Appendix 1
Ecological Survey December 2020

TO: Troy City Planning Board.
FROM: David Hunt, Ecological Intuition & Medicine
Rensselaer County Biodiversity Greenprint Project
RE: Golub Parcel. Proposed Apartment Complex Development.
Pleasantdale Bluffs, City of Troy.
DATE: December 22, 2020

Planning Board Members,

As part of my effort of over 20 years to map and provide information to landowners and conservation organizations about regionally-important ecological/biodiversity sites throughout Rensselaer County, I would like to bring to your attention information on two important sites connected to the 9.93-acre Golub parcel (Tax Parcel 70.64-1-1) in the City of Troy, on which an apartment complex is reportedly being proposed:

"Pleasantdale Bluffs"
a county-important rocky summit/slope ecosystem complex containing knolls and cliffs along the Hudson River spanning the Troy/Schaghticoke municipal boundary with associated county-exemplary occurrences of Pitch Pine-Oak-Heath Rocky Summit plus Shale Cliff & Talus Community, as well as 24 known regionally rare plants.

"Hudson River Schaghticoke"
a county-important riparian ecosystem complex containing the Hudson River, shoreline communities, and an associated floodplain, stretching from the Washington County line downstream to the Federal Dam in Troy with associated county-exemplary occurrences of Unconfined River plus Riverside Sand/Gravel Bar, as well as many known regionally-rare plants.

These sites were documented and mapped as part of my contributions to the 2017 Rensselaer County Conservation Plan, coordinated by the Rensselaer Land Trust, focusing on 10 ecological features ranging from relatively small scale (e.g., rare plant concentration areas) to relatively large scale (e.g., regionally-important aquatic networks, forest landscapes, and large-scale conservation sites). Maps have reportedly been accessible on-line since that time for all municipalities and citizens of the county to consult.

I provide an attached packet of summary information about these two sites and their biodiversity components with special focus on the Golub parcel, which explains the basic information available online. More detailed information is available upon request. Each site

represents multiple overlapping county-important ecological features, 6 at Pleasantdale Bluffs, 8 at Hudson River Schaghticoke. Because both these ecological sites are somewhat large, much of the prior information was based on field surveys and historical records off the Golub parcel. Both sites were mapped remotely from air photo plus associated datalayers on land cover, hydrology, topography, geology, and soils. A recent survey of the Golub parcel (December 20, 2020), conducted under 2 feet of snow in conjunction with a group of concerned local neighbors, confirmed the presence of multiple features of both regionally important sites including multiple characteristic natural communities and county-rare plants. Because herbaceous and graminoid plants are often not detectable under these conditions, I strongly recommend the parcel be studied by a qualified ecologist during the growing season (May to September) to better evaluate the suspected/potential presence of several additional regionally-rare species including 1) the state-rare moth inland barrens buckmoth, known to feed on scrub oak, which was just found on the parcel, and 2) the state-rare plants pleated-leaved knotweed plus bristly rose, both known just to the north in Schaghticoke.

Hopefully, any decision about potential land use changes of the Golub Parcel should consider the regional importance and rarity of multiple ecological features here (especially the Shale Cliff & Talus Community, riverside habitat, and rare plant species like scrub oak). Whether or not the parcel is further evaluated for rare plants and animals, if any structures are to be built on the parcel, I strongly recommend that they are placed as close as possible to Second Avenue, farthest away from the ecologically-important features of the site, and that any impacts to the high knolls, steep W-facing slopes bordering the Hudson River, and the river shoreline are minimized.

Sincerely in Biodiversity Conservation,

David Hunt. Ph.D. Ecologist. Grafton, NY.
Rensselaer County Biodiversity Greenprint Project
(Designing an Ark for the Native Species of Rensselaer County)

348 Jay Hakes Road; Cropseyville, NY 12052; (518) 279-4124

Site 1. **Pleasantdale Bluffs**. (See Maps 1-4).

A. County-important Restricted Ecosystem Complex. (Map 1)

Complex type:

Rocky summit/slope complex, circumneutral, bluff/gorge, Hudson River Valley regional variant, large river escarpment bluff type.

Size: 336 acres.

County Importance: Importance Tier 1 of 3 (most important).

Extent on Golub Parcel: 40% of tract (N half).

Contribution of Golub Parcel: 5% of Complex (S edge).

Characteristic Community Types:

include Pitch Pine-Oak-Heath Rocky Summit, Shale Cliff & Talus Community. (see Exemplary Natural Communities).

Associated Rare Species:

numerous county-rare plants (see Rare Plant Concentration Area).

Description:

substrate includes exposed bedrock. contains characteristic open rocky summit/slope community types with associated rare plant species. The known core of this complex, "Pleasantdale Bluffs" in a more strict sense, is represented by knolls/bluffs at the N end of a patch directly along the Hudson River just W of the W end of River Bend Road. More of the site is mapped along gorges to the NE, between Haughney and Brickyard Roads, mostly unexplored to date.

B. Constituent Exemplary Natural Communities. (Map 2)

Shale Cliff & Talus Community (SCTC4)

Regional Conservation Importance:

County Priority 3 of 4 (near-exemplary). likely "county significant" but not "state significant".

Size: 6.3 acres.

Location:

corrected 2020 from 2017 mapping to bluffs just W of W end of River Bend Road in Schaghticoke plus bluffs along SW edge of Golub tract.

Extent on Golub Parcel:

5% of tract (SW edge). presence confirmed during December 2020 field survey.

Contribution of Golub Parcel: 40% of community (S patch).

Description:

steep slope with exposed shale bedrock. open canopy habitat dominated by low shrubs, scattered herbs, graminoids, mosses, and lichens.

Site 1. **Pleasantdale Bluffs**. p. 2.

Pitch Pine-Oak-Heath Rocky Summit.
Regional Conservation Importance:
County Priority 2 of 4 (co-exemplary). likely "county significant" but not "state significant".
Size: 2.7 acres.
Location:
corrected 2020 from 2017 mapping to knoll just W of W end of River Bend Road in Schaghticoke.
Extent on Golub Parcel:
not mapped on tract, but both highest knoll and upper crest of cliff resemble this community type based on December 2020 field survey.

C. Rare Plant Concentration Area. (Map 3)
County Importance:
concentration priority 3 of 7 (highly concentrated). 28th most important rare plant site in county as of 2017; 5th town priority for Schaghticoke as of 2017.
Size:
29 acres. originally mapped at 129 acres but in incorrect location. corrected to patch of Pleasantdale Bluffs ecosystem complex bordering Hudson River.
Species Composition:
with 17 county rare species/1 state rare species (1 state watch list, 7 county active list, 10 county watch list) documented for 2017 county conservation plan; recently expanded to 24 county rare species/3 state rare species (1 state active list, 2 state watch list, 10 county active list, 14 county watch list). Information on individual species shown in Table 1. Several additional rare plant species are expected, associated with historical specimens at the NY State Museum labelled "Lansings Grove", reportedly the local name for this site, that have not yet been attached to this site.
Extent on Golub Parcel:
40% of tract (N half); as ecosystem complex. presence confirmed during December 2020 field survey.
Contribution of Golub Parcel: 15% of concentration area (S edge).
Location:
corrected 2020 from 2017 mapping to match corresponding patch of rocky summit/slope ecosystem complex along Hudson River.

D. Rare Animals.

No rare animals have yet been identified from Pleasantdale Bluffs, most of the field surveys being focused on natural community types and vascular plant species. The observed presence of several individuals of scrub oak on the rocky summit and cliff community types suggests the potential for the state-rare moth "inland barrens buckmoth", which is known to feed primarily on that shrub. Similarly, no surveys for Karner blue butterfly, a globally rare moth characteristic of pitch pine barrens, are known to date from the site.

E. County-Important Roadless Blocks

see Hudson River Northern Rensselaer County Block below, under Site 2 (Hudson River Schaghticoke).

F. County-Priority Conservation Site North Troy Hills & Bluffs. (Map 4)

Site type: Level-2 site (mostly moderate-scale local ecosystems).
Description: large aggregate of rocky summit/slope complexes.
County-Importance: Tier 2 of 4 site (moderate county priority).
Size: 1168 acres.
Ecosystem Complex Composition:
includes complexes associated with Bald Mountain Brunswick, Oakwood Cemetery Troy, Pleasantdale Bluffs, and River Road Schaghticoke.
Extent on Golub Parcel: 40% of parcel.
Contribution of Golub Parcel: 2% of conservation site.

Site 2. **Hudson River Schaghticoke** (See Maps 5-8).

A. County-important Restricted Ecosystem Complex. (Map 1)
Complex type:
Riparian complex. non-tidal, confined river, large river type (main channel) in calcareous flats.
Size: 1191 acres.
County Importance: Importance Tier 1 of 3 (most important).
Extent on Golub Parcel:
<1% of tract (borders entire W edge of tract, tract influences local quality of site).
Contribution of Golub Parcel: <<1% of the complex (inland edge)
Characteristic Community Types:
include Unconfined River and Riverside Sand/Gravel Bar (see Exemplary Natural Communities).
Associated Rare Species:
several county-rare plants (see Rare Plants).
Description:
includes river, shoreline communities and associated floodplain.
Location:
Stretches along the entire non-tidal portion of the Hudson River from the Washington County line downstream to the Federal Dam in Troy. Only the Rensselaer County part of this complex has been mapped to date. The complete site extends N into Washington County and W into Saratoga County.

B. Constituent Exemplary Natural Communities. (Map 5)

Unconfined River
Regional Conservation Importance:
County Priority 2 of 4 (co-exemplary). likely "state significant".
Size: 949 acres.
Location:
representing entire non-tidal portion of Hudson River from Washington County line downstream to Federal Dam in Troy; only the Rensselaer County part of this community has been mapped; it extends N into Washington County and W into Saratoga County.
Extent on Golub Parcel:
<<1% of tract (borders entire W edge of tract; tract influences local quality of large community example).
Contribution of Golub Parcel: <<1% of community border.
Description:
wide, slow flowing, moderately deep river dominated by run and pool microhabitats, relatively confined within shale

stream terraces in a moderately wide valley.

Riverside Sand/Gravel Bar

A 37-acre county co-exemplary site for this community type has been mapped along the Hudson River 1.8 miles to the north of the Golub parcel in Schaghticoke. One patch of this community is believed to be present on the Golub tract (but was under snow during the December 20, 2020 field survey). If intervening patches are present upstream within 1.0 miles, the Golub patch would be lumped into this exemplary occurrence. The community was mapped using air photos; field surveys allow a much more precise mapping of this community, which typically occurs as narrow, linear bands that are difficult to detect on air photos.

C. Rare Plants.

Although no rare plant concentration area has been mapped yet to this aquatic-based site, pending sufficient surveys of its shoreline and nearshore areas, at least one county-rare plant was observed on the Golub tract within this site: cocklebur. Several individuals of this county watch list plant were observed on a shoreline community of the Hudson River, probably Riverside Sand/Gravel Bar (but buried under deep snow during the December 2020 field survey). Other county-rare shoreline plants are suspected from this site and would be most detectable during the growing season.

D. Important Animal Habitats

County Importance: Conservation priority 4 of 7 ("concentrated").

Size: 949 acres. (corresponding to Unconfined River)

Animal Concentration Area Composition:

1 known probable animal concentration area (odonates). Other potential concentration areas are likely (large river fish, shorebirds, riparian birds), but information is not yet available for analysis. Additional areas would raise the importance level of this site, if confirmed.

Rare Species Composition:

3 known state & county-rare animal taxa (odonates), all documented with NY Natural Heritage Program.

Location:

Boundary follows that for exemplary Unconfined River community.

Extent on Golub Parcel:

<<1% of tract (borders entire W edge of tract; tract influences

Site 2. **Hudson River Schaghticoke**. p. 3.

local quality of large site).
Contribution of Golub Parcel: <<1% of habitat.

E. County-Important Aquatic Network
Hudson River Main Channel (Network AN62) (Map 6)
Network type: main channel, non-tidal network.
Size: 4002 acres/14.5 stream miles.
County Importance: Priority Tier 1 of 4 (most important).
Extent on Golub Parcel:
NW 70% of tract (as coarsely modelled with assistance from RLT).
Contribution of Golub Parcel: <<1% of network.
Network Composition (on Golub parcel):
forested "riparian strips" coarsely mapped based on regional land cover database; a more precise local mapping using air photos and field evaluation would probably extend the forested buffer boundary eastward to cover 80% to 90% of the tract.

F. County-Important Roadless Blocks (Map 7)
Although the Golub parcel is not situated within a Level-4 (strictest level) regionally important forest matrix block, it is mapped within a large "aquatic matrix block", the Hudson River Northern Rensselaer County block.

Hudson River Northern Rensselaer County Block.
Location:
This block includes the Hudson River from the Washington County line south to the Federal Dam in Troy, plus lands eastward to the first public road, constituting a narrow buffer inward of the river. While the concept should ideally include similar land N of the county line in Washington County and W of the river in Saratoga and Albany Counties, only the Rensselaer County "subsite" was precisely mapped.
Size: 11089 acres.
County-Importance: Priority Tier 1 of 4.
Extent on Golub Parcel: 100% of tract.
Contribution of Golub Parcel: <<1% of block.

G. County-Important Forest Corridors.
Although the parcel is not within a mapped regionally important forest corridor, being situated in the general urban setting of Troy, it is contained within an important "aquatic corridor" (see information on county-important aquatic networks and

roadless blocks).

H. County-Priority Conservation Site Hudson River Corridor. (Map 8)

Site type: Level-1 site (large regional landscapes).
Description: large important aquatic corridor.
County-Importance: Tier 1 site (highest county priority).
Size: 13662 acres.
Site Composition:
includes river plus adjacent areas, especially with natural cover, deemed important to maintain the high water quality and native biota of the river. includes a strip throughout the W edge of Troy.
Extent on Golub Parcel: 100% of parcel.
Contribution of Golub Parcel: <<1% of conservation site.

Feature Concepts and Definitions.

County-Important Restricted Ecosystem Complexes
the largest, most intact, and most ecologically-important examples of ecosystem complex types with restricted distribution and total size in Rensselaer County, thought to be the best set of sites necessary to conserve the complete diversity of natural community types and native biota of those complexes in the county. Restricted types include rocky summit/slopes, wetlands, lakes, and riparian areas. Habitats typically delineated based on air photo interpretation of natural community types, hydrology, topography, geology, and soils.

County-Important Natural Communities
the largest, most intact, and most ecologically important ("exemplary") examples of every natural community type in Rensselaer County, representing the "benchmark" for its biodiversity composition, condition/quality, and landscape setting relative to all other examples of the community type within the county. Types follows standard state classification of ecological community types (New York Natural Heritage Program).

Rare Plant Concentration Areas
the largest concentrations of "rare" plant taxa in Rensselaer County, those that are rare at least at a county level, with sites prioritized by rarity level and abundance of rare species, giving highest priority to global and state rare plants. includes all groups of vascular plants and limited groups of non-vascular plants. Rare plants at 3 levels (global, state, and county) are divided into "active list" species (actively tracked as "very rare" and the highest priority for conservation) plus "watch list" species (others that are "moderately rare" and monitored over time to assess their trends in status, either decreasing, stable, or increasing). Species concepts follow the 2017 New York state flora. Global and state rarity assessments are derived and maintained by the New York Natural Heritage Program. County rarity assessments are derived and maintained by the Rensselaer County Biodiversity Greenprint Project, following standard methods of the natural heritage network.

County-Important Animal Habitats
the most ecologically important habitats in Rensselaer County for sets of animals and/or animal behavior types with restricted distribution in the county. Includes rare animal populations, dense animal concentration areas, and important animal behavioral features such as dens and breeding areas.

County-Important Aquatic Networks
the largest, most intact, and most ecologically important aquatic landscapes in Rensselaer County, thought to be the best set of sites necessary to conserve the complete diversity of natural aquatic community types (especially river types) and native aquatic biota of the county. Sites include the central waterway of the network ("stream system") plus two key surrounding land features that

contribute most to the high water quality and native biota composition of the stream system: 1) riparian corridors [buffer strips] directly along the stream system, typically its mainstem, and 2) wider intact subcatchment areas, typically in headwater positions.

Feature Concepts and Definitions. p. 2

County-Important Roadless Blocks

the largest, most intact, and most ecologically-important "blocks" in Rensselaer County, thought to be the best set of sites that 1) contain a matrix of natural communities characteristic of the local physiographic area and 2) are necessary to conserve the complete diversity of native biota of the county (especially large forest mammals and species vulnerable to disturbances associated with disturbance corridors such as roads). Roadless blocks, like "city blocks", are bounded by public roads and have no internal public road "bisections". "Aquatic blocks" are bisected by dams rather than roads, specifically those with high bridges over water that do not impede water flow and movement of aquatic biota.

County-Important Forest Corridors.

the widest, most intact, and most ecologically important forest ("wildlife") corridors in Rensselaer County, connecting a related set of county-important forest landscapes to form one connected "forest network".

County-Priority Conservation Sites

the most important ("priority") large to moderate-scale biodiversity conservation sites in Rensselaer County, the complete set of which is designed to represent a group with the least amount of sites needed to conserve all native/natural biodiversity and ecological features of the county.

Table 1. Rare Species of Pleasantdale Bluffs Ecosystem Complex site.

Species Name		Subsite Presence (# individuals)	
Scientific	Common	Schaghticoke	Golub Parcel
1. State Rare (3)			
Juglans cinerea	Butternut	1	not yet found
Polygonum tenue	Pleated-Leaved Knotweed	8	not evaluated
Rosa acicularis	Bristly Rose	50	not evaluated
2. County Active List (8)			
Carex umbellata	Parasol Sedge	present	not evaluated
Crocanthemum canadense	Frostweed	10	not evaluated
Cyperus lupulinus	Eastern Flat Sedge	50	not evaluated
Galium pilosum	Hairy Bedstraw	40	present
Quercus prinoides	Dwarf Chinquapin Oak	present	not yet found
Selaginella rupestris	Rock Spikemoss	present	not evaluated
Solidago squarrosa	Stout Goldenrod	5	probably found
Symphyotrichum patens	Late Purple Aster	present	not evaluated
3. County Watch List (13)			
Abietinella abietinum	Wiry Fern Moss	present	not evaluated
Amelanchier sanguinea	Round-Leaved Shadbush	present	probably found
Andropogon gerardi	Big Bluestem	present	not evaluated
Arabidopsis lyrata	Lyre-Leaf Cress	100	not evaluated
Asplenium trichomanes	Maidenhair Spleenwort	50	not evaluated
Borodinia canadensis	Sicklepod	present	not evaluated
Drymocallis arguta	Tall Cinquefoil	not yet found	~10
Houstonia longifolia	Long-Leaved Bluets	present	not evaluated
Lechea intermedia	Large-Podded Pinweed	5	not evaluated
Lespedeza violacea	Wand-Like Bush Clover	5	not evaluated
Polygonatum biflorum (commutatum)	Large Solomon's-Seal	present	not evaluated
Quercus ilicifolia	Scrub Oak	present	~5
Woodsia ilvensis	Rusty Woodsia	20	not evaluated

Ecological Survey Updates Jan 2021

FROM: David Hunt, **Ecological Intuition & Medicine**
Rensselaer County Biodiversity Greenprint Project
RE: Pleasantdale Bluffs, City of Troy. (Golub Parcel).
Supplemental Biodiversity Information
DATE: January 14, 2021

Thanks for requesting more of my help to provide information on the ecological importance of the Golub parcel in North Troy, part of the larger "Pleasantdale Bluffs" important ecosystem complex. As promised, I now provide more detailed biodiversity information, updated from our January 12, 2021 field visit, with improved abilities to make field observations due to melting of the prior snow cover. As mentioned, field observations that contribute any further detailed important information, such as rare species, would likely need to be made during the growing season (May to September), after plants have emerged to a more easily identifiable state. The only further improvements I can think of at this time of year would be to acquire any animal sampling information from state agencies (NYS DEC and the NY State Museum), especially for fish and macroinvertebrates associated with the adjacent reach of the Hudson River.

As part of the expanded information, I focused on 3 smaller-scale ecological features: ecological communities, rare species, and important animal habitat components. Accordingly, I provide 1) a summary of key findings from our last visit, 2) revised excerpts from my prior summary text, 2) detailed information tables, and 3) maps of specific parcel locations for these features. For excerpts, I expanded, updated, or revised relevant portions of the summaries provided for the recent public hearing.

With more time, I could consolidate this into one updated summary document, like before. Next, I provide 4 tables, two for ecological communities, one for rare species, one for important animal habitats. One community table focuses on all community types observed onsite and includes their size and estimated importance at various geographic levels. The second community table focuses on the 3 natural communities observed onsite that have county to state importance, documenting my analyses to back up claims of any "regional importance".

The rare species table, updated from my prior version, now includes animals (expanding the prior table from only plants), species from the Golub parcel that are new to the larger complex noted on our January visit, additional species to the Golub parcel noted on our January visit but already known elsewhere in the larger complex, and an estimate of identity certainty, based, in part, on my recent examination of specimens using multiple technical identification references. The important animal habitat table is new, based on much improved field observations from our January visit. It presents several types of animal habitats that may be present onsite, an estimate of their certainty, and any features observed to date to support those certainties. Lastly, I provide 2 new detailed maps, one for ecological communities, one for rare species. The community map is comprehensive for the entire parcel, based on our 2 field visits, coupled with air photo interpretation plus topographic contours. The rare species map, which includes both plants and animals, attempts to

delineate areas where I have observed rare species to date, relying heavily on the community map plus also air photo interpretation and topographic contours. No map of specific important animal concentration areas has yet been created, due to the high uncertainty of both the identity and any associated boundary of many types. However, the observed beaver lodge was added to the rare species map (Code=BL*). All of these areas fall within the larger "Hudson River Schaghticoke" important animal habitat site.

Sincerely in Biodiversity Conservation,

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Pleasantdale Bluffs: Significance of Ecological Features

Key Ecological Findings from the Golub Parcel, January 12, 2021 Survey
January 14, 2021

Key updated findings from observations of small-scale ecological features during the January 12, 2021 field survey are summarized below.

1. **Ecological Communities** (Map 1, Tables 1-2). More precise and detailed information on the 3 natural communities observed onsite that have county to state importance (Shale Cliff & Talus Community, Riverside Sand/Gravel Bar, and Pitch Pine-Oak-Heath Rocky Summit) include precise maps and analyses to confirm their regional importance. The Riverside Sand/Gravel Bar probably meets the criteria for "state significance", although not yet documented in the databases of NY Natural Heritage Program (of NYS DEC). All 3 community types are "county rare" and the cliff community is also "state rare". The example of latter community onsite comes close to meeting criteria for "state significance". Although the patches of Pitch Pine-Oak-Heath Rocky Summit onsite are very small and narrow, especially compared to those to the north within the Pleasantdale Bluffs complex, sufficient observations have now been made to map this community on the Golub parcel.

2. **Rare Species** (Map 2, Table 3). Several updates to the rare species table for the larger Pleasantdale Bluffs complex were made, including 5 additional species not previously known from the Golub parcel, most being covered by snow during the December 2020 field survey. A total of 3 species were found that are new to the Golub parcel but known from the main patch of the ecosystem complex in Schaghticoke, the most interesting being rock spikemoss (**Selaginella rupestris**), the others being lyre-leaf cress (**Arabidopsis lyrata**) and rusty woodsia (**Woodsia ilvensis**). Two species were found on the Golub parcel that are new to the entire complex, one plant on the shale cliffs, rock sandwort (**Sabulina michauxii**), and one animal, identified as state rare, sharp hornsnail (**Pleurocera acuta**), the elongate snail shell found along the Hudson River shore. The rare species population map for the parcel best reveals the most ecologically-sensitive part of site, from a practical perspective. I still have several specimens of potentially rare mosses to evaluate, relying on a close colleague to expedite any identifications. I expect 1 to 5 county rare species among the collections, possibly 1 state rare species.

3. **Important Animal Habitats** (Table 4). Animal habitats are more flexibly defined than other features and harder to determine. Key observations often depend on specific times of the year or day (e.g., nocturnal) and specific microhabitats (e.g., the bottom substrate of the Hudson River). Confirmation of "important habitat" is also complicated by the need for a minimal number of different species and number of individuals, which can be seasonally and annually highly variable. As Table 4 shows, to date the most certain important habitat is a "bald eagle feeding territory", backed up not just by the one local report/observation but probably also by mapping of the entire habitat by the NY Natural Heritage Program. Similarly, although no onsite observations of odonates (dragonflies and damselflies) have been made, mapping of the entire nearby Hudson River habitat by the NY Natural Heritage Program of 3 state-rare odonates suggests the presence of an "odonate concentration area" in the river along the Golub parcel. Based on my observations of

abundant spent shells, I suspect a "riverine mollusk concentration area" in the river next to the site, however, confirmation would need to involve shallow underwater observations, best made between May and September. Although the beaver lodge was mapped and it could be a component of an "aquatic mammal concentration area", observations of other species would be needed for this designation. Many pieces of information needed for confirmation of important animal habitat require patience and the presence of someone onsite for extended periods of time or the perfect time for observations.

Pleasantdale Bluffs: Significance of Ecological Features

Revisions and Additions to December 2020 Summary.
January 14, 2021

Revisions and additions to the December 2020 summary submitted to the Troy City Council are made to excerpts from that document and noted below by the symbol "***".

Site 1. **Pleasantdale Bluffs.**

B. Constituent Exemplary Natural Communities. (see Map 1)

Shale Cliff & Talus Community (SCTC4)
Size: 6.3 acres. ***corrected to 1.6 acres.
Location:
(Dec 2020) corrected 2020 from 2017 mapping to bluffs just W of W end of River Bend Road in Schaghticoke plus bluffs along SW edge of Golub tract.
***Jan 2021: additional small patch added at NW corner of Golub tract in town of Schaghticoke. patch along SW edge of Golub tract slightly expanded based on more precise air photo interpretation coupled with ground truthing.
Extent on Golub Parcel:
***5% of tract (SW edge and NW corner). presence confirmed during December 2020 and January 2021 field surveys.
Contribution of Golub Parcel:
***60% of community (S and middle patches).

Pitch Pine-Oak-Heath Rocky Summit.
Size: 2.7 acres. ***corrected to 1.0 acres.
Location:
(Dec 2020) corrected 2020 from 2017 mapping to knoll just W of W end of River Bend Road in Schaghticoke.
***Jan 2021: two additional small patches added: one at NW corner of Golub tract in the Town of Schaghticoke, one at the crest of the cliff along SW edge of Golub tract, both with narrow width and transitional in nature; mapped based on more precise air photo interpretation coupled with ground truthing.
Extent on Golub Parcel:
***newly mapped on tract, on upper crest of cliff patches based on December 2020 and especially January 2021 field surveys. transitional in nature between cliff and forest communities, but areas with canopy naturally open enough in both patches, the NW corner patch due to exposed shale surface, the SW edge patch due, in part, to beaver cuttings. An additional area on the highest knoll of the tract is deemed to have probably undergone succession to Appalachian Oak-Pine Forest but was likely this community type in the past, now with species like scrub oak as a suspected remnant of this former community type.
Contribution of Golub Parcel:
***20% of community (S and middle patches).

Site 1. **Pleasantdale Bluffs**. p. 2.

C. Rare Plant Concentration Area. (see Map 2)

Species Composition:

(Dec 2020) with 17 county rare species/1 state rare species (1 state watch list, 7 county active list, 10 county watch list) documented for 2017 county conservation plan; expanded in December 2020 to 24 county rare species/3 state rare species (1 state active list, 2 state watch list, 10 county active list, 14 county watch list).

***January 2021 update (see Table 3): 5 of these taxa were found on the Golub tract during a December 2020 survey (1 county active list, 4 county watch list); 4 additional rare plant species were found on the tract during the January 2021 survey (2 county active list, 2 county watch list). One plant species new to the entire ecosystem complex was found on the parcel: rock sandwort (Sabulina michauxii), located on the Shale Cliff & Talus Community. cumulative tally for the complex expanded in January 2021 to 25 county rare species/3 state rare species (1 state active list, 2 state watch list, 10 county active list, 15 county watch list). Information on individual species, updated from the January 2021 survey, are shown in Table 3, along with the newly added certainty of their identifications.

(Dec 2020) Several additional rare plant species are expected, associated with historical specimens at the NY State Museum labelled "Lansings Grove", reportedly the local name for this site, that have not yet been attached to this site.

Extent on Golub Parcel:

(Dec 2020) 40% of tract (N half); as ecosystem complex. presence confirmed during December 2020 field survey.

***presence on parcel strengthened January 2021 with additional species of concentration area also found onsite.

Location:

(Dec 2020) corrected 2020 from 2017 mapping to match corresponding patch of rocky summit/slope ecosystem complex along Hudson River.

***minor changes in the site boundary to match the known extent of rare species populations are pending.

D. Rare Animals.

(Dec 2020) No rare animals have yet been identified from Pleasantdale Bluffs, most of the field surveys being focused on natural community types and vascular plant species. The observed presence of several individuals of scrub oak on the rocky summit and cliff community types suggests the potential for the state-rare moth "inland barrens buckmoth", which is known to feed primarily on that shrub. Similarly, no surveys for Karner blue butterfly, a globally-rare moth characteristic of pitch pine barrens, are known to date from the site.

***January 2021 update: See Site 2 for the relevance of any observations of animals onsite.

Site 2. **Hudson River Schaghticoke**

B. Constituent Exemplary Natural Communities. (see Map 1)

Riverside Sand/Gravel Bar

(Dec 2020) A 37-acre county co-exemplary site for this community type has been mapped along the Hudson River 1.8 miles to the north of the Golub parcel in Schaghticoke. One patch of this community is believed to be present on the Golub tract (but was under snow during the December 20, 2020 field survey). If intervening patches are present upstream within 1.0 miles, the Golub patch would be lumped into this exemplary occurrence. The community was mapped using air photos; field surveys allow a much more precise mapping of this community, which typically occurs as narrow, linear bands that are difficult to detect on air photos.

***January 2021 update: Two narrow, linear patches of this community, previously under deep snow cover, were confirmed on the Golub tract during a January 12, 2021 field survey, in a shoreline mosaic with smaller patches of Cobble Shore and Shoreline Outcrop. If small intervening patches are present upstream within 1.0 miles, as expected, the Golub patch would be lumped into this exemplary occurrence, representing the southern extent of that long occurrence. Patches on the Golub tract were newly mapped using air photo interpretation coupled with ground truthing from the field survey. The community occurrence was originally mapped in 2017 using only air photos, pending field surveys which are necessary to allow a much more precise mapping of this community type, which typically occurs as narrow, linear bands that are difficult to detect on air photos (such as any aforementioned intervening patches).

C. Rare Plants. (See Map 2)

(Dec 2020) Although no rare plant concentration area has been mapped yet to this aquatic-based site, pending sufficient surveys of its shoreline and nearshore areas, at least one county-rare plant was observed on the Golub tract within this site: cocklebur. Several individuals of this county watch list plant were observed on a shoreline community of the Hudson River, probably Riverside Sand/Gravel Bar (but buried under deep snow during the December 2020 field survey). Other county-rare shoreline plants are suspected from this site and would be most detectable during the growing season.

***The January 2021 field survey revealed cocklebur in a mosaic of Riverside Sand/Gravel Bar, Riverside Mudflats, and/or Shallow Emergent Marsh. Other shoreline plants were not detected but potential habitat exists for numerous rare species, all known from riverside communities in the larger site not far to the north in Schaghticoke such as the 3 state-rare plants northern shore quillwort (Isoetes septentrionalis), red-rooted flatsedge (Cyperus erythrorhizos), and Davis's sedge (Carex davisii) plus the 13 county-rare plants sandbar lovegrass (Eragrostis frankii), red-topped panic grass (Coleataenia rigidula), shining flatsedge (Cyperus bipartitus), intermediate spikerush (Eleocharis intermedia), three-square bulrush (Schoenoplectus pungens), golden hedge hyssop (Gratiola aurea), false pimpernel (Lindernia dubia), germander (Teucrium canadense), northern wild senna (Senna hebecarpa), common silverweed (Potentilla anserina), thin-leaved sunflower (Helianthus decapetalus), green-headed coneflower (Rudbeckia laciniata), and sandbar willow (Salix interior). Many of these species may be difficult to

detect in winter condition. Several additional state- to county-rare aquatic plants have strong potential to be present in the adjacent Hudson River waters and would ideally require searches between May and September.

D. Important Animal Habitats

Animal Concentration Area Composition:

(Dec 2020) 1 known probable animal concentration area (odonates). Other potential concentration areas are likely (large river fish, shorebirds, riparian birds), but information is not yet available for analysis. Additional areas would raise the importance level of this site, if confirmed.

***January 2021 additions: observations and reports of multiple characteristic animals may suggest the potential for additional "animal concentration areas" within this mapped site, but more information is needed on any additional species or concentration abundances. The following need further evaluation.

1. Aquatic mammal concentration area. a beaver lodge, suspected to be currently active, was noted at the base of the Intermittent Stream on the Golub parcel. Coupled with evidence of numerous beaver-cut trees along most of the western edge of the tract and first-hand observations of beaver along the shore of the tract, it is certain there has been an active resident beaver on the tract in recent times. Presence of another aquatic mammal, usually otter and/or muskrat, is usually necessary to designate an "aquatic mammal concentration area". Observations of a muskrat to the north at Pleasantdale Bluffs proper during a September 2020 field survey further suggests the presence of such an area.

2. Riverine mollusk concentration area. numerous spent shells of two mollusk species were found along the shoreline of the river on the Golub parcel: pea (or pill or fingernail) clam (**Sphaerium** sp.) and sharp hornsnail (**Pleurocera acuta**), suggesting that these two species are abundant in the bed of the adjacent river and the presence of a nearby mollusk concentration area. Confirmation of such an area would be strengthened by further evidence that the shells are derived from living individuals in adjacent or nearby upstream areas of riverbed plus observations of additional mollusk species, with common elliptio (**Elliptio complanata**) most expected. Such records of mollusks might be kept in files of the NYS DEC water quality unit or NY State Museum, if any nearby sites have been historically sampled. Inferences might be made, for example, from the reference "Freshwater Snails of New York State", which has statewide dot maps for all freshwater snail species.

3. Shorebird concentration area. the call and tracks of spotted sandpiper were noted during the January 2021 field survey, suggesting potential for a shorebird concentration area. Further evidence would be needed to determine if such an area exists onsite, especially during ideal times of the year, thought to be between April and September. Key evidence would include any abundance of shorebird individuals and the diversity of shorebird species, especially distinguishing shorebirds from waterfowl and riparian bird species, treated as separate concentration area types.

4. Bald eagle habitats. one report of a bald eagle feeding on a fish in the river offshore of the tract has been made. To date, only nesting sites have been designated as county important for bald eagle, and they are also state important. Although feeding territory for bald eagle was not designated an important animal habitat in the county conservation plan, such areas have some county importance, often correlated with other county-important ecological features, especially aquatic-based ones. However, the specific feeding territory in the adjacent Hudson River is apparently mapped as "state-important animal habitat" at NYS DEC and probably follows a "feeding territory" concept, especially for nesting individuals. A nesting site is known about 1.5 miles to the north of the Golub parcel and has

been field confirmed by multiple experts. Those nesting individuals are suspected to be using a long stretch of the river for feeding territory. I am less sure of any "roosting territory" which could include large trees along the river that could serve as a vantage point to scout fish for food, such as the several large trees, especially red oak, observed along the shore of the Golub tract. No nests have been observed on the Golub parcel to date.

An additional odonate concentration area is apparently inferred from the adjacent Hudson River based on important animal habitat mapped by the NY Natural Heritage Program (of NYS DEC). Onsite assessment of odonate presence and abundance are ideally made from about June to August.

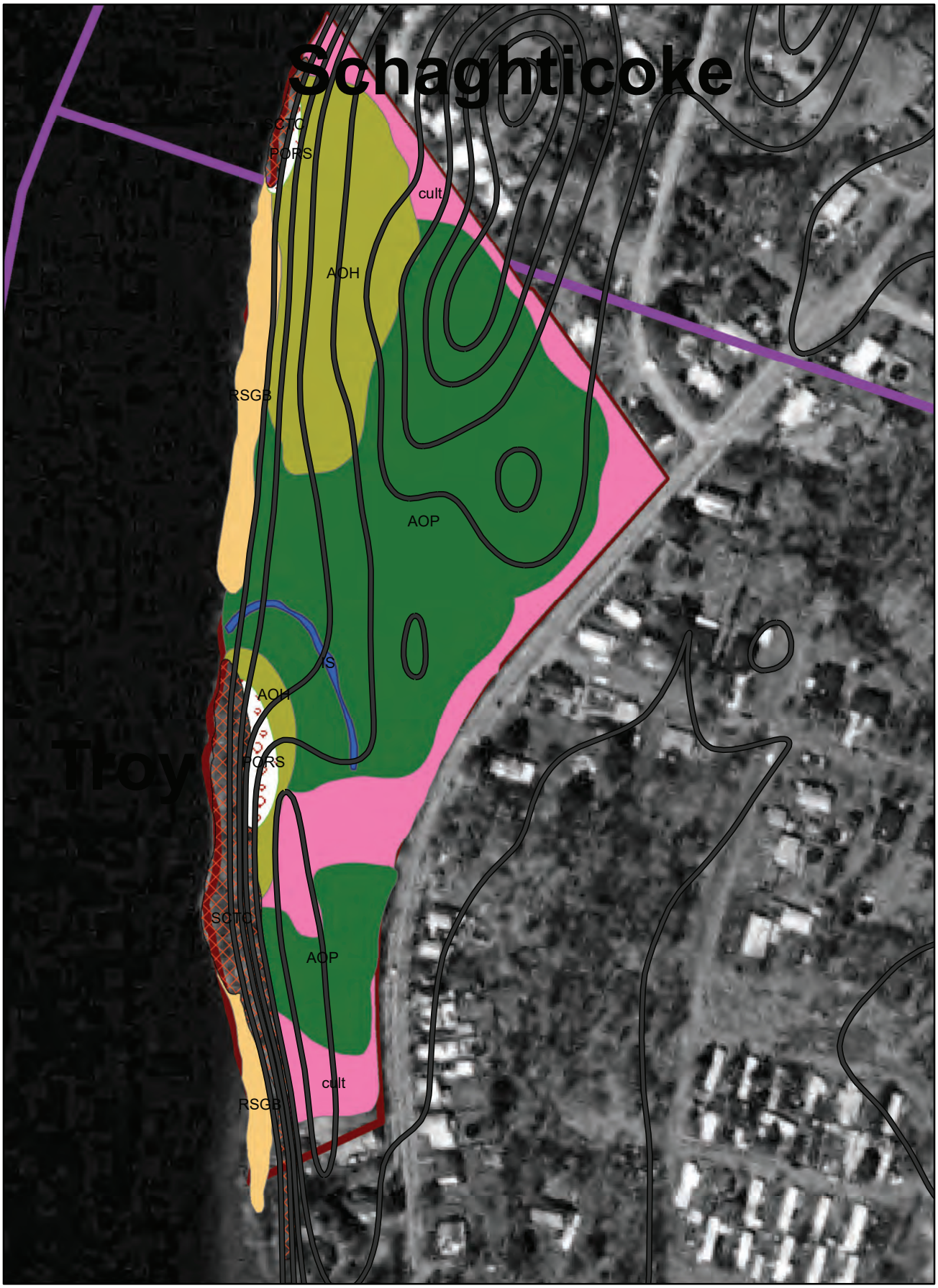
Site 2. **Hudson River Schaghticoke**. p. 3.

D. Important Animal Habitats (continued)

Rare Species Composition (see Map 2):
(Dec 2020) 3 known state & county-rare animal taxa (odonates), all documented with NY Natural Heritage Program.
***January 2021 additions: Bald eagle (Haliaeetus leucocephalus) is a state rare animal. Its feeding territory, although not explicitly mapped as a county-important animal habitat, as noted above, has apparently been mapped as a state-important animal habitat by NYS DEC. The sharp hornsnail (Pleurocera acuta), mentioned under a potential riverine mollusk concentration area above, is also state rare. It is tracked by the NY Natural Heritage Program of NYS DEC as a "state watch list" species (i.e., a "moderately state rare" species), with a rarity rank of "S3", thus it would also be designated as "county rare". Although I used two technical keys for its identity, I am less skilled with animal identifications than with plants, but I am relatively certain of this species and I intend to forward a specimen to a statewide mollusk expert for confirmation/evaluation. The technical reference book I used, the prime taxonomic reference for NY freshwater snails (Jokinen 1992: The Freshwater Snails of New York State), cites historical observations of this snail from the adjacent reach of the Hudson River in North Troy during the 1980s, so it makes sense that it could still be here 40 years later.

G. County-Important Forest Corridors.
(Dec 2020) Although the parcel is not within a mapped regionally-important forest corridor, being situated in the general urban setting of Troy, it is contained within an important "aquatic corridor" (see information on county-important aquatic networks and roadless blocks).
***January 2021 additions: Observations of multiple dens and abundant tracks of what was suspected to be a red fox were noted along the soiled clay banks of the river on the Golub parcel during a December 20, 2020 field survey, suggesting the presence of a potentially viable forest corridor associated with the aquatic network (Feature 2-E) and aquatic matrix block (Feature 2-F).
***January 2021 additions: Observations of one pileated woodpecker, a characteristic forest-interior bird, on the Golub parcel during a January 12, 2021 field survey also suggest the presence of a potentially viable forest corridor associated with the aquatic network (Feature 2-E) and aquatic matrix block (Feature 2-F).

Map 1. Ecological Communities



Map 2. Rare Species Populations

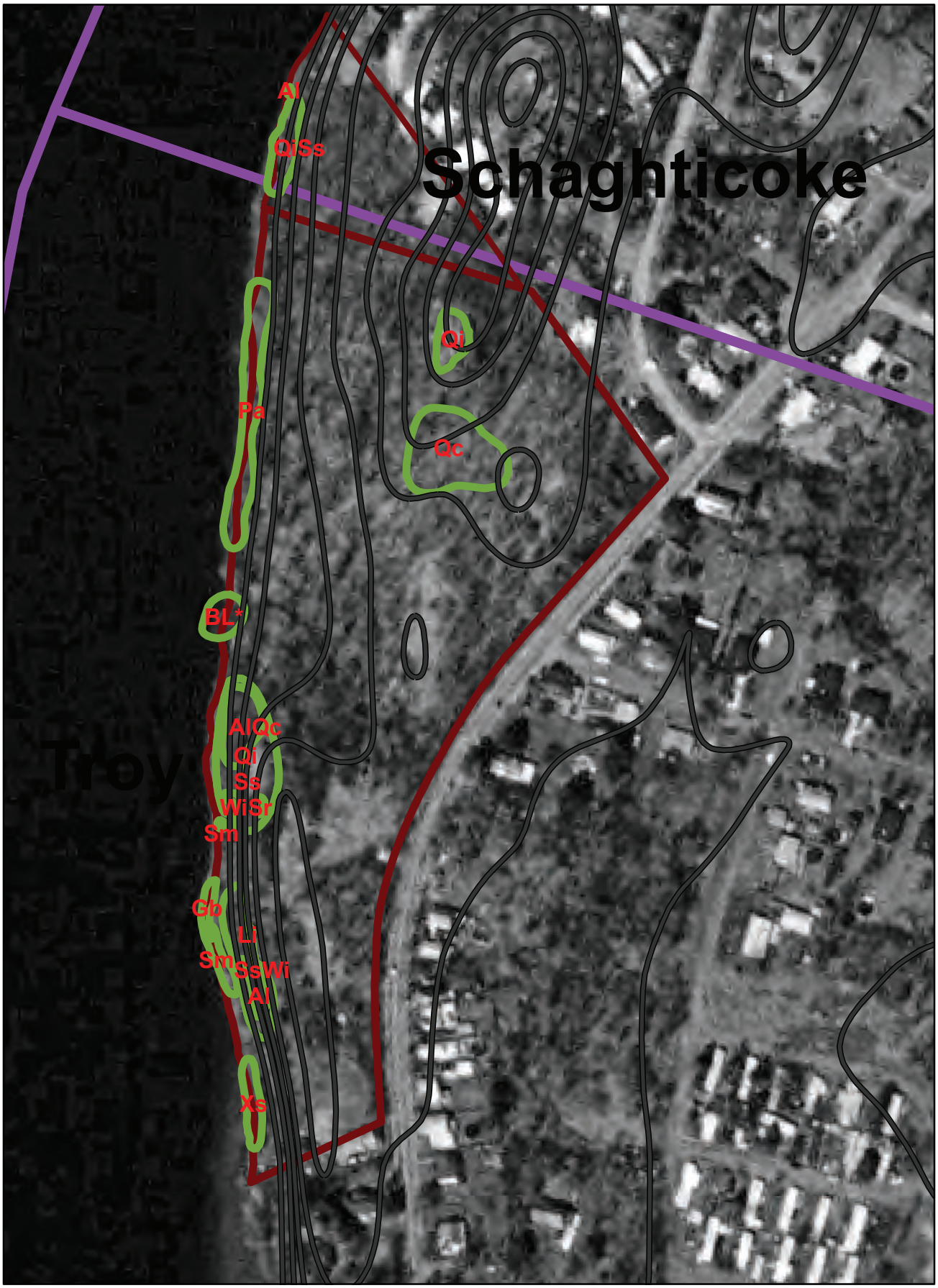


Table 1. Ecological Communities of the Parcels. Composition & Importance.

Community Name (Parcel Map Code)	Community Type	Acres	Est.Rank	Est.Max.Importance
Appalachian Oak-Hickory Forest (AOH) local (Troy riverfront)	Natural/Upland Forest	2.1/~10		C
Appalachian Oak-Pine Forest (AOP) local (Troy riverfront) (includes Successional Southern Hardwoods)	Natural/Upland Forest	6.0/~50		CD
Intermittent Stream (IS)	Natural/River	0.09/0.09	D	local (Troy riverfront)
Pitch Pine-Oak-Heath Rocky Summit (PORS) county (co-exemplary)	Natural/Upland Barrens	0.2/1.0		C
Riverside Sand/Gravel Bar (RSGB) (includes Shoreline Outcrop and Cobble Shore)	Natural/Upland Open Canopy	0.7/38.0	B	county (co-exemplary) /state significant
Shale Cliff and Talus Community (SCTC) county (near-exemplary)	Natural/Upland Open Canopy	0.9/1.6		C
cultural (cult) (includes younger successional areas)	Cultural / Natural/Upland successional	1.9/-	NA	none

Notes: Acres = on parcel/entire occurrence; Rank estimated for entire occurrence.

Table 2. Natural Community Regional Importance Analyses

	Complete Occurrence..... Community..... Rank Estimates..... Rarity.....				Significance.....			
Community Name	Acres State	Size County	Condition State	Landscape	Occurrence	County		
Pitch Pine-Oak-Heath Rocky Summit N~	1.0	D	BC	BC	C	Y**	N	Y
Riverside Sand/Gravel Bar	38.0 AB	BC	BC	B	Y**	Y	Y	N~
Shale Cliff and Talus Community	1.6	D	B	BC	C(BC)	Y*	N?	Y	Y

Notes: * = also county near-exemplary; ** = also county co-exemplary.

Table 3. Rare Species of Pleasantdale Bluffs Ecosystem Complex site.

Species Name			Subsite Presence (# individuals)		
Scientific (Parcel Map Code)	Common		Schaghticoke	Golub Parcel/ID	certainty
1. State Rare (4)					
Plants (3)					
Juglans cinerea	Butternut	1	not yet found		
Polygonum tenue	Pleated-Leaved Knotweed	8	not yet found		
Rosa acicularis	Bristly Rose	50	not yet found		
Animals (1)					
Pleurocera acuta (Pa)	Sharp Hornsnail	not yet found	~100 confirmed Jan 2021 (80% certainty)		
2. County Active List Plants (8)					
Carex umbellata	Parasol Sedge	present	possibly observed Jan 2021 (20% certainty)		
Crocanthemum canadense	Frostweed	10	not yet found		
Cyperus lupulinus	Eastern Flat Sedge	50	not yet found		
Quercus prinoides	Dwarf Chinquapin Oak	present	probably not present		
Sabulina michauxii (Sm)	Rock Sandwort	not yet found	~30 confirmed Jan 2021 (80% certainty)		
Selaginella rupestris (Sr)	Rock Spikemoss	present			
3 confirmed Jan 2021 (100% certainty)					
Solidago squarrosa (Ss)	Stout Goldenrod	5			
~200 confirmed Jan 2021 (90% certainty)					
Symphyotrichum patens	Late Purple Aster	present	not yet found		
3. County Watch List Plants (14)					
Vascular Plants (13)					
Amelanchier sanguinea	Round-Leaved Shadbush	present			
not yet found					
Andropogon gerardi	Big Bluestem	present			
probably not present					
Arabidopsis lyrata (Al)	Lyre-Leaf Cress	100	~50 confirmed Jan 2021 (100% certainty)		
Asplenium trichomanes	Maidenhair Spleenwort	50			
not yet found					
Borodinia canadensis	Sicklepod	present			
not yet found					
Drymocallis arguta (Da)	Tall Cinquefoil	not yet found	~10 confirmed Dec 2020 (90% certainty)		
Galium boreale (Gb)	Northern Bedstraw	40	~20 confirmed Jan 2021 (95% certainty)		
Houstonia longifolia	Long-Leaved Bluets	present			
not yet found					
Lechea intermedia (Li)	Large-Podded Pinweed	5	~5 confirmed Dec 2020 (95% certainty)		
Lespedeza violacea	Wand-Like Bush Clover	5			
not yet found					
Polygonatum biflorum var. commutatum	Large Solomon's-Seal	present			
not yet found					
Quercus ilicifolia (Qi)	Scrub Oak	present	~30 confirmed Jan 2021 (100% certainty)		
Woodsia ilvensis (Wi)	Rusty Woodsia	20	~50 confirmed Jan 2021 (70% certainty)		

Non-Vascular Plants (1)		
Abietinella abietinum	Wiry Fern Moss	present
		not yet found

Notes:

1. Any state to county rare mosses, among several ones potentially found onsite, are pending examination and evaluation of specimens from the foremost county bryophyte expert, Tom Phillips, DVM.
2. Any additional expansion of the list of taxa known from the Golub Parcel would likely require observations of the site during the growing season (May to September).

Table 4. Important Animal Habitats on and near the Golub Parcels.

Animal Group	Habitat Type	Certainty	Ecosystem	Known Component Features
Bald eagle	feeding territory	90%	river	feeding on fish/state-mapped important habitat
Odonates	concentration area	80%	river,shore,banks	inferred from multiple nearby state-documented populations of 3 state-rare odonate taxa/state-mapped important habitat
Riverine mollusks	concentration area	70%	river	abundant spent shells of 2 taxa
Large river fish	concentration area	30%	river	suspected from nearby observations of river
Aquatic mammals	concentration area	20%	river,shore,banks	beaver lodge/abundant cut trees/swimming individual; nearby muskrat
Shorebirds	concentration area	5%	rivershore, river	tracks and call of spotted sandpiper
Large mammals	denning concentration	<5%	riverbanks, forest	multiple holes under large tree roots thought to be potential dens of red fox
Bald eagle	nesting territory	<5%	riverbanks	large potential nesting trees but without observed nests
Forest birds	breeding concentration	<1%		forest pileated woodpecker fly-through, suggesting potential small forest-interior area

Notes: certainty = certainty of habitat type on and/or adjacent to the parcel (e.g., a "concentration" area)