mismos con la conservación de la riqueza de especies de insectos en praderas pequeñas. Para tratar este tema, examiné la respuesta de las poblaciones de insectos post-incendio y su recuperación dentro de remanentes pequeños y aislados de praderas con pastos altos del norte de Illinois, noroeste de Indiana y sureste de Wisconsin. Realicé esta investigación, a nivel de especie, durante siete estaciones, distinguiendo entre especies dependientes e independientes de los remanentes. También incluí eventos de incendios múltiples y sitios. Se emplearon trampas de barrido, trampas de luz, trampas pegajosas y búsquedas visuales para medir las respuestas de las poblaciones y para rastrear aquellas poblaciones que sufrieron un impacto negativo, hasta su recuperación. La mayoría de las especies (93%) respondió consistentemente a los incendios reglamentados. Las respuestas post-incendio variaron desde positivas (26%) hasta negativas (40%) para 151 especies representativas de 33 familias y siete órdenes. Tres atributos—dependencia del remanente, habitación tierras arriba y falta de movimiento—resultaron ser predictores significativos de las respuestas post-incendio negativas. Entre las poblaciones afectadas negativamente, el 69% se recuperó dentro de un año; las 163 poblaciones monitoreadas hasta su recuperación la alcanzaron en dos años o menos. Mis resultados apoyan el uso prudente de quema rotativa durante la estación fría dentro de sitios de pastizal

Fire in remnants vs. restorations





Konza Prairie Biological Station
United States

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© 2013 Cnes/Spot Image

Google earth











Brush is a threat to grasslands.

Burn off
prairie
vegetation to
allow weed
crews to find
invasive short
statured plants



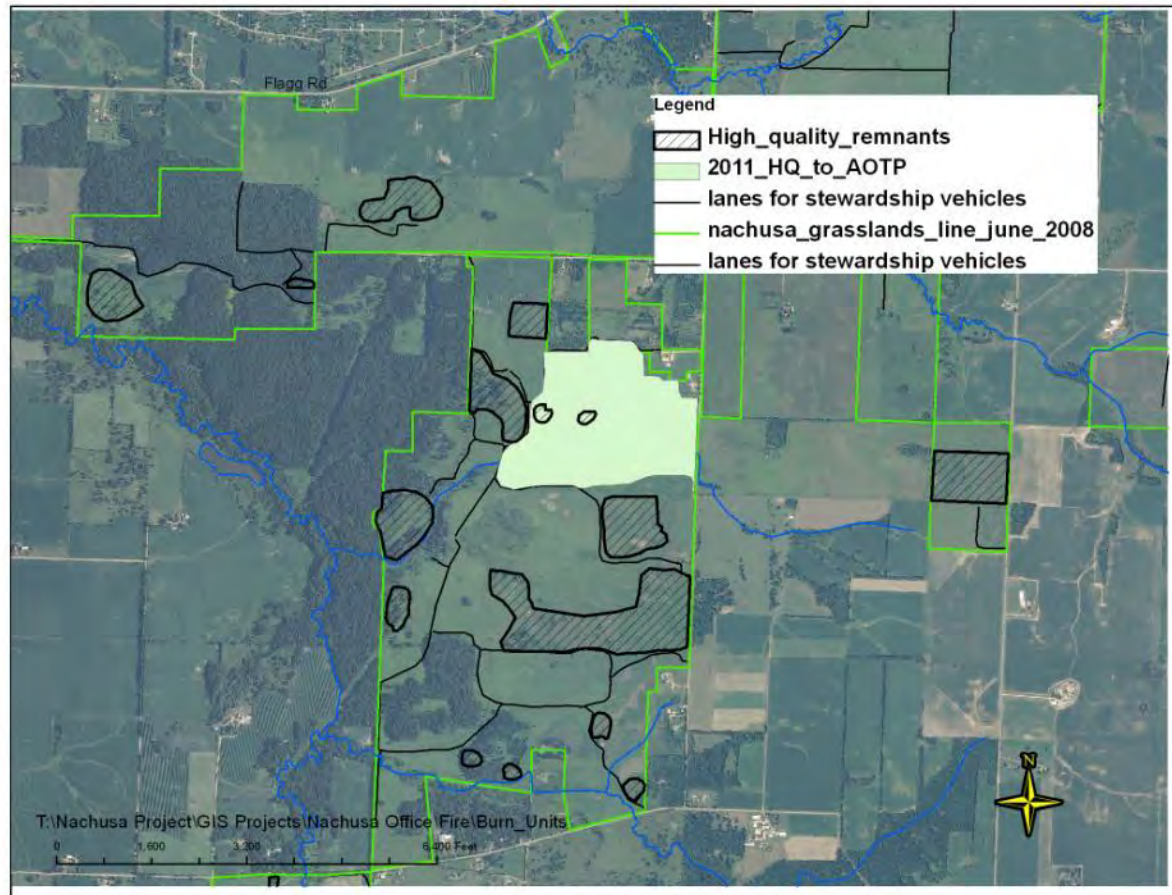
Federally listed prairie bushclover likes fire



Herptiles



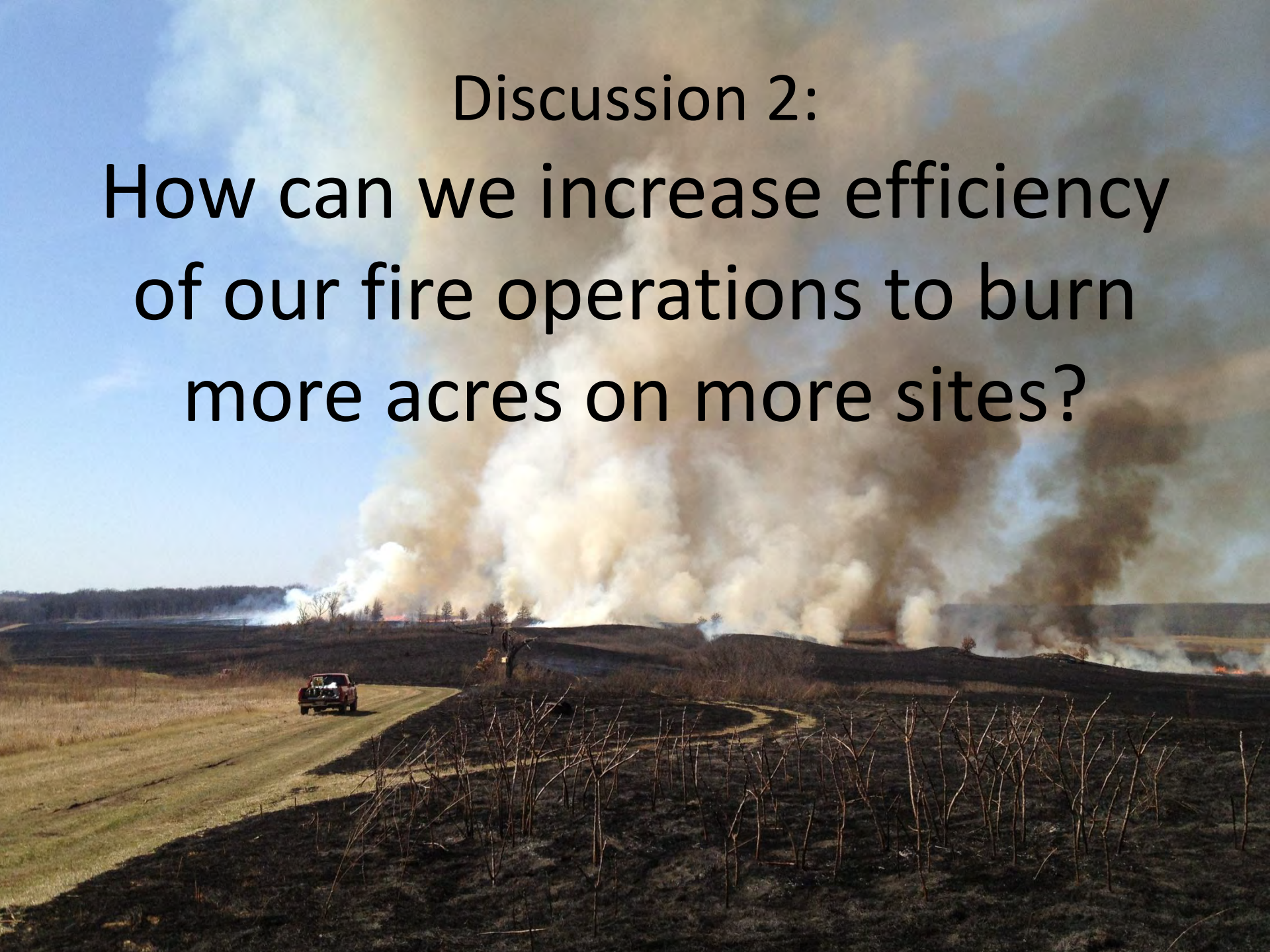
Some remnants get burned frequently because they are internal to easily burned larger units



Our current bottom line on fire return intervals

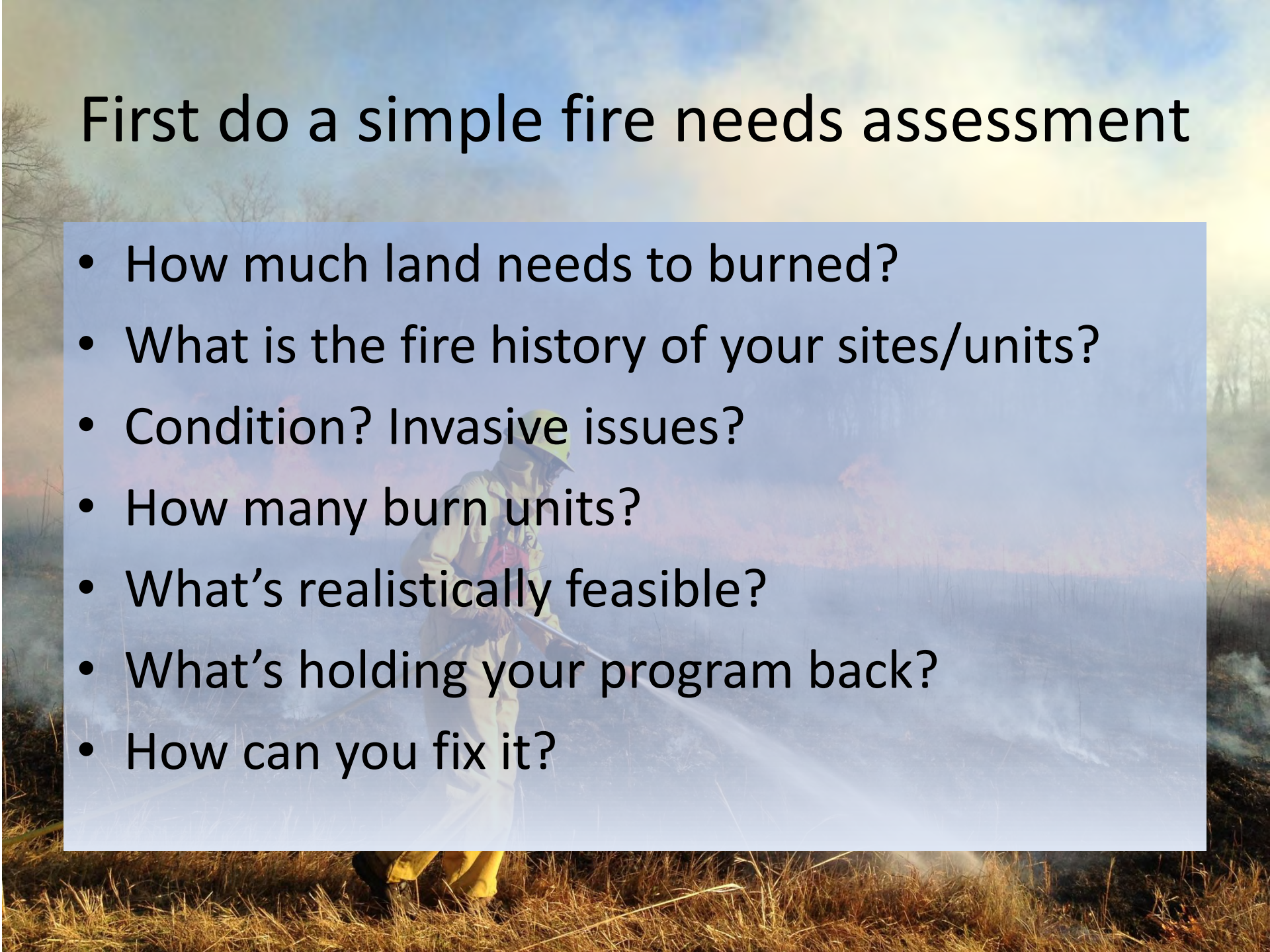
- Remnant prairie and wetlands: burn every 2 to 3 years if brush is not an issue, but accept annual fire in some cases for safety and efficiency.
- Woodland/Savanna: burn 1 to 2 years until tree canopy is reasonably open and invasive brush controlled. Then back off to 2 to 3 years.

Discussion 2:
How can we increase efficiency
of our fire operations to burn
more acres on more sites?



First do a simple fire needs assessment

- How much land needs to be burned?
- What is the fire history of your sites/units?
- Condition? Invasive issues?
- How many burn units?
- What's realistically feasible?
- What's holding your program back?
- How can you fix it?



Make fire goals clearly stated and understood by everyone on your fire team and people above you



How to get Fire Ready?

Nachusa Grasslands

HOW TO SET UP FOR FIRE SEASON

Updated November 2011

Fire Planning:

- Send out proposed burn units maps before each season to stewards and researchers.
- Prepare majority of fire breaks before end of October. Batwing mow grass and then have baled.
- Crew training needs. 130/190, refresher, fitness.
- EPA permit.. Tharran Hobson orders in December.
- Note to volunteers fire crew
- Write fire plans, maps.

Vehicle Preparation:

- Wash exterior and remove all flammable debris from undercarriage.
- Clean interior pick up junk and clean windows.
- Check fuel, oil, tire pressure, air cleaner, and hook up 12 volt power lines for pumps/reels.
- Brake lights working, hazards, horn, head lights, other warning lights.
- Each truck should have one bolt cutter, tow chain/strap, first aid kit, fire extinguisher (do we want in each truck?), matches, ear plugs, spare gloves and safety glasses.
- Look at tags on pumps before loading. Sometimes they suggest maintenance best done before they are loaded.

Fire Pump/Tanker Preparation:

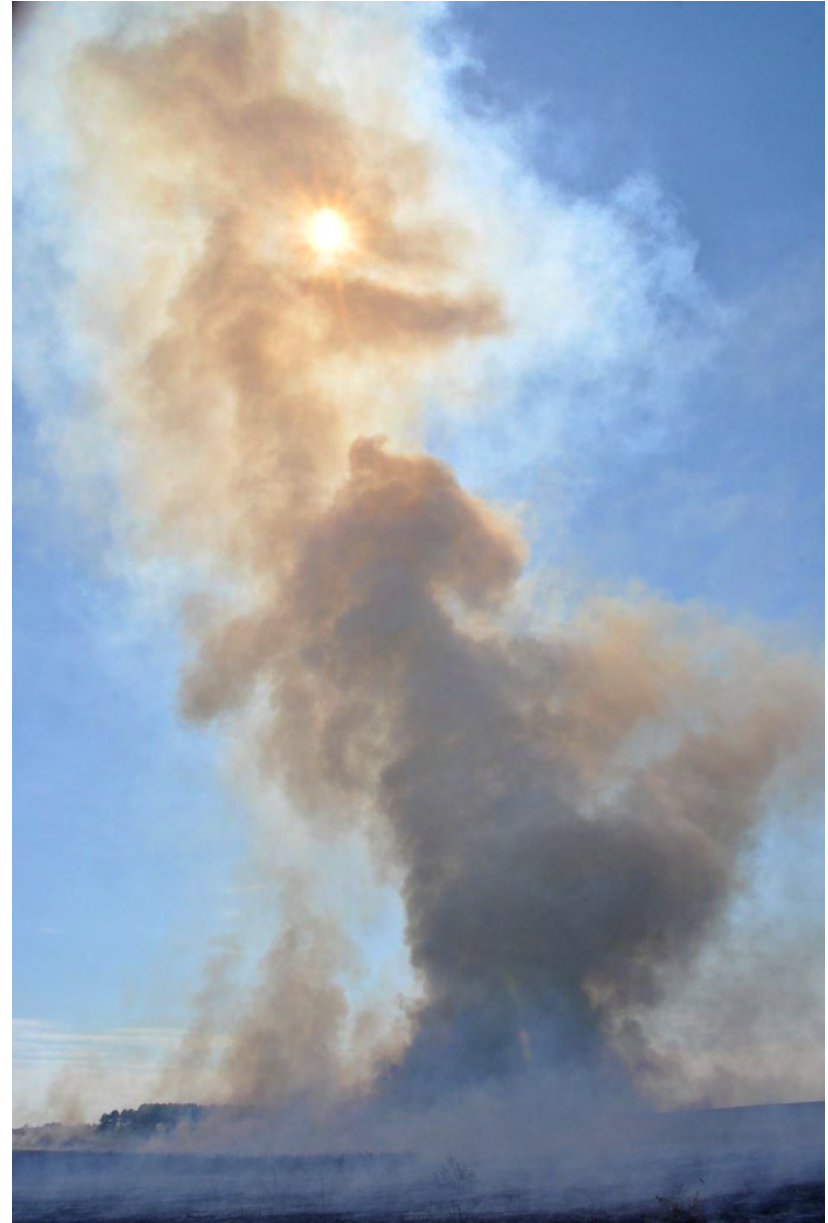
- Wash off dust and clean them up.
- Check engine motor oil and air filter.
- Pump – check oil level (use non detergent 30 Weight). If milky oil change diaphragm.
- Check for loose bolts, missing parts and hazards.
- Install in designated vehicle and test.

Fire Pump/Tanker End of season storage:

- Soapy water may grow mold all summer. Use water to spray wash the muddy trucks. Park them on grass. Then fill tank with some clear water and spray or drain that out. Some tanks may need to have water sprayed into them to loosen mold scum.
- Clean motor and pump with engine cleaner and power wash.
- Check lubricants. If pump oil murky replace oil, if not diaphragm kit. Check pump lubricant. Use gear lube to bring to level. Check motor oil.
- Fix any issues with pumper unit. Repair or at least tag.
- Circulate antifreeze in tank. Make sure tank is empty before adding antifreeze so it is not diluted by water.
- Add gas stabilizer to tank. Turn off petcock and run motor until it stalls.
- Attach tag to pump to say what you did so we don't do it again in fall.
- Unload and store in Morton.

Equipment Preparation:

- Nomex - inspect for damage & repair.



Assembling the Fire Team

- Email
- Text message
- Phone
- Facebook
- Others?



Checklists / Maps

Nachusa Grasslands March 2012

FOR EACH TRUCK CHECK/LOAD THE FOLLOWING	Blue Red	Green Truck	Little Red	Blue Truck
tire pressure				
engine oil/coolant/trans fluid/brake fluid				
Pump and truck fuels filled				
Pump motor oil/gear lube/pump oil				
2 gallon safety can fill with drip torch fuel				
2 drip torches				
1 back pack water sprayers				
1 container foam concentrate				
2 leaf rakes				
2 flappers				
fire extinguisher				
lopper				
hand saw				
bolt cutter				
tow chain				
tow strap				
Extra PPE: gloves, eye protection, ear plugs (in glove box)				
first aid kit				
drinking water				
Vehicle Complete				

FOR EACH ATV CHECK/LOAD THE FOLLOWING	Green UTV	Red UTV	Orange KTV
tire pressure			
engine oil/coolant/trans fluid/brake fluid			
Pump and mule fuels filled			
Pump motor oil/gear lube/pump oil			
2 drip torches			
1 back pack water sprayer			
1 leaf rake			
1 fire extinguisher			
first aid kit			
drinking water			
Vehicle Complete			

Initial when done

WATER TENDER ON TRAILER

Hook up trailer and park near outhouse spigot
 Fill tank with water
 Insert drain plug on pump (kept in tender tool box)
 Fill fuel on pump
 check motor oil
 check tire pressures on Truck and Trailer
 If needed, contact fuel man



Crew Name Clockwise

Vehicles Big Red, Green Mule

Crew Boss - Cody Considine

Crew Members

Brian Dugan, Becky Hartman, John Heneghan, Bernie Buchholz, Earl Thomas, Al Meier.

Fire Scout - Dwight Heckert ~400AC.

MARCH 18, 2010

2nd attempt.

Crew Name Counter clockwise

Vehicles Green, Orange RSV

Crew Boss - Bill

Crew Members

Mike Saxton, Hank Hartman, Dave Crites, Keith Anderson, Steve Sentoff; Tim Benedict

Tender at AOTP entrance

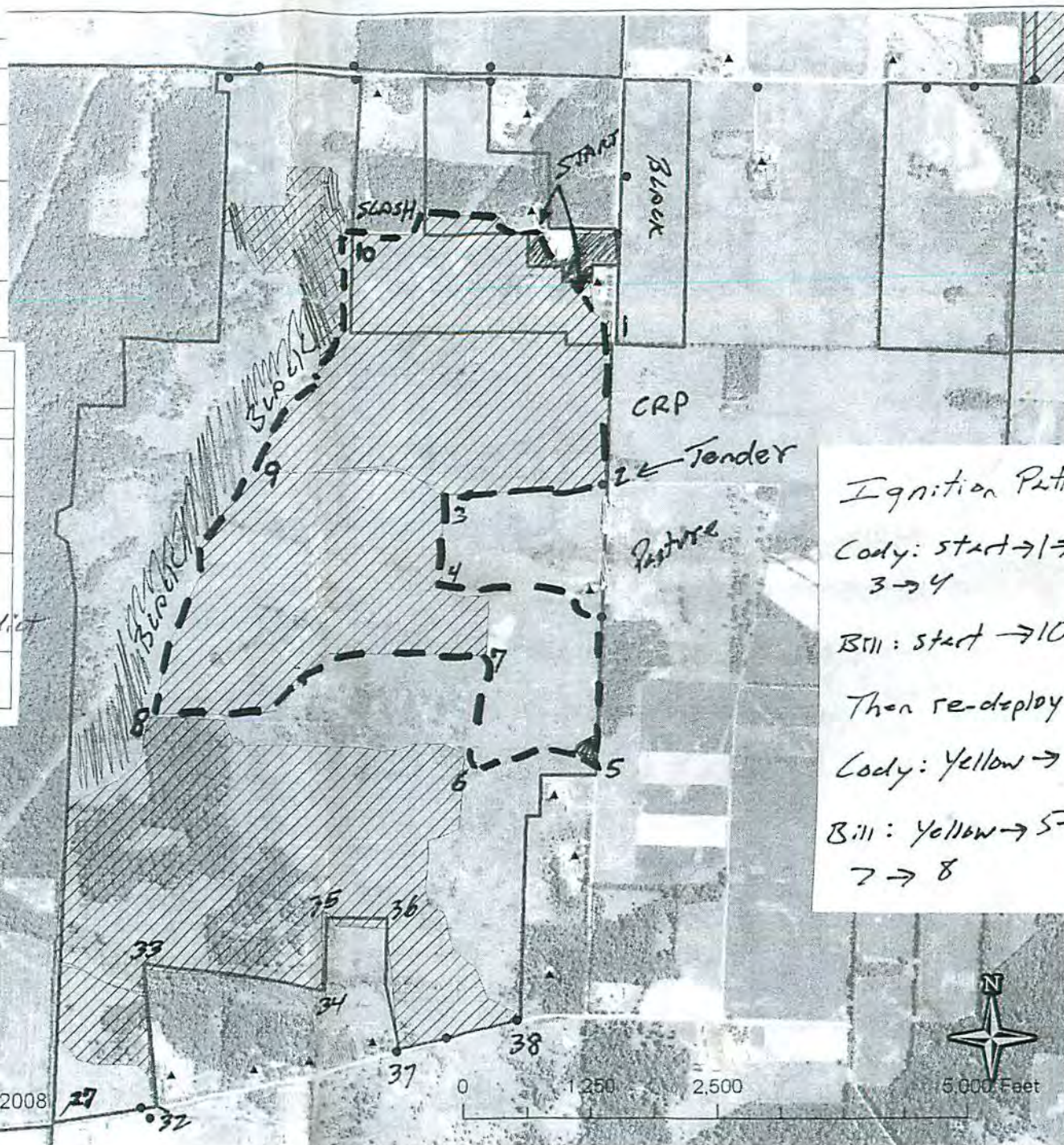
Legend

• Access for vehicles

▲ Homes

burn_units_2010

nachusa_grasslands_line_june_2008



Ignition Pattern

Cody: start → 1 → 2
3 → 4

Bill: start → 10

Then re-deploy...

Cody: Yellow → 4

Bill: Yellow → 5 → 6

7 → 8

Employ Volunteers









Training / Refreshers







Fire breaks: One of our biggest logical hurdles







Local farmer wants the grass





04/05/2002



Equipment

Have Good Equipment and a redundant amount



Know Your Equipment



A redundant amount of equipment will keep fire alive



Think Creatively



WATER TENDER

425 gallon ag tank bolted on a double axle car trailer with a 5.5 HP trash pump. Built in storage box in front of tank serves as a fire cache



Hay rake

FOAM LINE

Move faster

Safer

Affordable



Golf fairway blower

Blow leaves off a woodland fire break



Show off fire benefits



12/11/2002











04/05/2003









Fire Culture









“People of the prairie have become the people of the fire.” – Steve Pyne



Nachusa Grasslands
Bill Kleiman, Project Director
Cody Considine, Restoration Ecologist

