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Woodland Example Land Walk Report

Land Walk on: September 10, 2017
Report Submitted on: September 25, 2017
Agroecologist: Luke Gran, Forester

Landowner:
John and Jane Doe
Address

Land Location:
Coordinates
County
Township
Section

SUMMARY
John and Jane purchased 53.49 acres of timber from a family friend in 2017. Located just 8 miles northwest of Town, John had fished and hunted it with family friends for years. Now, he and his wife Jane aim to make it their home and private recreation space with a focus on enjoying the quiet, beauty, and nature. They also hope to improve the habitat for wildlife increase native plant diversity, and plant a small orchard for home consumption of fruits and nuts. The Does want to permanently protect this land from future destruction from housing developments, animal confinement operations, or intensive agricultural crop farming.

At least three distinct ecological communities comprise the land: 27 acres of bottomland hardwood forest, 15 acres of upland oak hickory forest. 2,700 linear feet of Local Creek provides stream riparian vegetation composed of about 5 acres of water, and land in the 100 year floodplain. Based on the photographic evidence since the 1930s, it is unlikely that any of this land was ever plowed for crop production, and the presence of cattle kept the woods fairly open for sunlight. It has a high probability of having diverse native vegetation, which is uncommon in central Iowa.

Jane and John would be open selling a conservation easement while retaining land ownership to limit the destruction of the timber by a future landowner.

Prior to the Does' ownership of the land, fire was suppressed for over 100 years, cattle were given unrestricted access to graze the timber pasture (continuous grazing) for many decades. It is likely that selective logging has occurred, in which the highest quality black walnut and white oak timber trees were removed from the property without care for regeneration of high quality species.

Woodland prescribed fire during the dormant season (between approximately October 15th and April 1st) is needed throughout the property to help restore native plants and prevent invasive species noted on the site (multiflora rose, buckthorn, and honeysuckle) from overwhelming the forest. Additional chainsaw thinning and stump treatment of herbicides will be necessary to remove undesirable vegetation that grew during the period of fire suppression. Removal will enable more sunlight to hit the forest floor to support

regeneration of oak, hickory, and black walnut--species that are valuable for both wildlife and timber production.

A Stream Restoration Review is needed soon to determine the erosive potential of the steep cliff on the left (East) bank of Local Creek. Additional forest management data should be collected and a Forest Management Plan written to define stand level management threats and opportunities as well as an economic appraisal of the standing timber. These will help the landowners understand the potential for a timber sale to help fund their conservation objectives.

Table 1. Snapshot of the land use types as of 2017.

Land Type	*Acres (approximate)*	*%*
Bottomland hardwood forest	27	49.2
Upland hardwood forest	15	26.3
Local Creek (about 2,700 linear feet)	5	9.3
Mesic-Medium upland prairie	5	9.3
Road A Avenue Right of Way	1.05	1.9
bottomland pastured grassland	0.85	1.6
Total	***53.9***	***100***

Local CREEK

Local Creek, a tributary of the Local River, flows from the northwest to the south. It is a dominant feature, and hosts abundant fishing opportunities including suspected northern pike, and smallmouth bass. Dramatic hydrological changes over the past 150 years have greatly increased the erosive potential of this creek with flashy flows occurring following precipitation. Significant streambank erosion of the cliff on this property threatens land use in the upland oak savanna located due west of the lane entrance.

CLIENT OBJECTIVES (Based on one phone call with John in August 2017 and a Land Walk with John and Jane.)

1. ***Restore diverse, native ecosystems on this land to enjoy wildlife viewing, fishing, and hunting.***
2. ***Construct a home on the site in a location that will not cause degradation of the remnant forest, will fit in with the new fire-based land management system, and whose foundation will not be threatened for at least 100 years by the unstable banks of Local Creek.***
3. ***Plant a small orchard in a place on the land where it will thrive.***

4. ***Leave a legacy of high quality land, habitat, managed natural ecosystems for future generations. Permanently protect this improved habitat and ecosystem from development of additional housing, roads, or agriculture.***

OBJECTIVES-ORIENTED RECOMMENDATIONS

1. ***Restore diverse, native ecosystems on this land to enjoy wildlife viewing, fishing, and hunting.***
    a. Perform a pilot project **prescribed burn** on about 5-10 acres of land, east of Local Creek along the south fenceline by April 1, 2018.

    b. Call Pete Englund of Legacy Trails, LLC to come out and look at the site for **trails development** input. His phone number is (651) 402-3061 and email is pete.englund10@gmail.com.

    c. Engage diverse conservation partners (State, Federal, Private) who provide financial assistance to help make these improvements to your land by December 1, 2017.
        i. **Resource Enhancement and Protection** (REAP), financial assistance from the State of Iowa. For details, contact your county Soil Water Conservation District at (515)432-2316 x 3
        ii. **Environmental Quality Incentives Program** (EQIP), Federal cost-share that is available through the **Natural Resource Conservation Service** (NRCS). Contact your county USDA Service Center--NRCS office at (515) 432-2316.
        iii. Contact **Prairie Rivers of Iowa** at (515) 232-0048 to see what conservation cost-share they may have available.
        iv. Complete a management project by December 31, 2018.

    d. **Assess** the quality of the **timber assets** on the farm and get **recommendations** for their care and management.
        i. **Develop a Forest Management Plan** with the aid of a forester by March 1, 2018.
            1. Free plans are offered by Iowa Department of Natural Resources (DNR) **District Foresters** around the state. Your district forester is Aaron Wright. His contact information is: (515) 993-4133; Aaron.Wright@dnr.iowa.gov
            2. Alternatively, you may hire a **private forester** (such as Prudenterra's Luke Gran) to write this plan for you. Private foresters can also provide **appraisals of timber value** with this plan. The State foresters are not allowed to offer this service by law. **Financial assistance** through the Natural Resource Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) is available to help pay for some of this consulting fee. Contact your county NRCS and ask to apply for funding to hire a Technical Service Provider (TSP) to prepare a Forest Management Plan.

2. ***Construct a home on the site in a location that will not cause degradation of the remnant forest, will fit in with the new fire-based land management system, and whose foundation will not be threatened for at least 100 years by the unstable banks of Local Creek.***
    a. Hire Prudenterra or another trained stream ecologist to conduct a **Stream Restoration Review** by November 1, 2017.

    b. Carefully **site** the **location** of the home, outbuildings, driveway. Be aware of the Protected Root Zone and be sure to calculate the Critical Root Radius: https://www.extension.umn.edu/garden/yard-garden/trees-shrubs/protecting-trees-from-construction-damage/

3. ***Plant a small orchard in a place on the land where it will thrive.***
    a. **Climate.** To avoid the frost pocket and flood risks in the bottomland, select an area near the house in the upland portion of the prairie area to plant your orchard.
    b. **Soil.** Plant orchard trees in the Hayden or Lester soil types.
    c. **Species.** Plant diverse fruit and nut-bearing trees and shrubs (apples, pears, peaches, plums, cherries, hazelnuts, chestnuts, paw paws, Illinois mulberries, blueberries, raspberries, aronia berries, honeyberries, currants, gooseberries) in a grid pattern to facilitate management (mowing, harvest, etc.). Larger species such as chinese chestnuts will need to be spaced 20' x 20' apart.
    d. **Fencing.** Depending on species, use either Plantra tree shelters, or woven wire fence for cages with three t-posts as support per tree, with up to 26 linear feet of fence per tree.
    e. **Reduce Root Competition.** Kill all competing vegetation within 3 feet radius before planting trees with tillage or 2% solution of glyphosate herbicide. In March, spray a couple pre-emergent herbicides to inhibit the growth of weeds or grasses within this zone. *Root competition and mice can kill trees in the first few years of their life.*
    f. **In-Depth Information for Success.** Consider hiring Prudenterra to develop an Orchard Project Plan to assist you with your species and varieties selection, planting protocols, protection from deer, and root competition from weeds/grasses.

4. ***Leave a legacy of high quality land, habitat, managed natural ecosystems for future generations. Permanently protect this improved habitat and ecosystem from development of additional housing, roads, or agriculture.***
    a. Explore the sale of a **conservation easement** to protect the land from future development pressure.
    b. Use tax credit savings or cash generated to help **fund the restoration of the land**.
    c. Contact the **Iowa Natural Heritage Foundation**'s Anita O'Gara by December 1, 2017 to setup a meeting and ask for more information. Her email is aogara@inhf.org and phone number is (515) 288-1846; extension 18.

I look forward to assisting you further with the implementation of these land enhancements.

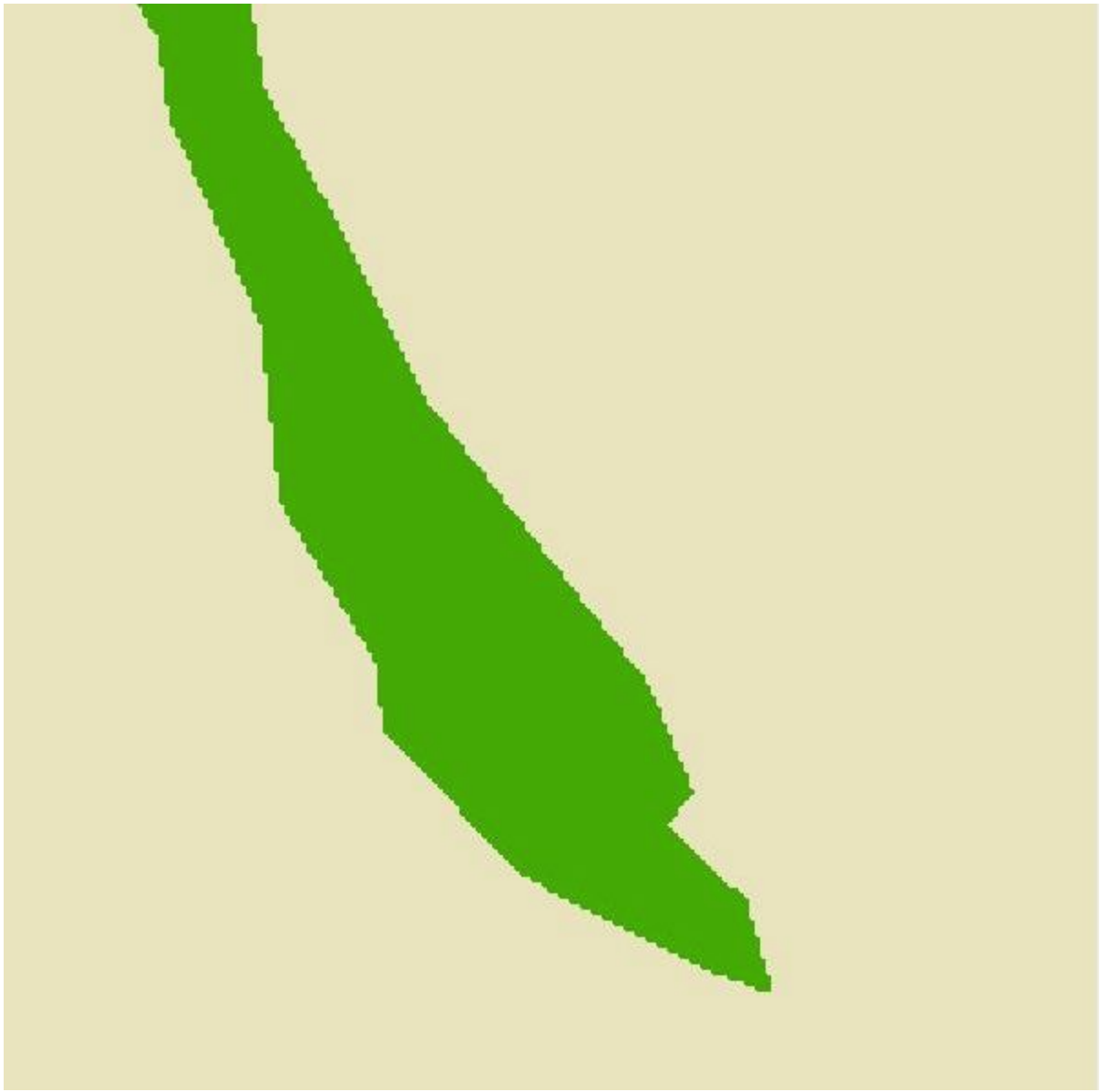
Best Wishes,

Luke Robert Gran

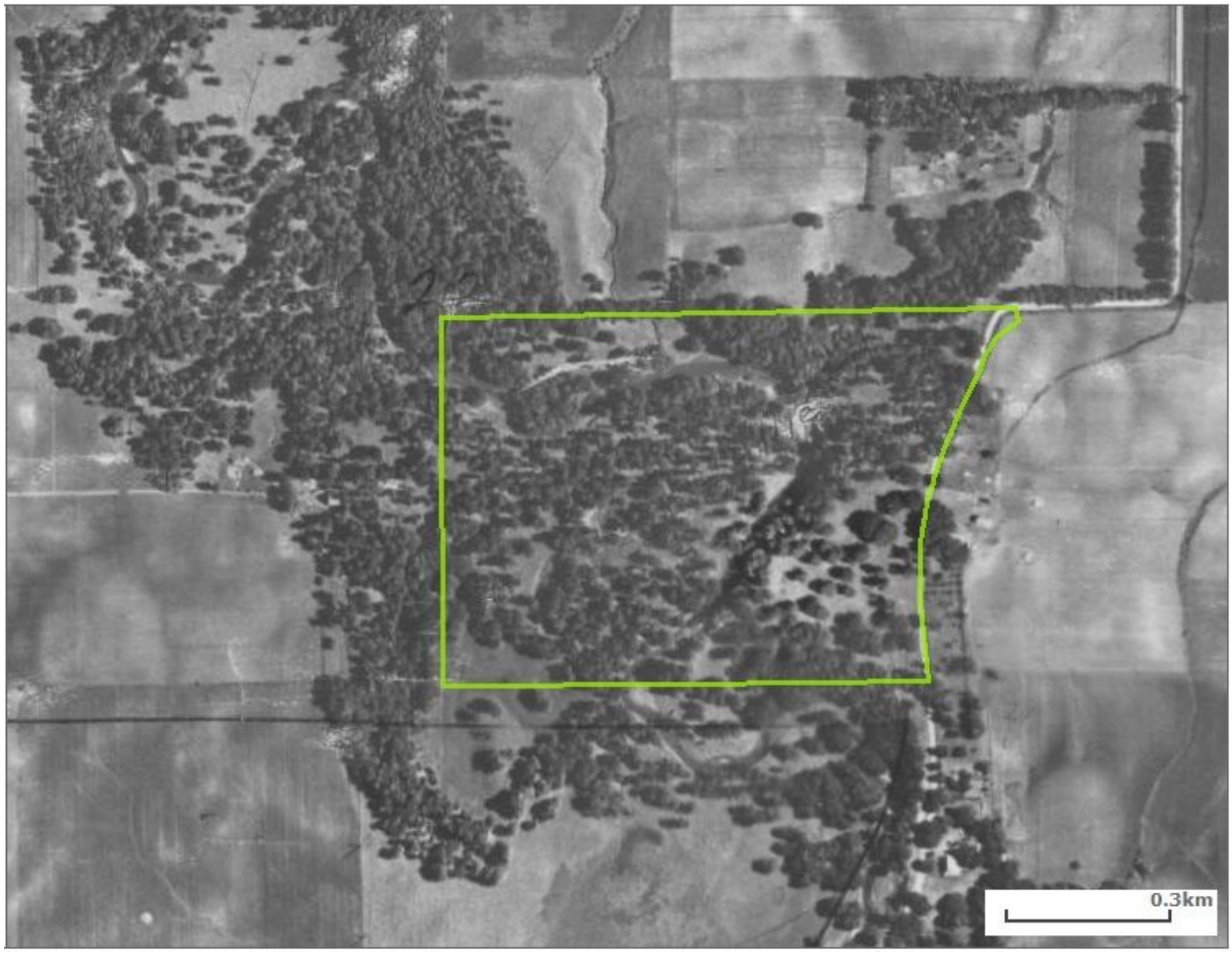
Luke Robert Gran
Owner, Forester

Historic Vegetation

Land in green was forested in 1850. Land in beige was tallgrass prairie.



1930s Aerial Photograph

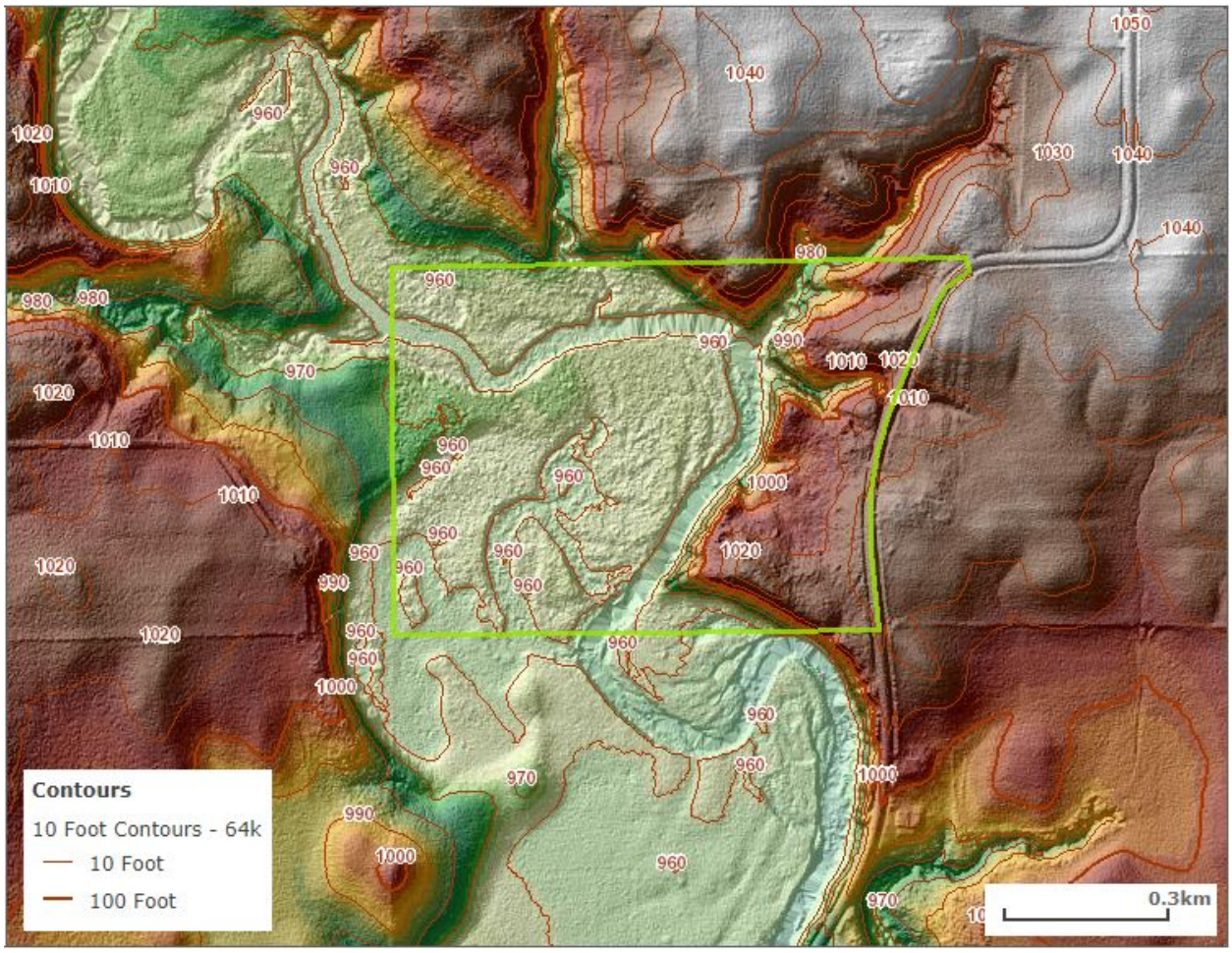


Created by Win Cowger for Prudenterra in ArcMap with 1930s Aerial Imagery from the Iowa Geographic Map Server.

2016 Aerial Photograph

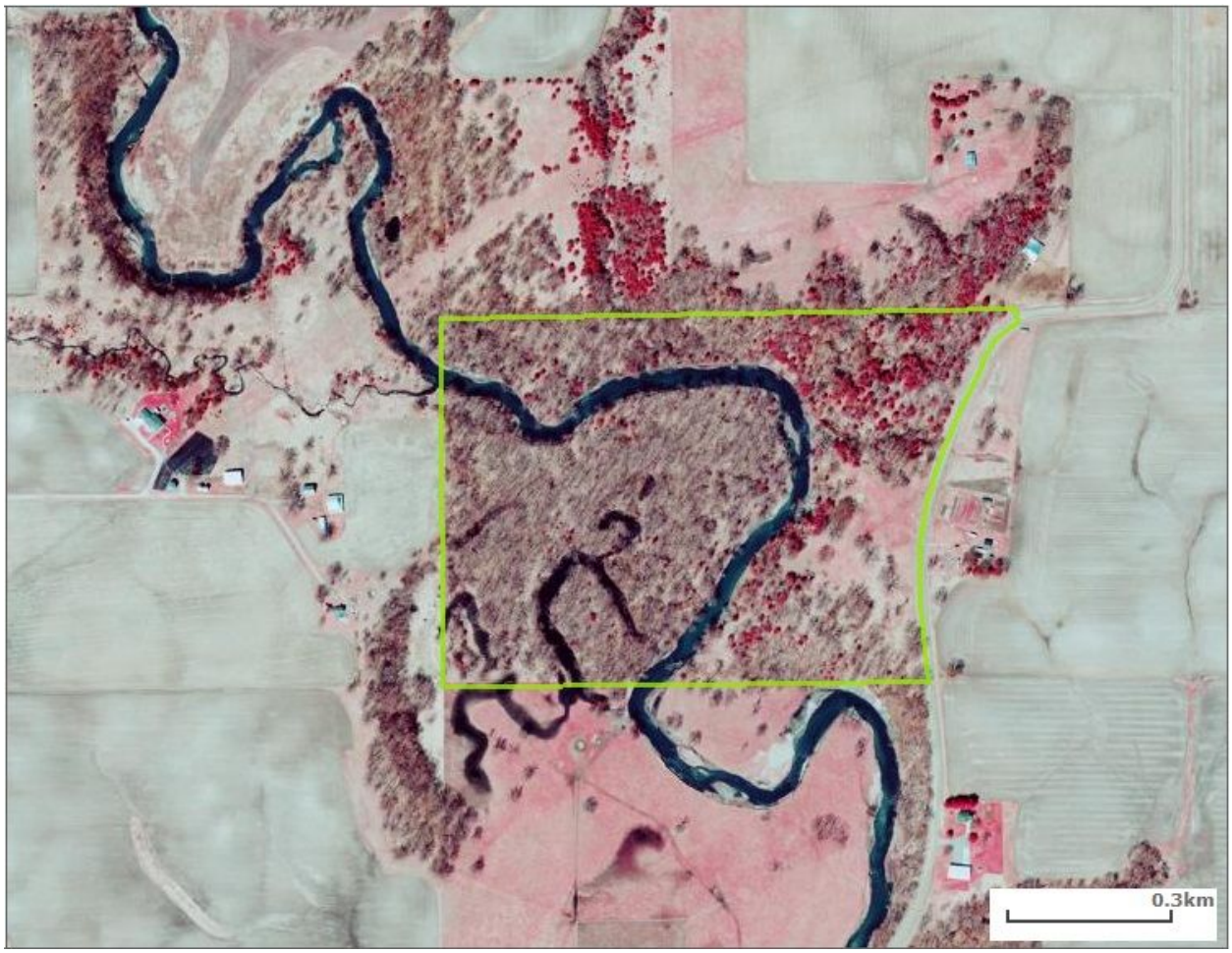
Created by Win Cowger for Prudenterra in ArcMap with World Aerial Imagery from ArcMap.

Light Imaging Detection and Range (LIDAR) Color Elevation (3m)



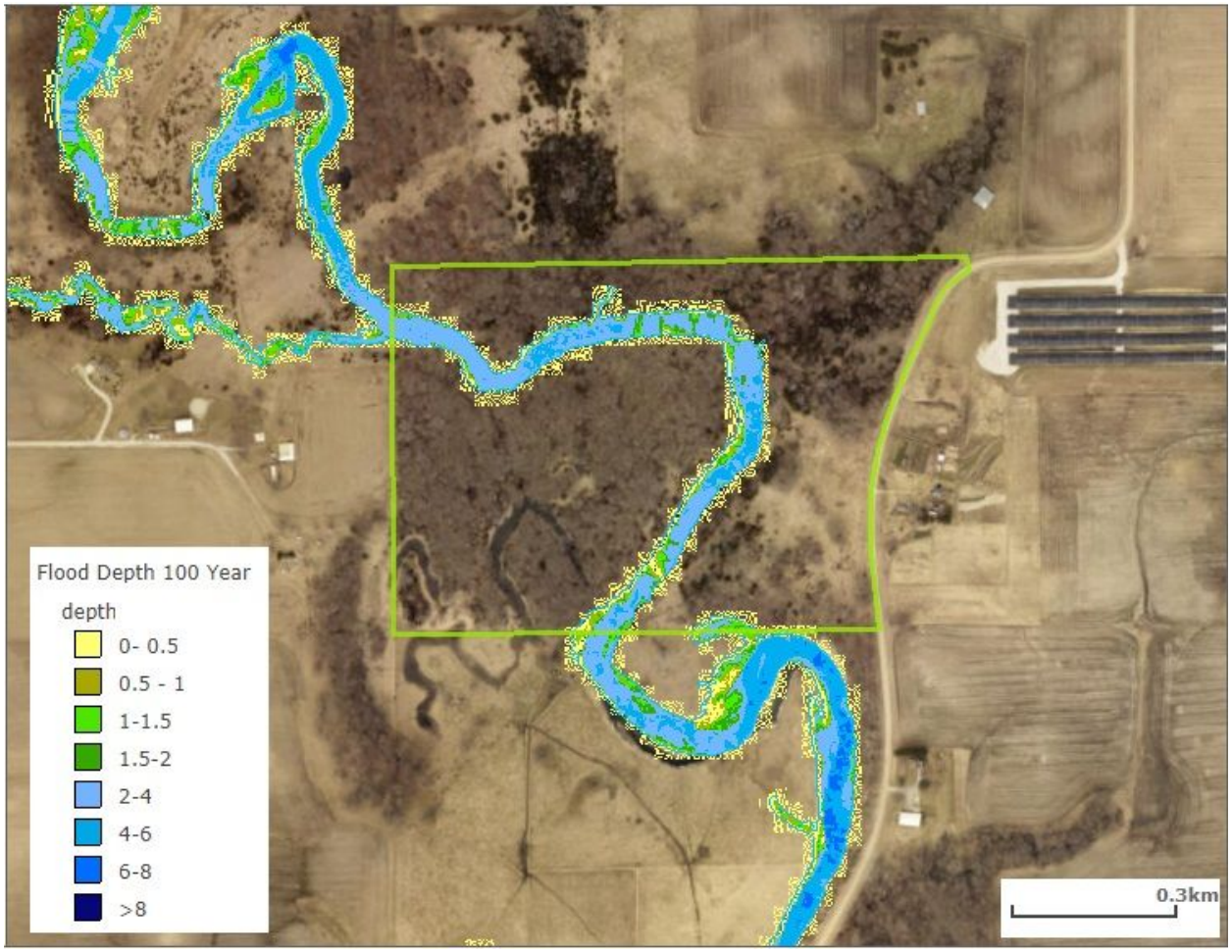
Created by Win Cowger for Prudenterra in ArcMap with 3m lidar imagery from the Iowa Geographic Map Server.

2007-2010 Color Infrared Image



Created by Win Cowger in ArcMap for Prudenterra. Image from 2007-2010 Color Infrared image in Iowa Geographic Map Server.

Floodplain Graphic

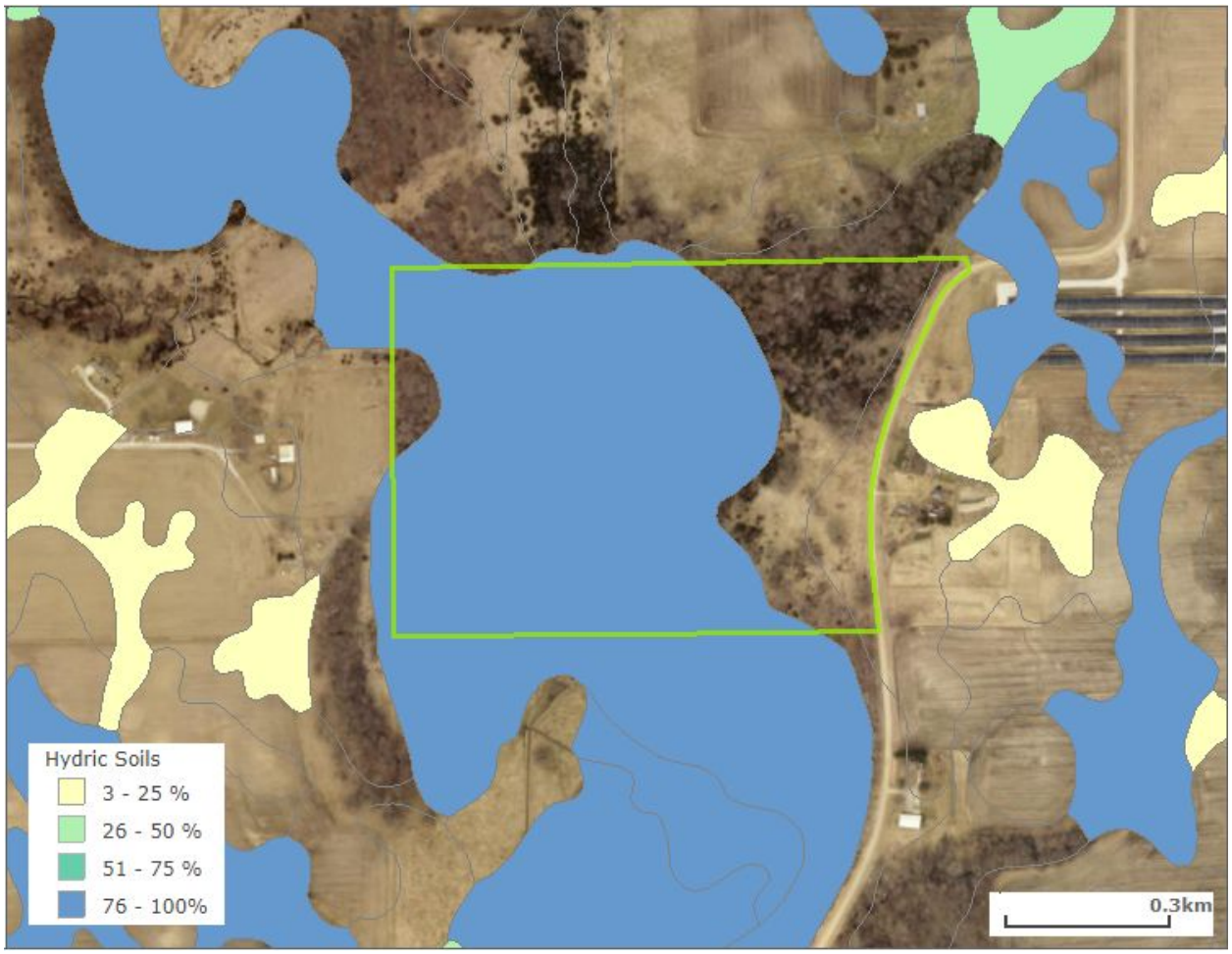


Soils Map

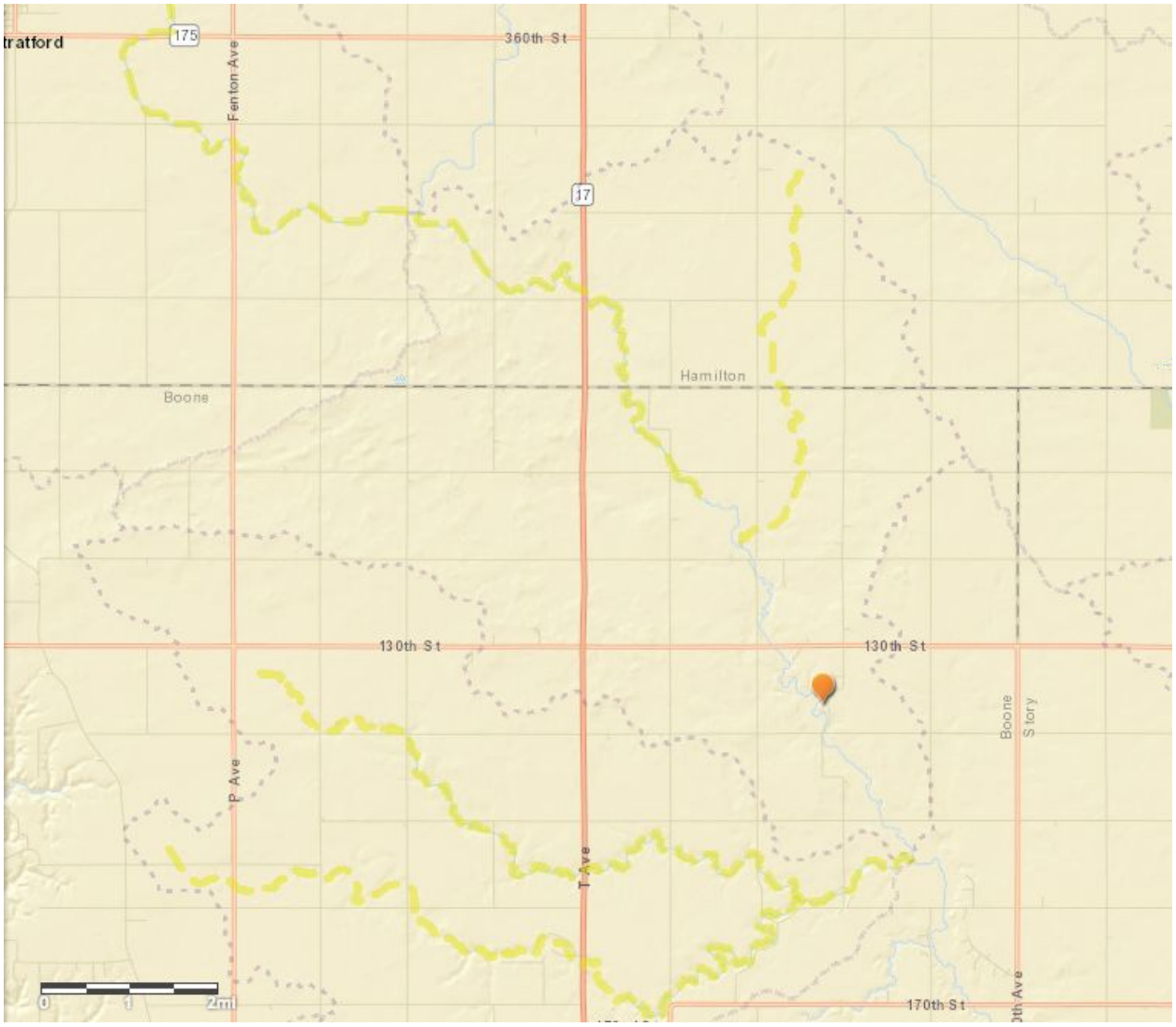
Table 2. Soils Table

Soil Type Name	*Soil Texture*	*Soil Map Unit*	*Acres*	*%*	*% Slope*
Coland	clay loam	1135	37.5	69.5	0-2
Lester	loam, bemis moraine	L236C2	3.9	7.1	6-10
Hayden	loam	168E	11.5	21.4	10-22
Hayden	loam	168C	1.1	2.0	6-10
	Total		***54***	***100***	

Hydric Soils Map



Hydrologic Unit Code 12 Watershed Map



Yellow lines on this map indicate “impaired waterbodies” listed by the EPA in 2014 due to at least one water quality impairment. The dotted purple lines are the approximate boundaries of the twelve digit Hydrologic Unit Code (HUC12) watershed. All rain that falls within these areas flow to the stream(s) passing through the center of the watershed. Details on the impaired river branching to the northwest above your land is here: https://programs.iowadnr.gov/adbnet/Assessments/2468. Details for the one branching northeast above your land is here: https://programs.iowadnr.gov/adbnet/Assessments/2470.

Aerial photos and other graphics accessed at the Iowa Geographic Map Server - Iowa State University Geographic Information Systems Support and Research Facility: www.ortho.gis.iastate.edu/

Soil map accessed at the USDA online Web Soil Survey: http://websoilsurvey.sc.egov.usda.gov

Watershed maps located at the Iowa DNR Water Monitoring Website: http://programs.iowadnr.gov/maps/watermonitoring/