

Overview of 7/12/25 Land Protection Visit

Petra Brokken Property
15695 37th St. S, Afton, Washington County, MN
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Site Description

Petra Brokken and Heidi Kassenberg from the Saint Croix Valley Chapter were present for the visit. The parcels that comprise the property add up to 43.6 acres; an easement would exclude structures and likely encompass a little over 40 acres. The primary communities of interest are oak and oak-pine wooded areas (white oak, *Quercus alba*; red oak, *Quercus rubra*; bur oak, *Quercus macrocarpa*; white pine, *Pinus strobus*) on the slopes and top of a south to north ridge axis in the central part of the property and a west to east ridge axis in the far northern part of the property. In these areas there is now a mature overstory of oak and white pine (some trees quite large) with sedgy (mostly Pennsylvania sedge, *Carex pensylvanica*) herbaceous vegetation. These areas were likely originally open woodlands and have remained wooded, though they have become more densely wooded and developed an understory. Old oaks here have lost lower limbs due to shading, but these limbs were not as large, and their boles not as short as open savanna-grown trees, indicating earlier woodland versus open savanna conditions. The below are species observed incidental to this visit and an earlier visit by Bill Ramsden. All are species associated with woodlands. Some are also associated with more open savannas and prairies, and others are more associated with darker forested ecosystems (woodlands support elements of both). Several species below are conservative to woodlands (bright or dappled shade) and themselves indicate the historical presence of woodland.

Adiantum pedatum—maidenhair fern
Anemone quinquefolia—Wood anemone
Aralia nudicaulis—Wild sarsaparilla
Asarum canadense—Wild ginger
Asclepias exaltata—Poke milkweed
Astragalus canadensis—Canada milkvetch
(tentative, obs. by B. Ramsden based on spring foliage).
Botrypus virginianus—Rattlesnake fern
Brachyelytrum erectum—Bearded shorthusk
Carex gracillima—graceful wood sedge
Carex pedunculata—Pedunculate sedge
Carex rosea—Curly-styled wood sedge
Carex sprengei—Long-beaked sedge
Cystopteris bulbifera—Bulblet fern
Dicentra cucullaria—Dutchman's breeches
Dioscorea villosa—Wild yam
Elymus villosus—Silky wild rye

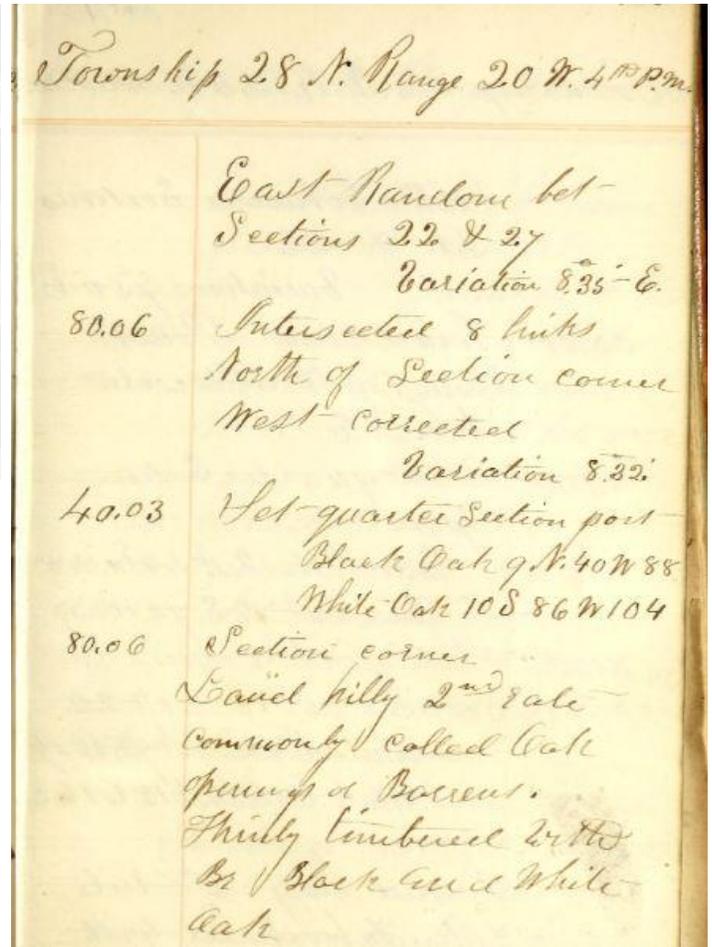
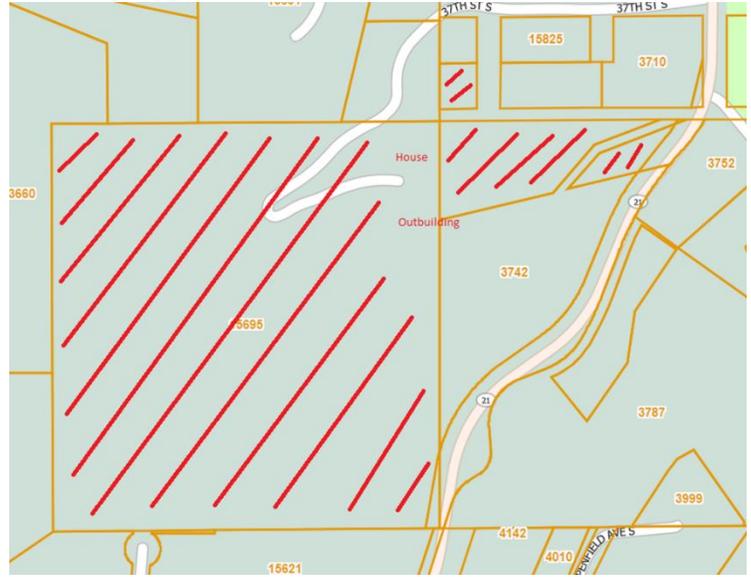
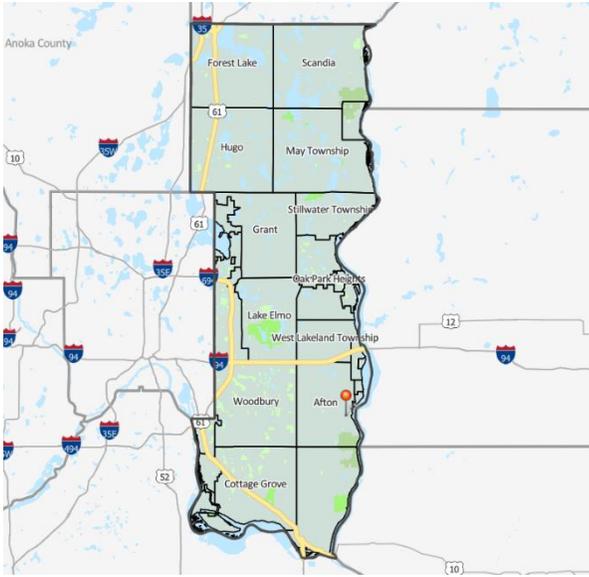
Eurybia macrophylla—Big-leaved aster
Galium boreale—Northern bedstraw
Galium concinnum—Shining bedstraw
Goodyera pubescens—Rattlesnake plantain
Hepatica acutiloba—Sharp-lobed hepatica
Lathyrus ochroleucus—Pale vetchling
Mitella diphylla—Mitrewort
Onoclea sensibilis—Sensitive fern
Osmunda sp.—Fern (vegetative, cinnamon or interrupted fern)
Patis racemosa—Black-seeded rice-grass
Pyrola elliptica—Shinleaf
Solidago flexicaulis—Zig-zag goldenrod
Solidago ulmifolia—Elm-leaved goldenrod
Symphotrichum cordifolium—Heart-leaved aster
Thalictrum thalictroides—Rue anemone
Triosteum aurantiacum—Orange-fruited horse gentian

Viola sororia—Wood violet

The term “big woods” is often applied to forested sites in Minnesota, but this would have been a brighter, oak-dominated community maintained by frequent, low-intensity fires with potentially some white pine associated on the steep, north aspects, though it is possible that the pines were not present 200 years ago. Wisconsin has developed a better concept around [oak woodlands](#), which would serve as better reference here. Original land survey (1848) notes for this immediate area describe the land generally as “thinly timbered” to timbered, primarily with white, bur, and black (*Quercus velutina*, but probably actually *Q. rubra* and *Q. ellipsoidalis*) oaks. The original land survey transect that passes along the south property line describes the land as “thinly timbered” and as “oak openings,” indicating a more open savanna there, but this was along the broader, more level portion of the ridge. Prairie, savanna, and woodland communities often occurred and still occur with differentiation at small scales driven by the interaction of slope, aspect, water, soils, and fire. Woodlands tend to be associated with north aspects, very broken topography, ridge ends, and/or narrower ridge spines, as are present northward on the property. The 1938 air photo shows many open fields around the west, east, and south parts of the property. There were small wooded patches between those fields (likely savanna that had filled in with more trees already), a large, wooded area in the middle of the property with mature trees (particularly the ridgetop and north slopes), and woods along the top and north slope of the ridge in the far north. Taking this together, I suspect the open fields and periphery of the property were once generally open savanna (a little over 30 acres), and the central and northern part of the property—the portions that remain most restorable—were predominantly woodland (a little over 10 acres). This latter area is what might be considered remnant (but degraded) oak woodland. Little remains of what might be considered remnant savanna, but it could be reconstructed with more effort in the long-term.

There is a prairie area east of the house. My understanding from Petra is that the native grasses were always there but her parents had augmented the area by seeding forbs. This area now has an extensive oriental bittersweet (*Celastrus orbiculatus*) invasion.

Asian bittersweet is the most concerning invasive species present. It also occurs throughout the wooded areas, but generally as low, inconspicuous shoots waiting to be released by higher light levels. Common buckthorn (*Rhamnus cathartica*) is abundant and widespread, but the invasion is not so severe as to have eliminated underlying herbaceous vegetation thanks to past and ongoing work to remove it. There are also small amounts of garlic mustard (*Alliaria petiolata*) and hemp nettle (*Galeopsis tetrahit*). The latter can respond aggressively to fire and increasing light levels, but this tends to be more severe where competing native sedges and grasses are sparse.



Top Left: Property location (red pin) in Washington County. **Top Right:** From Bill Ramsden's report—parcels associated with the property, location of the house, driveway, and outbuilding. **Bottom Left:** 1938 air photo with approximate property boundary and very approximate extent of remnant woodland in green. The balance of the property was likely open savanna, perhaps with some small-scale groves. **Bottom Right:** Original land survey notes from 1848 passing along the south boundary of the property.



Top Left: 2024 leaf off air photo showing most of the property now wooded, conifers (esp. Red pine, *Pinus resinosa*) now planted into former fields, larger white pines in the woodland areas, and poplar (*Populus* spp.) evident from white limbs mostly in the former fields. **Top Right:** View of ridgetop oak woodland. **Middle Left:** Black-seeded rice-grass, which occurs along the east-west ridge in the far north. **Middle Center:** Pale vetchling, which was observed in a small pocket of woodland near the south property line just west of the gate. **Middle Right:** Hemp nettle, an annual invasive capable of being aggressive (tall, and seeding prolifically) in areas opened up to light while competing perennial vegetation is sparse. **Bottom Left:** Area of historical woodland with excessive understory of ironwood (*Ostrya virginiana*), which should be thinned to raise the canopy. This will promote filling in of the sedgy herbaceous vegetation.

Management Considerations

I concur with Bill Ramsden that this site presents much less of a heavy lift to restore than many others, and while there are issues with invasive species and missing native species, these can be remedied with practices we have at our disposal. If this is adopted as a project, I would recommend starting on the central north-south ridgetop and the northern east-west ridgetop and working outward and downhill from these areas, removing brush and invasives, removing non-oak understory trees and select non-oaks in the canopy impinging on canopy oaks and white pines, mitigating coarse woody debris (removing it, burning it in as few piles as possible, rolling it downhill), reintroducing very frequent dormant fire (autumn to very early spring, prior to spring flora emergence), and adding seed of missing species (these could be further elaborated in a management plan, but things like grove sandwort, wood betony, false toadflax, all of which grow in oak woodlands). Woodland areas would respond very quickly (inside of a decade once under such management). Areas of historical savanna also generally have good sedge and woodland grass cover. In my opinion, these would respond best to woodland management initially, because that's the herbaceous vegetation that remains, and then a slow program of canopy thinning in conjunction with seeding progressively more light-loving species over a backdrop of very frequent dormant fire. Proceeding this way, areas of more open savanna may be restored over the course of a few decades, but in the meantime, these areas will be improving as oak woodlands. A quick opening to savanna would likely result in a sudden response of brambles, brush, bittersweet, and tall herbaceous weeds. Small oriental bittersweet shoots are widespread, and regular sweeps to treat bittersweet will be needed annually in the management footprint in addition to regular hunts for larger, berry-producing vines. Hog peanut (*Amphicarpaea bracteata*) is over-abundant, especially in some of the historical savanna areas. It may present a challenge for diversifying those areas. Deer browse is another issue, and successful long-term oak regeneration may require caging and protecting from browse and fire a few oaks per acre per decade, though there are good numbers of medium-sized oak, and regeneration is not an immediate crisis.

Ranking Criteria and Costs

The score sheet is attached below. The score is 71, which is above the 70-point threshold used in our guidance—even without assuming full funding at the outset. It is worth noting that this property gets maximum points for size, and unlike most prospective projects on larger properties, most of the property is restorable. More often, properties have small areas of interest, and large, very rough areas. Legal defense, monitoring, and management endowments would need to be put in place. A rough estimate of legal defense and monitoring endowment funds needed is \$23-24k. If volunteers were able to accomplish most or all stewardship of the site, the cost of material and equipment may average just under \$2000 per year and require an endowment of around \$225k, depending on the methods chosen to do the work and how large of a management footprint expansion the Chapter hopes to address per year. My inputs to the calculator assumed incorporating four acres each year into management footprint by removing brush and invasive species, burning in that footprint, and

broadcasting seed from appropriate missing species collected in the region. Contracted services for brush removal and burning would cost much more. Pending the Chapter assessing its volunteer resources, deciding on an approach, and writing a management plan, it is difficult to make precise land management estimates. One possible approach is to initiate work prior to land protection and learn how much progress can be made given the available level of volunteer participation and skills available.

Another consideration here is the potential for involvement of and collaboration with the Minnesota Oak Savanna Chapter. There might be some volunteers in that area that would like the opportunity to have the freedom to do what needs doing start to finish.

This has been discussed as an easement, but if the Chapter is interested in a project here, it would be worth discussing mechanisms by which the Chapter might gain title to all or a significant portion of the easement footprint at some point in the future. It would be possible to create access from the ridgetop versus up the private driveway if this were ever the case.

	Land Protection Projects Ranking Criteria Score Sheet		Site:	Brokken Property
	Category	Score range	Score	Comments
1)	Fits TPE mission?	yes/no	Yes	Historical oak woodland and mixed oak-white pine woods/forest are the main type. This was likely present on steep northerly aspects and perhaps on narrow ridges. Prairie area had native grasses remaining and was augmented. Historical savanna on parts of the property were mostly cleared fields in 1938. Wooded areas that were historical savanna are no longer savanna remnants, possessing only woodland/forest herbaceous plants.
2)	Funding for management, monitoring, and legal defense?	0-10	6	Scored as easement: Easement would be donated. I suspect there is a good chance of getting a significant fraction of the endowment funds from owner, would be 10 if all funds came from owner.
3)	Natural area quality?	0-40	19	Large areas have decent sedge-grass herbaceous layer, but small buckthorn is widespread, and small oriental bittersweet are waiting for higher light (and already extensive in some open areas like the prairie). Some woodland indicator forbs like pale vetchling, norther bedstraw, black-seeded rice-grass, bearded shorthusk, shining bedstraw, and poke milkweed are present, but are generally sparse or in scattered, isolated areas.
4)	Critical habitat for rare and declining species?	0-10	4	Almost certainly some rare and declining songbirds that utilize forest, woodland, but no survey. Fisher is present, but it is no longer considered rare in MN. Some good woodland indicators, like black-seeded rice-grass and pale vetchling, which don't have rare status, but they've become uncommon in historical woodlands
5)	Environmental gradients?	0-5	5	Strong gradients of slope, aspect, soil depth, soil type (silt loam, sandy loam)
6)	Landscape context			
	a. Parcel size?	5-15	15	Parcels add up to 43.6 acres, but an easement would make sense on 40-41 of those acres,
	b. Proximity to other natural areas?	0-5	2	City Park property just to the NE, other wooded ground in area is generally within large residential lots.

	c. Opportunity for expansion?	0-5	1	Possibility of other easements on adjacent larger residential lots, but it's a limited opportunity, more likely would be working with adj. landowners
	d. Adjacent land uses compatible?	0-5	2	Residential, but ridgetop topography could help with smoke management under well-mixed conditions. Inversion would drain smoke into Afton.
7)	Education & outreach opportunities?	0-10	8	The opportunity here is in the future, but I see it as a chance to highlight what a woodland (and mixed oak-pine) woods can be with very frequent, dormant fire. Examples I've seen on private land elsewhere are compelling. Access is decent. In addition to the driveway up to the house, there is a gate off the end of the 42nd St. S. cul-de-sac onto the ridgetop.
8)	Is TPE the most appropriate agent?	0-5	3	This is conditional. If this is to be restored and sustained as the bright, woodland it mostly once was, TPE is the best agent, because it needs very frequent dormant fire (interval 2 years or less in the near-term), and I don't see another org. supporting that. Otherwise, there would be other potential agents.
9)	Other considerations?	0-5	4	Potential collaboration and catalyzing site with Minnesota Oak Savanna Chapter.
10)	Included within a larger conservation project?	0-10	2	Not within a larger protection project but does support important sources of local species and genetics that could serve other local efforts.
	Total	125 max	71	
	Prepared by: Dan Carter			
	Date: Visited 7/12/25, completed 7/15/25			