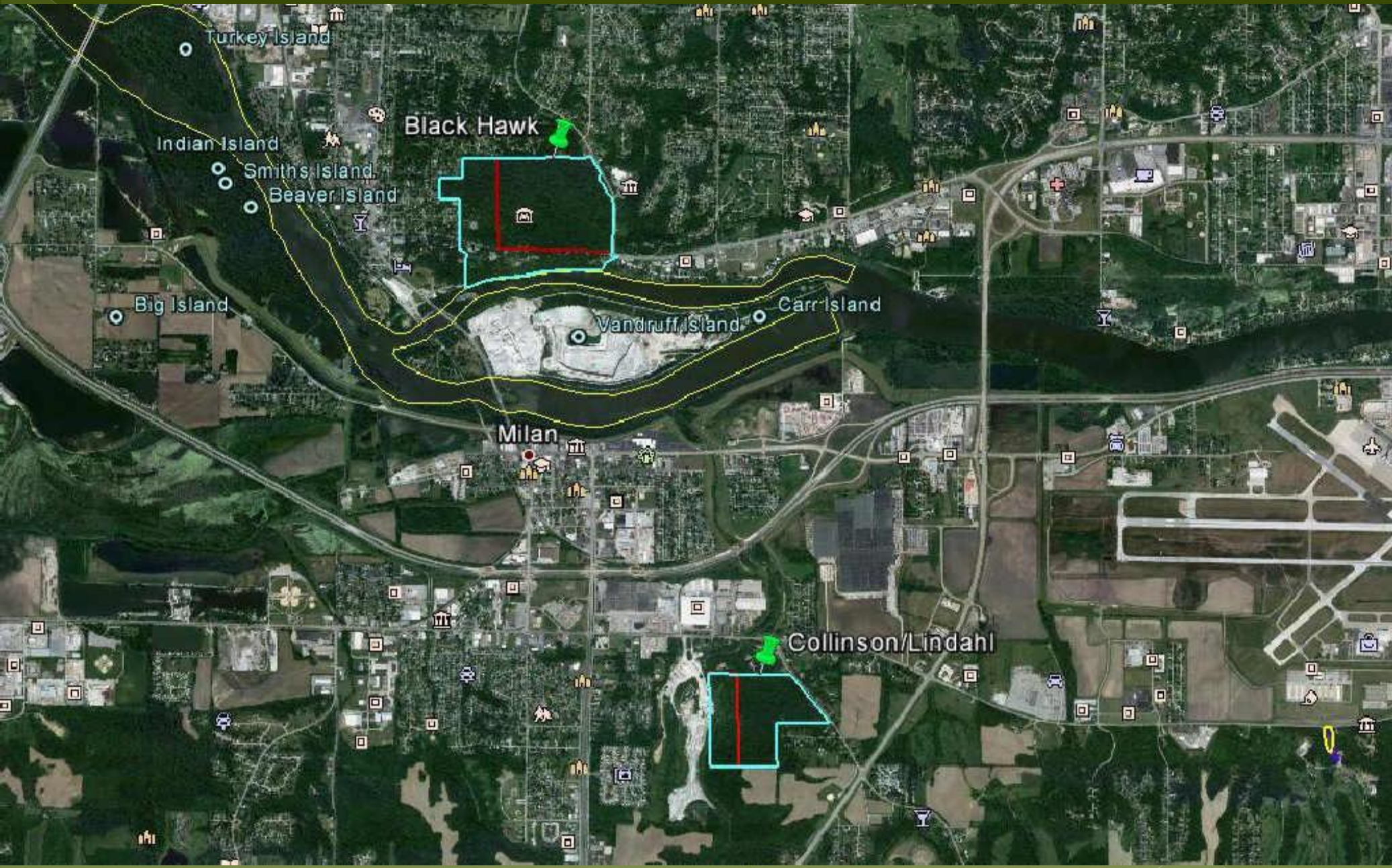
Reintroducing Prescribed fire to fire dependent (but fire-excluded) woodland and forest urban ecosystems

Prescribed Fire Specialists
THUNDER PAWS
ECOLOGY and FIRE

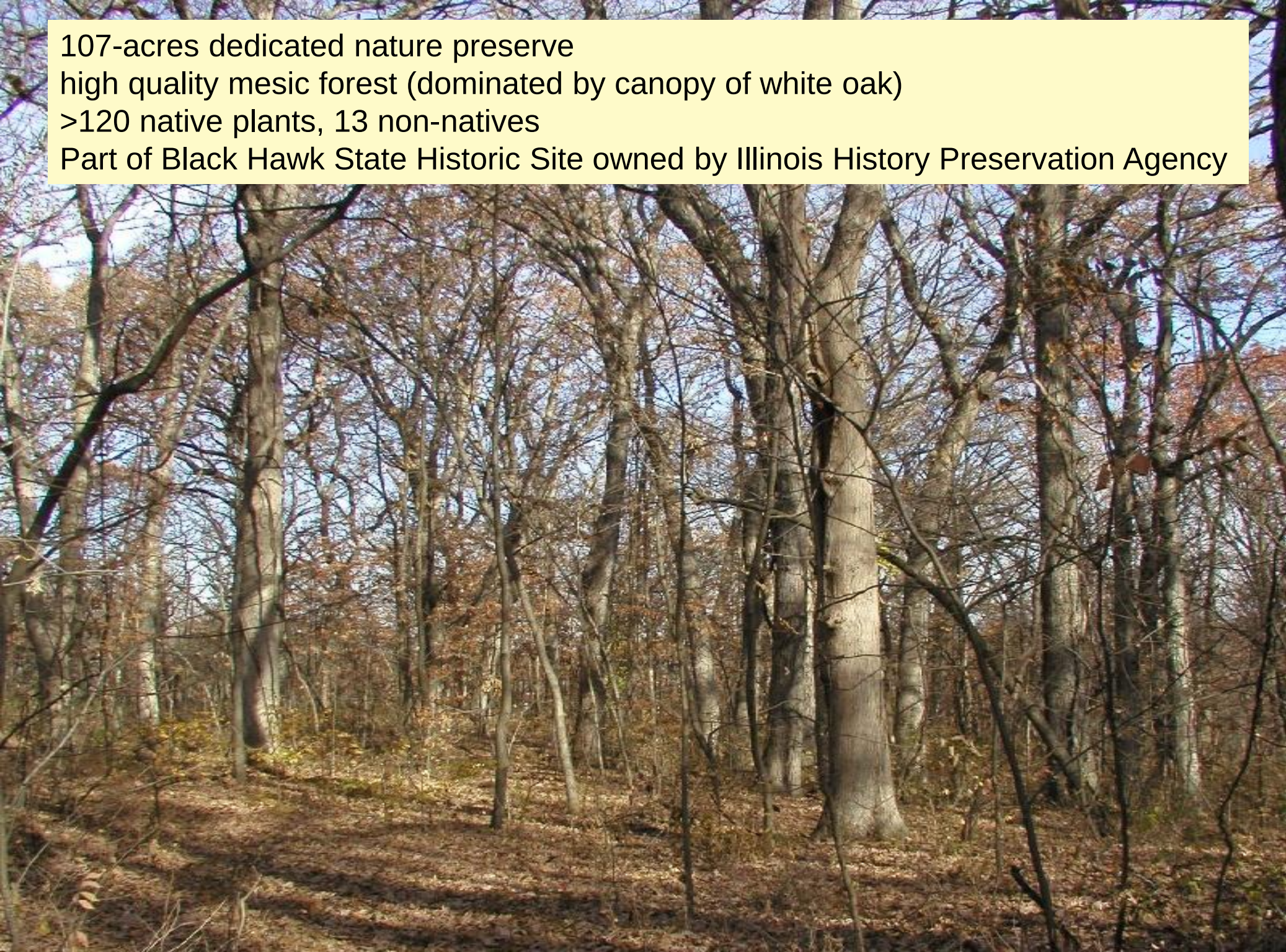
Illinois
Nature Preserves Commission

- Matt Schramm – Thunder Paws Ecology and Fire
- Angella Moorehouse – Illinois Nature Preserves Commission



Aerial photo showing location of Black Hawk Forest and Collinson Field Station.

Black Hawk State Historic Site
Black Hawk Forest Nature Preserve



107-acres dedicated nature preserve
high quality mesic forest (dominated by canopy of white oak)
>120 native plants, 13 non-natives
Part of Black Hawk State Historic Site owned by Illinois History Preservation Agency

Illinois Rt. 5 south border of Black Hawk Forest - busy road, poor visibility


Park remains open during the day to recreational hikers
TRAILS CLOSE AT DARK
ALL MOTOR VEHICLES PROHIBITED
AN ILLINOIS NATURE PRESERVE

2008 wind storm damage at Black Hawk Forest left canopy gaps and heavy fuel loads

Intense fire conditions in fall 2008 with large #s jackpots and ladder fuels following the wind storm

Canopy gap and disturbance also improved conditions for winged wahoo (*Euonymus alatus*) - #1 invasive problem at Black Hawk

FIREMON PLOTS Fall 2010
(pre-treatment)
Valley of the Burning Bush,
Blackhawk SHS Unit 12-S3

Additional Invasives

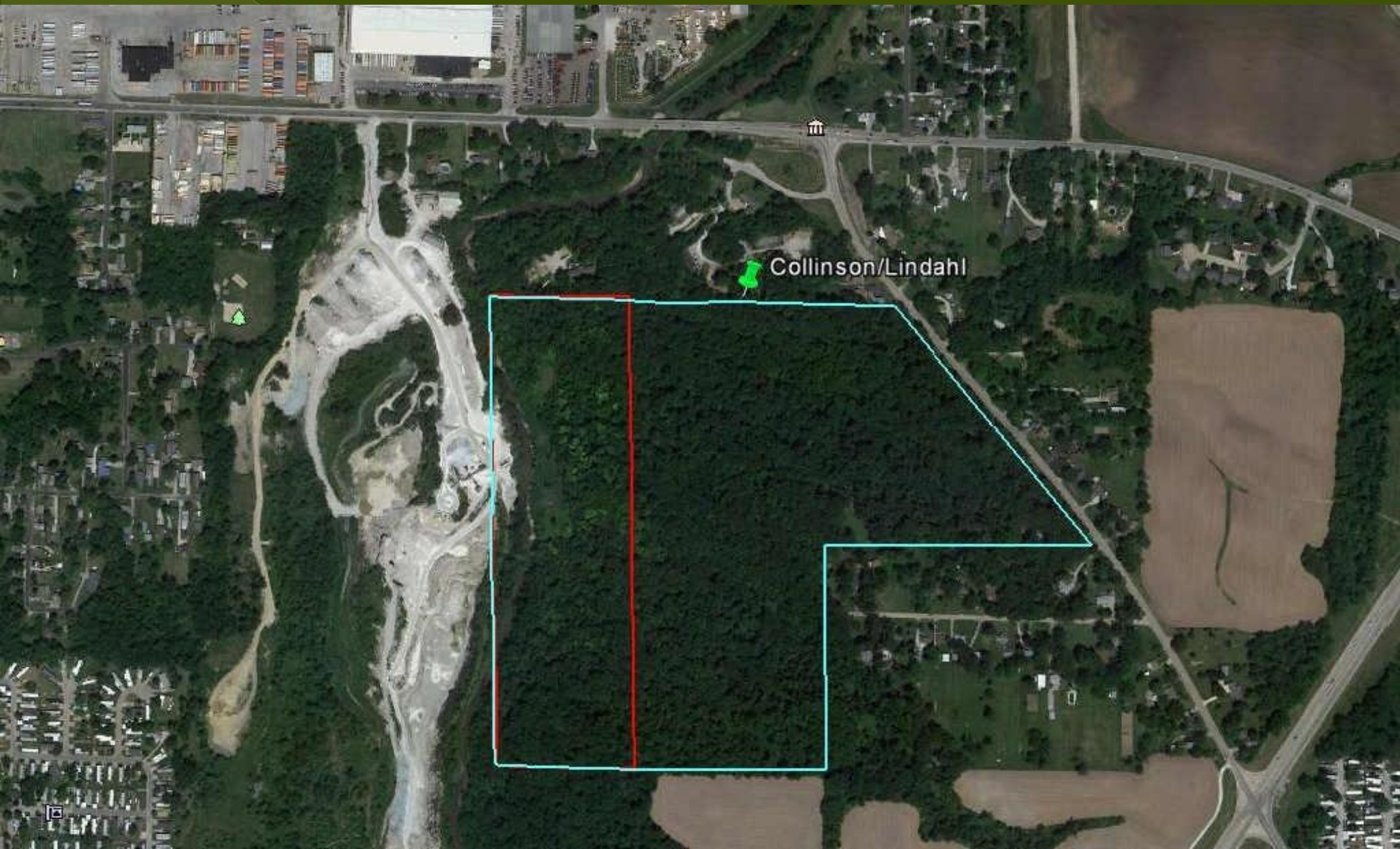


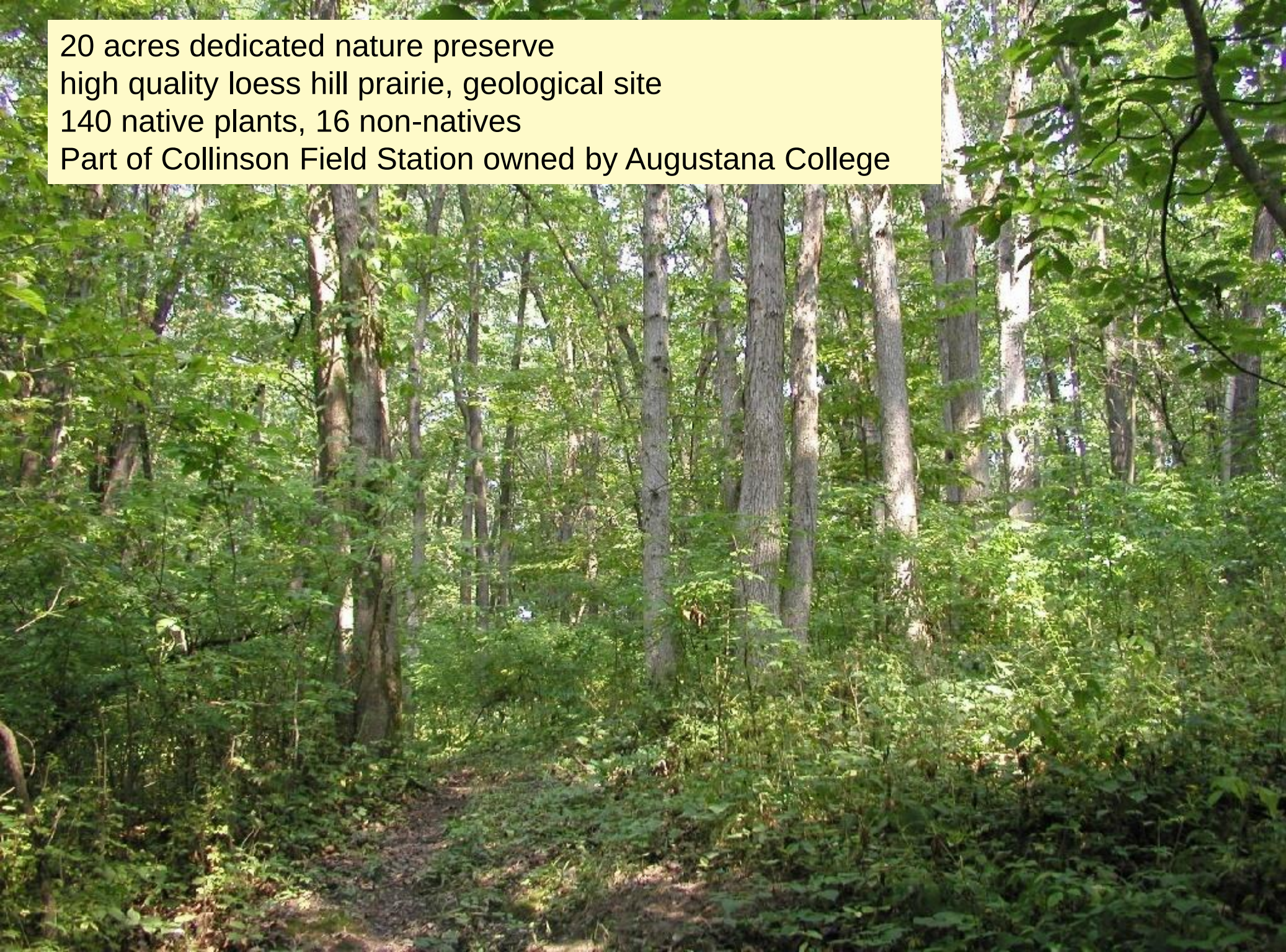






Collinson Field Station
Josua Lindahl Hill Prairie Nature Preserve (high quality hill prairie and geological site)
70 acres, 140 native plants, 16 non-natives




20 acres dedicated nature preserve
high quality loess hill prairie, geological site
140 native plants, 16 non-natives
Part of Collinson Field Station owned by Augustana College

Prickly Ash (Zanthoxylum americanum) greatest woody invasive issue at this time – winged wahoo, bush honeysuckle and others increasing

Prior to 2009, management focus was on hill prairie

Project Timeline

- July 22, 2008 – Derecho strikes field sites with sustained 90 mph winds
- Fall 2008; Rx fire at Blackhawk in green heavy fuels
- Fall 2009; Rx fire in now cured heavy fuels results in smoke management, fire effects issues
- June 2010; USFS grant awarded to treat hazardous fuels at 3 WUI sites (Blackhawk SHS, Collinson Preserve, West Lake Park in Scott County, Iowa)
- Fall 2010-Winter 2011; field assessments, mapping of treatment units; FIREMON plots established
- Winter 2011-Fall 2012; Reopen trail networks and establish/re-enforce fire breaks;
- Fall 2010-Winter 2013 (February); Mechanical treatments, pile burns, and Rx fires in select units
- Late Winter 2013 (February-March); 1st re-inventory of FIREMON plots
- Final Grant Report: April 30, 2013

Hazardous Fuels Mitigation In the Quad Cities WUI

• $120,500 grant awarded to Interstate Resource Conservation and Development (RC&D) to address fuel load hazards, control invasive/exotic woody plants (vines, shrubs, trees) that contribute to ladder fuels, and create safer conditions for future use of prescribed fire at project sites

•$122,500 in-kind match provided by multi-agency, bi-state partnership

Lots of help provided by River Bend Wildland Stewards, Augustana College, and other volunteer groups (John Deere, Sierra Club, Boy Scouts)


BONEPILES!
Grand County Colorado February 2011

Stacking and burning of piles to reduce fuel loading

Always conduct ignitions under safe containment conditions!

Goal is to maintain hot ignitions, minimize smoldering, and promote complete combustion of heavy fuels


Thorough burn down of heavy fuels

Less site impacts compared to large pile burns or broadcast burning of slash

Mechanical Fuel Load Reductions: Cut and disperse larger log sections


IMPLEMENTATION OF
PRESCRIBED FIRE PROGRAM

Prescribed fire is essential to control invasive shrubs and maintain diversity of native plant communities.

Benefits of Prescribed Fire

- Most effective broad-spectrum control of invasive plants esp. shrubs and trees
- Mimics historic natural processes
- Reduces fuel loads; reduces chance of wildfires and problems with smoke management and risk of property damage in urban environment
- More cost efficient for long-term maintenance

Cost estimates for woody invasive control (moderate to heavy density)

- Hand clearing and chemical treatment with chainsaws and hand-held brush trimmers $100-$200/acre
- Tracked vehicles such as Geoboy or Bobcat with Fecon head along with chemical spray

$400-$600/acre (generally not for high quality sites)

Prescribed Fire

$600-$1000/acre initial costs, additional acreage, follow up and use of trained volunteers can decrease costs (often logistically easier than hiring contractors for mechanically clearing)

Smoke is a major concern at Black Hawk – need good lift and dispersal to avoid smoke on roads, residential areas, air traffic concerns
Small units, laid down lots of active flames to allow heat to draw fire together

RH and other conditions will change throughout the day causing shifts in smoke dispersal, flame lengths, rate of spread, direction of spread, etc.

Note density of wahoo thickets - attempted 100% burn in these thickets

Note scorch height up to 1-2 feet – good shrub kill attained

Collinson Field Station

In addition to fuel reduction, top priority was to decrease density of shrubs/small trees

Note difference between 2008 and 2012 fires. Above fire was cool burn with higher RH, however jackpot fuel was cured and burned hotter. Top fire also had higher winds.