Site Inventory of the Tuttle-Clarkson Natural Area, Boone County, IL

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Introduction

The Tuttle-Clarkson Natural Area is a 26 acre wetland site with plant communities ranging from graminoid fen to successional field. Adrian muck and Drummer silty clay loam are the predominate soils within the site. Adrian muck is formed from decomposed organic sediment over a sandy sediment. Drummer silty clay loam comes from loess or other silty sediment over stratified loamy or sandy outwash or glacial till. Both soils are deep and poorly drained (SCS, 113, 114, 122).

Uses of this property have been limited to pasture which was abandoned in the late 1950's (Tuttle, 1998). Robert and Marcia Tuttle's recent donation of the property to the Boone County Conservation District has protected the wetland from development and other disturbances.

Materials and methods

Six areas within Tuttle-Clarkson were determined after visual observation of the site and consultation of soil survey and topographic maps (Map 2). Transect lines were spaced across each area at 40 meters, all were measured using a meter tape and compass. Transect lines 1 through 11, 15 and 20 run magnetic north to south. Transect lines 12 and 19 are 330 and 30 respectively. The rest are at 320 (Map 3). Twenty points per area were placed randomly along each transect. Quadrats were set 1 meter away from the transect line and flagged as to avoid sampling damaged or trampled species. Herbaceous species and tree species were analyzed with 0.25 m square quadrats and the point center quarter method, respectively. Trees were separated from shrubs if the diameter of the tree was less than 5 centimeters or the height of the tree was less than two meters. All plant species occurring within Tuttle-Clarkson were recorded in a cumulative list from August 1997 to June 1998 (Table 1). Data is analyzed into frequency and relative frequency for the whole area and each of the smaller areas.

Results

The 0.25m quadrant was used to determine ground level species composition within each of the six areas. Dominant species for the 26 acre site are *Poa pratensis*, *Solanum dulcamara*, and *Aster puniceus* with relative frequencies of 12.15%, 9.09%, and 6.0% respectively. *Poa pratensis* proves to be the dominant species in all but area 5 where *Aster puniceus* comprises 14.3% of the area's population. Tables 2 through 8 show the frequencies and relative frequencies of the herbaceous species found throughout Tuttle-Clarkson.

The shrub layer was determined using 10m quadrant. Although there were shrubs occurring on the site, only three points prove their occurrance. Point 3 of area 3 and

point 2 of area 4 contain a shrub layer of *Cornus racemosa*. The shrub layer of point 12 of area 1 is composed of *Lonicera tatarica*.

The point center quarter method of collecting data on the tree species within Tuttle-Clarkson show that the predominate species throughout the site are *Prunus virginiana*, *Acer negundo*, and *Ulmus rubra* with relative frequencies of 24.7%, 22.7%, and 10.4%. *Prunus virginiana* and *Acer negundo* are ranked as one of the top three dominants in all areas but 5 where *Prunus virginiana* falls fourth in the list. Tables 9 through 15 display tree species with frequencies and relative frequencies on Tuttle-Clarkson.

Discussion

Four communities were distinguished upon comparing this information to classifications described within the Illinois Natural Areas Technical Manual (White). Although the whole parcel was pastured at one time, areas 1, 3, and 6 show the most disturbance and are considered successional fields. Grasses and forbs of area 2 match those described for a wet prairie. Area 4 displays characteristic plants listed for a graminoid fen. Area 5 is dominated secondly by *Carex stricta* on a muck substrate classifying this area as a sedge meadow. A break-down of the area shows that 36% of the total area of Tuttle-Clarkson is successional field (areas 1, 3, and 6). Wet prairie (area 2) composes 31% of the total while 33% of the area is sedge meadow (22%) and fen (11%). These differences can be seen upon observation of the site as well as within the data given in the following tables.

Summary

Completion of this floristic survey of the Tuttle-Clarkson Natural Area will aid Boone County Conservation District in determining the best methods of management for the wetland and serve as a comparison for future surveys. Future developments such as pathways and a parking lot can be confined to degraded areas without unnecessary damage to the higher quality sections.

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List of Tables and Maps

Table 1

Cumulative list of plant species observed at Tuttle-Clarkson Natural Area during August 1997 to June 1998. Nomenclature follows that used by Robert H. Mohlenbrock. Non-native species are marked with an asterisk.

Latin Name	Common Name
Acer saccharinum L.	Silver Maple
Achillea millefolium* L.	Yarrow
Acorus americanus (Raf.) Raf.	Sweet flag
Agrimonia gryposepala Wallr.	Tall agrimony
Agropyron repens* (L.) Beauv.	Quackgrass
Alisma plantago-aquatica L.	Water plantain
Alliaria petiolata (Beib.) Cavara & Grande	Garlic mustard
Allium canadense L.	Wild garlic
Alopecurus carolinianus Walt.	Foxtail
Ambrosia artemisiifolia L.	Ragweed
Ambrosia trifida L.	Giant ragweed
Anemone canadensis L.	Canada anemone
Angelica atropurpurea L.	Angelica
Antennaria neglecta Greene	Pussytoes
Apios americana Medic.	Ground nut
Apocynum sibericum Jacq.	Indian hemp
Arctium minus* Bernh.	Burdock
Asclepias incarnata L.	Swamp milkweed
Asclepias syriaca L.	Common milkweed
Asclepias verticillata L.	Whorled milkweed
Asparagus officinalis* L.	Asparagus
Aster novae-angliae L.	New england aster
Aster puniceus L.	Bristly aster
Aster simplex Willd.	Panicled aster
Barbarea vulgaris* R. Br.	Yellow rocket
Bidens vulgata Greene	Tall beggar's ticks
Bromus inermis* Leyss.	Smooth brome
Bromus sterilis* L.	Brome grass
Cacalia suaveolens L.	Indian plantain
Calamagrostis canadensis (Michx.) Beauv.	Blue joint grass
Caltha palustris L.	Marsh marigold
Cardamine bulbosa (Muhl.) BSP	Bulbous cress
Carduus nutans* L.	Nodding thistle
Carex alopecoidea Tuckerm.	Brown headed fox sedge
Carex granularis Willd.	Pale sedge
Carex lacustris Willd.	Common lake sedge
Carex pellita Willd.	Broad leaved wooly sedge
Carex sprengelii Spreng.	Long beaked sedge
Carex sterilis Willd.	Fen star sedge

Carex stipata Muhl.	Common fox sedge
Carex stricta Lam.	Common tussock sedge
Carex trichocarpa Schk.	Hairy fruited lake sedge
Carex vulpinoidea Michx.	Brown fox sedge
Carya ovata (Mill.) K. Kock	Shagbark hickory
Chelone glabra L.	Turtlehead
Chenopodium album* L.	Lamb's quarters
Circium arvense* (L.)Scop.	Canada thistle
Circium muticum Michx.	Swamp thistle
Circium vulgare* (Savi) Tenore.	Bull thistle
Convolvulus arvensis* L.	Field bindweed
Conyza canadensis L.	Horseweed
Cornus obliqua Raf.	Pale dogwood
Cornus racemosa Lam.	Gray dogwood
Cornus stolonifera Michx.	Red osier dogwood
Crataegus succulenta Schrod.	Hawthorn
Digitaria sanguinalis* (L.) Scop.	Crabgrass
Dodecatheon meadia L.	Shooting star
Echinochloa muricata (Beauv.) Fern.	Barnyard grass
Echinocystis lobata (Michx.) Torr.	Wild cucumber
Eleocharis compressa Sull.	Spike rush
Eleocharis elliptica Kunth.	Spike rush
Elymus virginicus L.	Virginia wild rye
Epilobium coloratum Biehler.	Willow herb
Equisetum arvense L.	Horsetail
Equisetum hyemale L.	Scouring rush
Erectites hieracifolia (L.) Raf.	Fireweed
Erigeron annuus (L.) Pers.	Annual fleabane
Erigeron strigosus Muhl.	Daisy fleabane
Eupatorium maculatum L.	Joe pye weed
Eupatorium perfoliatum L.	False boneset
Euphorbia corollata L.	Flat topped spurge
Euthamia graminifolia (L.) Salisb.	Grass leaved goldenrod
Fragaria virginiana Duchesne.	Strawberry
Fraxinus pennsylvanica Marsh.	Green ash
Galium aparine L.	Annual bedstraw
Galium obtusum L.	Wild madder
Gentiana andrewsii Griseb.	Bottle gentian
Gentiana crinita Froel.	Fringed gentian
Geum aleppicum var strictum (Aiton) Fern	Yellow avens
Glyceria striata (Lam.) Hitchc.	Fowl manna grass
Helenium autumnale L.	Sneezeweed
Helianthus grosseseratus Martens	Sawtooth sunflower
Helianthus tuberosus L.	Jerusalem artichoke
Hydrophyllum virginianum L.	Virginia waterleaf

Hypoxis hirsuta (L.) Coville	Yellow eyed grass
Impatiens carpensis Meerb.	Jewel weed
Iris shrevei Small	Blue flag
Juncus torreyi Coville	Torrey's rush
Lactuca canadensis L.	Wild lettuce
Lathyrus palustris L.	Marsh vetchling
Leersia oryzoides (L.) Swartz.	Rice cutgrass
Lobelia siphilitica L.	Great blue lobelia
Lobelia spicata Lam.	Pale spike lobelia
Lonicera tatarica L.	Tatarian honeysuckle
Lotus corniculatus* L.	Birdsfoot trefoil
Lycopus americanus Muhl.	Water horehound
Lycopus virginicus L.	Bugleweed
Lysmachia ciliata L.	Fringed loosestrife
Lysmachia quadriflora Sims.	Prairie loosestrife
Malus pumila* Mill.	Apple
Medicago lupulina* L.	Black medic
Mentha arvensis L.	Mint
Mentha arvensis var villosa (Benth.) Stewart	Wild mint
Monarda fistulosa L.	Bee balm
Morus alba* L.	White mulberry
Muhlenbergia glomerata (Willd.) Trin.	Wild timothy
Nepeta cataria* L.	Catnip
Nuphar advena (Aiton)W. T. Aiton	Yellow pond lily
Oenothera biennis L.	Evening primrose
Onoclea sensibilis L.	Sensitive fern
Oxalis stricta L.	Yellow wood sorrel
Panicum capillare L.	Witch grass
Parietaria pensylvanica L.	Pellitory
Parnassia glauca Raf.	Grass of parnassus
Parthenocissus incerta (Kerner) K. Fritsch	Virginia creeper
Pastinaca sativa* L.	Wild parsnip
Pedicularis lanceolata Michx.	Fen betony
Penthorum sedoides L.	Ditch stonecrop
Phalaris arundinacea* L.	Reed canary grass
Phleum pratense* L.	Timothy
Physalis subglabrata Mack and Bush	Tall ground cherry
Plantago major* L.	English plantain
Poa annua* L.	Annual bluegrass
Poa compressa* L.	Canada bluegrass
Poa pratensis* L.	Kentucky bluegrass
Polygala verticillata L.	Milkwort
Polygonatum commutatum (Schult.) Dietr.	Solomon's seal
Polygonum pensylvanicum L.	Pink smartweed
Polygonum punctatum Ell.	Smartweed

Potentilla recta* L.	Sulfur cinquefoil
Prunella vulgaris var lanceolata* (Bartn.) Fern	Self heal
Prunus americana Marshall	Wild plum
Prunus virginiana L.	Choke cherry
Pycnanthemum virginianum (L.) Dur.and Jacks	Mountain mint
Quercus alba L.	White oak
Quercus macrocarpa Michx.	Bur oak
Quercus rubra L.	Red oak
Ranunculus acris L.	Tall buttercup
Ranunculus hispidus Michx.	Bristly buttercup
Ranunculus septentrionales Poir.	Swamp buttercup
Rhamnus cathartica* L.	Buckthorn
Ribes missouriense Nutt.	Wild gooseberry
Ribes americanum Mill.	Wild black currant
Rosa blanda Ait.	Meadow rose
Rosa multiflora* Thunb.	Multiflora rose
Rubus occidentalis L.	Black raspberry
Rudbeckia hirta L.	Black eyed susan
Rumex crispus* L.	Curled dock
Sagittaria latifolia Willd.	Arrowhead
Salix eriocephala Michx.	Heart leaved willow
Salix exigua Nutt.	Sand bar willow
Salix nigra Marshall	Black willow
Sambucus canadensis L.	Elderberry
Sapronaria officinalis* L.	Bouncing bet
Scirpus atrovirens Willd.	Dark green rush
Scirpus fluviatilis (Torr.) A. Gray	River bulrush
Scirpus tabernaemontani KC Gmel.	Soft stem bulrush
Scutellaria lateriflora L.	Mad dog scullcap
Senecio plattensis Nutt.	Prairie ragwort
Setaria lutescens (Wiegel) Hubb.	Yellow brislegrass
Silphium perfoliatum L.	Cup plant
Smilacina stellata (L.) Desf.	Starry false solomon's seal
Smilax lasioneura Hook	Carrion flower
Solanum dulcamara* L.	Bittersweet nightshade
Solidago canadensis L.	Canada goldenrod
Solidago gigantea Aiton.	Late goldenrod
Solidago ridellii Frank.	Ridell's goldenrod
Sonchus uliginosus* M. Bieb.	Common sow thistle
Spartina pectinata Link.	Prairie cordgrass
Spiranthes cernua (L.) Rich.	Lady's tresses
Stachys palustris var homotricha Fern.	Woundwort
Stachys tenuifolia var hispida (Pursh) Fern	Marsh hedge nettle
Symplocarpus foetidus (L.) Nutt.	Skunk cabbage
Taraxacum officinale* Weber.	Dandelion

Teucrium canadense L.	Germander
Thalictrum revolutum DC	Waxy meadow rue
Tragopogon dubius* Scop.	Sand goat's beard
Typha angustifolia L.	Narrow leaved cattail
Typha latifolia L.	Common cattail
Ulmus pumila* L	Siberian elm
Ulmus rubra Muhl.	Slippery elm
Urtica dioica* L.	Stinging nettle
Verbascum thapsus* L.	Common mullein
Verbena hastata L.	Blue vervain
Viburnum lantana* L.	Wayfaring tree
Viburnum lentago L.	Nannyberry
Viburnum opulus* L.	European highbush cranberry
Viola nephrophylla Greene	Northern blue violet
Vitis riparia Michx.	Riverbank grape
Zanthoxylem americanum Mill.	Prickly ash

Table 2
Overall Herbaceous Species Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 120

Species	Frequency	Relative frequency
Poa pratensis	0.775	12.15%
Solanum dulcamara	0.680	9.09
Aster puniceus	0.383	6.00
Pastinaca sativa	0.350	5.49
Geum aleppicum var strictum	0.200	3.14
Pycnanthemum virginianum	0.183	2.87
Equisetum arvense	0.167	2.62
Taraxacum officinale	0.167	2.62
Bromus inermis	0.158	2.48
Circium arvense	0.158	2.48
Lycopus americanus	0.158	2.48
Carex stricta	0.150	2.35
Muhlenbergia glomerata	0.150	2.35
Solidago gigantea	0.141	2.21
Carex pellita	0.133	2.08
Phalaris arundinacea	0.133	2.08
Solidago canadensis	0.133	2.08
Grass spp.	0.125	1.96
Cornus racemosa	0.100	1.57
Achillea millefolium	0.092	1.44
Oxalis stricta	0.092	1.44
Carex trichocarpa	0.091	1.43
Mentha arvensis var villosa	0.083	1.30
Parthenocissus incerta	0.083	1.30
Agropyron repens	0.075	1.18
Eupatorium maculatum	0.075	1.18
Impatiens carpensis	0.075	1.18
Medicago lupulina	0.075	1.18
Rosa multiflora	0.075	1.18
Rubus occidentalis	0.075	1.18
Viola nephrophyla	0.075	1.18
Carex granularis	0.067	1.05
Circium muticum	0.058	0.91
Prunus virginiana	0.058	0.91
Urtica dioica	0.058	0.91
Vitis riparia	0.058	0.91
Lathyrus palustris	0.050	0.78
Senecio plattensis	0.050	0.78
Unknown #1	0.050	0.78
Ambrosia trifida	0.042	0.66

Solidago ridellii	0.042	0.66%
Unknown #3	0.042	0.66
Lotus corniculatus	0.041	0.64
Angelica atropurpurea	0.033	0.52
Eleocharis compressa	0.033	0.52
Epilobium coloratum	0.033	0.52
Erigeron strigosus	0.033	0.52
Lactuca canadensis	0.033	0.52
Prunella vulgaris var lanceolata	0.033	0.52
Thalictrum revolutum	0.033	0.52
Unknown #2	0.033	0.52
Conyza canadensis	0.025	0.39
Equisetum hyemale	0.025	0.39
Fragaria virginiana	0.025	0.39
Lysmachia ciliata	0.025	0.39
Lobelia spicata	0.025	0.39
Scirpus fluviatilis	0.025	0.39
Stachys tenuifolia var hispida	0.025	0.39
Acer negundo	0.017	0.27
Agrimonia gryposepala	0.017	0.27
Alopecurus carolinianus	0.017	0.27
Asclepias verticillata	0.017	0.27
Carex sprengelii	0.017	0.27
Carex sterilis	0.017	0.27
Circium vulgare	0.017	0.27
Digitaria sanguinalis	0.017	0.27
Galium aparine	0.017	0.27
Hypoxis hirsuta	0.017	0.27
Iris shrevei	0.017	0.27
Lysmachia quadriflora	0.017	0.27
Ranunculus acris	0.017	0.27
Rhamnus cathartica	0.017	0.27
Verbascum thaspus	0.017	0.27
Viburnum opulus	0.017	0.27
Anemone canadensis	0.008	0.13
Apocynum sibericum	0.008	0.13
Arctium minus	0.008	0.13
Aster novae-angliae	0.008	0.13
Bidens vulgata	0.008	0.13
Caltha palustris	0.008	0.13
Carex lacustris	0.008	0.13
Carex vulpinoidea	0.008	0.13
Chelone glabra	0.008	0.13
Dodecatheon meadia	0.008	0.13
Elymus virginicus	0.008	0.13

Erectites hieracifolia	0.008	0.13%
Eupatorium serotinum	0.008	0.13
Euthamia graminifolia	0.008	0.13
Galium obtusum	0.008	0.13
Gentiana andrewsii	0.008	0.13
Helenium autumnale	0.008	0.13
Helianthus grossesseratus	0.008	0.13
Hydrophyllum virginianum	0.008	0.13
Leersia oryzoides	0.008	0.13
Oenothera biennis	0.008	0.13
Parietaria pensylvanica	0.008	0.13
Pedicularis lanceolata	0.008	0.13
Potentilla recta	0.008	0.13
Ranunculus hispidus	0.008	0.13
Sambucus canadensis	0.008	0.13
Scirpus atrovirens	0.008	0.13
Smilacina stellata	0.008	0.13
Sonchus uliginosus	0.008	0.13
Spartina pectinata	0.008	0.13
Tragopogon dubious	0.008	0.13
Verbena hastata	0.008	0.13
Viburnum lantana	0.008	0.13

Table 3
Area 1 Herbaceous Species Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20

Species	Frequency	Relative frequency
Poa pratensis	0.85	16.3%
Bromus inermis	0.55	10.6
Agropyron repens	0.40	7.7
Circium arvense	0.30	5.8
Medicago lupulina	0.30	5.8
Taraxacum officinale	0.30	5.8
Lotus corniculatus	0.20	3.8
Oxalis stricta	0.20	3.8
Solanum dulcamara	0.20	3.8
Unknown #1	0.20	3.8
Epilobium coloratum	0.15	2.9
Pastinaca sativa	0.15	2.9
Alopecurus carolinianus	0.10	1.9
Erigeron strigosus	0.10	1.9
Geum aleppicum var strictum	0.10	1.9
Prunus virginiana	0.10	1.9
Rubus occidentalis	0.10	1.9
Lactuca canadensis	0.10	1.9
Parthenocissus incerta	0.10	1.9
Rosa multiflora	0.10	1.9
Viburnum opulus	0.10	1.9
Vitis riparia	0.10	1.9
Smilacina stellata	0.05	1.0
Erectites hieracifolia	0.05	1.0
Rhamnus cathartica	0.05	1.0
Tragopogon dubious	0.05	1.0
Parietaria pensylvanica	0.05	1.0
Asclepias verticillata	0.05	1.0
Acer negundo	0.05	1.0
Urtica dioica	0.05	1.0

Table 4
Area 2 Herbaceous Species Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20

Species	Frequency	Relative frequency
Poa pratensis	0.80	15.1%
Phalaris arundinacea	0.40	7.5
Pastinaca sativa	0.20	3.8
Pycnanthemum virginianum	0.20	3.8
Thalictrum revolutum	0.20	3.8
Aster puniceus	0.15	2.8
Carex pellita	0.15	2.8
Conyza canadensis	0.15	2.8
Solidago canadensis	0.15	2.8
Solidago gigantea	0.15	2.8
Taraxacum officinale	0.15	2.8
Vitis riparia	0.15	2.8
Bromus inermis	0.10	1.9
Carex trichocarpa	0.10	1.9
Circium arvense	0.10	1.9
Digitaria sanguinalis	0.10	1.9
Equisetum arvense	0.10	1.9
Erigeron strigosus	0.10	1.9
Eupatorium maculatum	0.10	1.9
Galium aparine	0.10	1.9
Impatiens carpensis	0.10	1.9
Iris shrevei	0.10	1.9
Lycopus americanus	0.10	1.9
Lysmachia ciliata	0.10	1.9
Urtica dioica	0.10	1.9
Anemone canadensis	0.05	0.9
Carex lacustris	0.05	0.9
Carex sterilis	0.05	0.9
Cornus racemosa	0.05	0.9
Elymus virginicus	0.05	0.9
Eupatorium serotinum	0.05	0.9
Geum aleppicum var strictum	0.05	0.9
Grass spp.	0.05	0.9
Hydrophyllum virginianum	0.05	0.9
Lactuca canadensis	0.05	0.9
Leersia oryzoides	0.05	0.9
Lotus corniculatus	0.05	0.9
Medicago lupulina	0.05	0.9
Mentha arvensis var villosa	0.05	0.9
Muhlenbergia glomerata	0.05	0.9

Oenothera biennis	0.05	0.9%
Oxalis stricta	0.05	0.9
Parthenocissus incerta	0.05	0.9
Ranunculus hispidus	0.05	0.9
Rubus occidentalis	0.05	0.9
Solanum dulcamara	0.05	0.9
Stachys tenuifolia var hispidus	0.05	0.9
Viola nephrophylla	0.05	0.9

Table 5

Area 3 Herbaceous Species Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20

Species	Frequency	Relative frequency
Poa pratensis	0.95	17.9%
Pastinaca sativa	0.60	11.3
Carex trichocarpa	0.45	8.5
Circium arvense	0.40	7.5
Grass spp.	0.35	6.6
Taraxacum officinale	0.35	6.6
Rosa multiflora	0.25	4.7
Bromus inermis	0.20	3.8
Parthenocissus incerta	0.20	3.8
Ambrosia trifida	0.15	2.8
Cornus racemosa	0.15	2.8
Equisetum arvense	0.15	2.8
Prunus virginiana	0.15	2.8
Geum aleppicum var strictum	0.10	1.9
Oxalis stricta	0.10	1.9
Rubus occidentalis	0.10	1.9
Solanum dulcamara	0.10	1.9
Unknown #1	0.10	1.9
Vitis riparia	0.10	1.9
Acer negundo	0.05	0.9
Arctium minus	0.05	0.9
Aster puniceus	0.05	0.9
Solidago canadensis	0.05	0.9
Solidago gigantea	0.05	0.9
Sonchus uliginosus	0.05	0.9
Urtica dioica	0.05	0.9

Table 6

Area 4 Herbaceous Species Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20

Species	Frequency	Relative frequency
Poa pratensis	0.95	7.6%
Aster puniceus	0.90	7.2
Equisetum arvense	0.65	5.2
Muhlenbergia glomerata	0.65	5.2
Geum aleppicum var strictum	0.55	4.4
Lycopus americanus	0.50	4.0
Pastinaca sativa	0.50	4.0
Pycnanthemum virginianum	0.50	4.0
Achillea millefolium	0.45	3.6
Carex granularis	0.40	3.2
Circium muticum	0.35	2.8
Carex pellita	0.30	2.4
Senecio plattensis	0.30	2.4
Solidago gigantea	0.30	2.4
Carex stricta	0.25	2.0
Cornus racemosa	0.25	2.0
Solidago canadensis	0.25	2.0
Solidago ridellii	0.25	2.0
Unknown #3	0.25	2.0
Viola nephrophylla	0.25	2.0
Eleocharis compressa	0.20	1.6
Equisetum hyemale	0.15	1.2
Fragaria virginiana	0.15	1.2
Lobelia spicata	0.15	1.2
Mentha arvensis var villosa	0.15	1.2
Oxalis stricta	0.15	1.2
Prunella vulgaris var lanceolata	0.15	1.2
Scirpus fluviatilis	0.15	1.2
Unknown #2	0.15	1.2
Urtica dioica	0.15	1.2
Agrimonia gryposepala	0.10	0.8
Ambrosia trifida	0.10	0.8
Angelica atropurpurea	0.10	0.8
Carex sprengelii	0.10	0.8
Hypoxis hirsuta	0.10	0.8
Lysimachia quadriflora	0.10	0.8
Medicago lupulina	0.10	0.8
Parthenocissus incerta	0.10	0.8
Prunus virginiana	0.10	0.8
Ranunculus acris	0.10	0.8

Verbascum thapsus	0.10	0.8%
Agropyron repens	0.05	0.4
Apocynum sibericum	0.05	0.4
Asclepias verticillata	0.05	0.4
Aster novae-angliae	0.05	0.4
Caltha palustris	0.05	0.4
Carex sterilis	0.05	0.4
Carex vulpinoidea	0.05	0.4
Circium vulgare	0.05	0.4
Dodecatheon meadia	0.05	0.4
Eupatorium maculatum	0.05	0.4
Euthamia graminifolia	0.05	0.4
Gentiana andrewsii	0.05	0.4
Grass spp.	0.05	0.4
Impatiens carpensis	0.05	0.4
Pedicularis lanceolata	0.05	0.4
Phalaris arundinacea	0.05	0.4
Potentilla recta	0.05	0.4
Rhamnus cathartica	0.05	0.4
Scirpus atrovirens	0.05	0.4
Viburnum lantana	0.05	0.4

Table 7

Area 5 Herbaceous Species Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20

Species	Frequency	Relative frequency
Aster puniceus	0.85	14.3%
Carex stricta	0.60	10.1
Eupatorium maculatum	0.40	6.7
Poa pratensis	0.40	6.7
Lycopus americanus	0.35	5.9
Carex pellita	0.30	5.0
Solidago gigantea	0.30	5.0
Pycnanthemum virginianum	0.30	5.0
Lathyrus palustris	0.25	4.2
Mentha arvensis var villosa	0.25	4.2
Phalaris arundinacea	0.25	4.2
Muhlenbergia glomerata	0.20	3.4
Grass spp.	0.15	2.5
Impatiens carpensis	0.15	2.5
Viola nephrophylla	0.15	2.5
Geum aleppicum var strictum	0.10	1.7
Pastinaca sativa	0.10	1.7
Solidago canadensis	0.10	1.7
Stachys tenuifolia var hispidus	0.10	1.7
Achillea millefolium	0.05	0.8
Angelica atropurpurea	0.05	0.8
Bidens vulgata	0.05	0.8
Bromus inermis	0.05	0.8
Chelone glabra	0.05	0.8
Equisetum arvense	0.05	0.8
Galium obtusum	0.05	0.8
Helenium autumnale	0.05	0.8
Helianthus grossesseratus	0.05	0.8
Lysmachia ciliata	0.05	0.8
Rubus occidentalis	0.05	0.8
Spartina pectinata	0.05	0.8
Unknown #2	0.05	0.8

Table 8

Area 6 Herbaceous Species Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20

Species	Frequency	Relative frequency
Poa pratensis	0.70	16.9%
Pastinaca sativa	0.55	13.2
Aster puniceus	0.35	8.4
Geum aleppicum var strictum	0.30	7.2
Taraxacum officinale	0.20	4.8
Circium arvense	0.15	3.6
Cornus racemosa	0.15	3.6
Grass spp.	0.15	3.6
Impatiens carpensis	0.15	3.6
Rosa multiflora	0.15	3.6
Rubus occidentalis	0.15	3.6
Phalaris arundinacea	0.10	2.4
Prunus virginiana	0.10	2.4
Pycnanthemum virginicum	0.10	2.4
Achillea millefolium	0.05	1.2
Angelica atropurpurea	0.05	1.2
Bromus inermis	0.05	1.2
Carex pellita	0.05	1.2
Carex stricta	0.05	1.2
Circium vulgare	0.05	1.2
Epilobium coloratum	0.05	1.2
Equisetum arvense	0.05	1.2
Lactuca canadensis	0.05	1.2
Lathyrus palustris	0.05	1.2
Mentha arvensis var villosa	0.05	1.2
Oxalis stricta	0.05	1.2
Parthenocissus incerta	0.05	1.2
Sambucus canadensis	0.05	1.2
Solidago gigantea	0.05	1.2
Stachys tenuifolia var hispida	0.05	1.2
Verbena hastata	0.05	1.2

Table 9

Overall Tree Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 120; mean distance = 18.89 meters; trees per hectare = 28.03

Species	Frequency	Relative frequency
Prunus virginiana	0.62	24.7%
Acer negundo	0.57	22.7
Ulmus rubra	0.26	10.4
Rhamnus cathartica	0.19	7.6
Malus pumila	0.14	5.6
Ulmus pumila	0.11	4.4
Quercus macrocarpa	0.10	4.0
Crataegus succulenta	0.08	3.2
Acer saccharinum	0.05	2.0
Quercus rubra	0.03	1.1
Viburnum opulus	0.025	1.0
Fraxanus pennsylvanica	0.02	0.8
Morus alba	0.02	0.8
Salix eriocephala	0.02	0.8
Salix interior	0.02	0.8
Salix nigra	0.02	0.8
Cornus racemosa	0.01	0.4

Table 10

Area 1 Tree Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20; mean distance = 14.34 meters; trees per hectare = 48.63

Species	Frequency	Relative frequency
Prunus virginiana	0.70	26.4%
Ulmus pumila	0.65	24.5
Acer negundo	0.60	22.6
Ulmus rubra	0.25	9.4
Viburnum opulus	0.15	5.7
Quercus rubra	0.15	5.7
Rhamnus cathartica	0.10	3.8
Morus alba	0.05	1.9

Table 11

Area 2 Tree Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20; mean distance = 12.42 meters; trees per hectare = 64.82

Species	Frequency	Relative frequency
Acer negundo	0.85	50.0%
Prunus virginiana	0.25	14.7
Ulmus rubra	0.15	8.8
Acer saccharinum	0.10	5.9
Salix eriocephala	0.10	5.9
Salix interior	0.10	5.9
Crataegus succulenta	0.05	2.9
Morus alba	0.05	2.9
Salix nigra	0.05	2.9

Table 12

Area 3 Tree Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20; mean distance = 18.8 meters; trees per hectare = 28.29

Species	Frequency	Relative frequency
Prunus virginiana	0.85	44.7%
Acer negundo	0.45	23.7
Malus pumila	0.35	18.4
Ulmus rubra	0.10	5.3
Crataegus succulenta	0.05	2.6
Quercus macrocarpa	0.05	2.6
Quercus rubra	0.05	2.6

Table 13

Area 4 Tree Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20; mean distance = 22.51 meters; trees per hectare = 19.73

Species	Frequency	Relative frequency
Prunus virginiana	0.90	34.6%
Ulmus rubra	0.40	15.4
Acer negundo	0.30	11.5
Malus pumila	0.25	9.6
Rhamnus cathartica	0.25	9.6
Crataegus succulenta	0.20	7.7
Quercus macrocarpa	0.15	5.8
Fraxanus pennsylvanica	0.10	3.8
Viburnum lantana	0.05	1.9

Table 14

Area 5 Tree Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20; mean distance = 23.26 meters; trees per hectare = 18.49

Species	Frequency	Relative frequency
Acer negundo	0.75	25.9%
Ulmus rubra	0.65	22.4
Rhamnus cathartica	0.60	20.7
Prunus virginiana	0.25	8.6
Acer saccharinum	0.20	6.9
Malus pumila	0.20	6.9
Quercus macrocarpa	0.15	5.2
Crataegus succulenta	0.10	3.4

Table 15

Area 6 Tree Occurrance within Tuttle-Clarkson Natural Area
Points sampled = 20; mean distance = 22 meters; trees per hectare = 20.66

Species	Frequency	Relative frequency
Prunus virginiana	0.80	42.1%
Acer negundo	0.45	23.7
Quercus macrocarpa	0.25	13.2
Rhamnus cathartica	0.20	10.5
Crataegus succulenta	0.10	5.3
Malus pumila	0.05	2.6
Salix nigra	0.05	2.6

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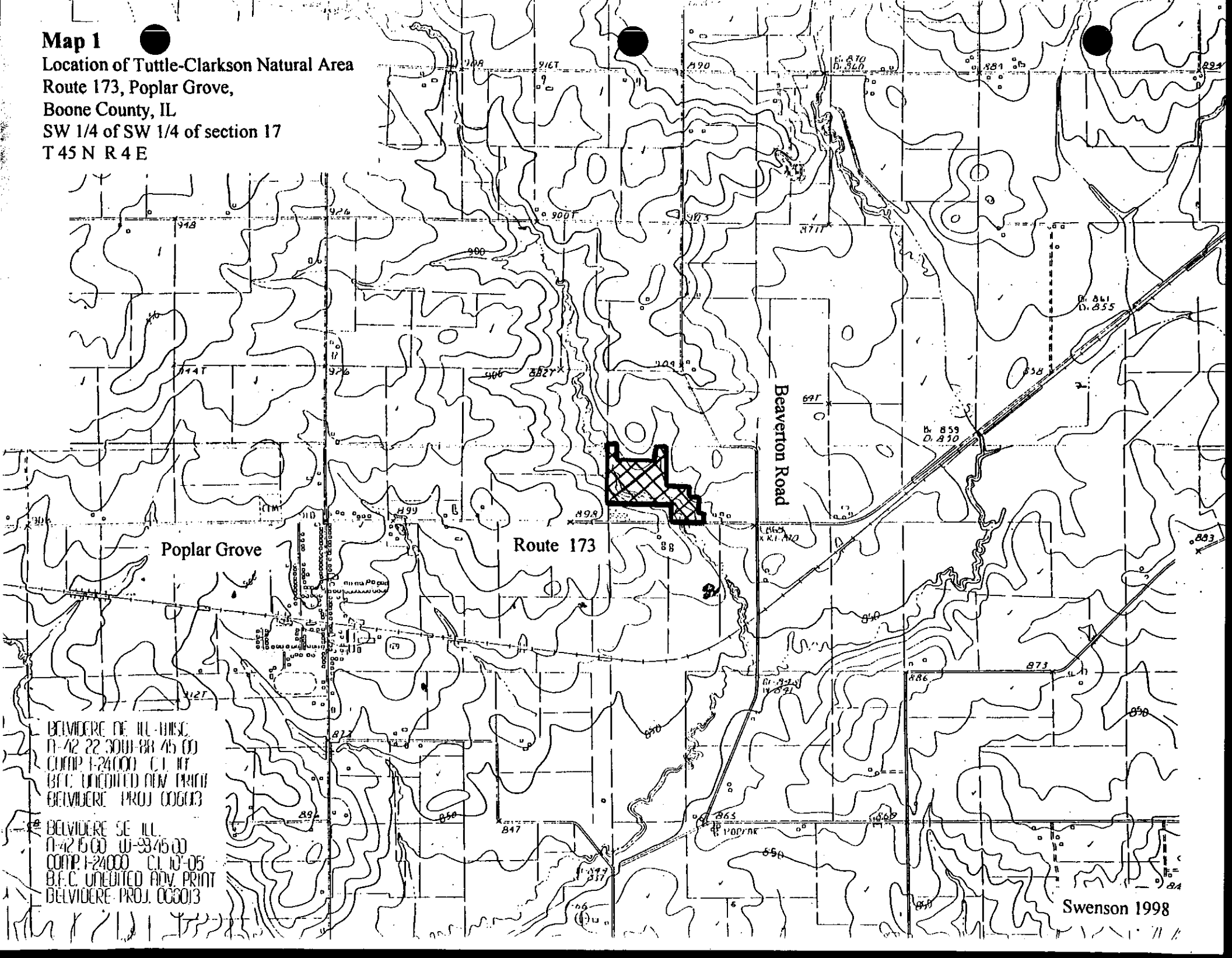
Map 1

Location of Tuttle-Clarkson Natural Area
Route 173, Poplar Grove,
Boone County, IL
SW 1/4 of SW 1/4 of section 17
T 45 N R 4 E

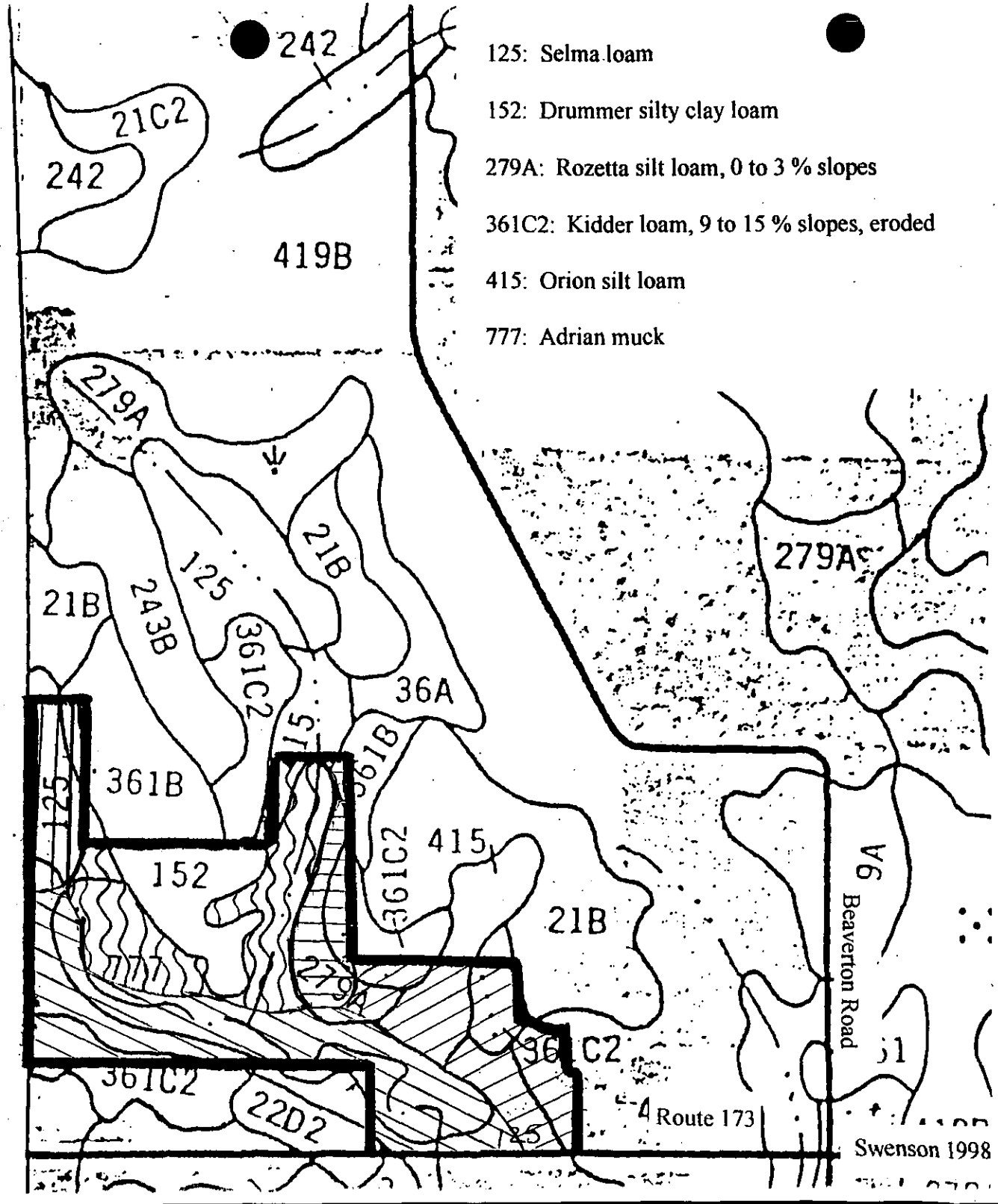


Map 2
Area Divisions

Areas determined by soil survey maps and vegetational composition.

Tuttle-Clarkson Natural Area
Route 173, Poplar Grove,
Boone County, IL
SW 1/4 of SW 1/4 of section 17
T 45 N R 4 E

Area 1		Successional field
Area 2		Wet prairie
Area 3		Successional field
Area 4		Graminoid fen
Area 5		Sedge meadow
Area 6		Successional field



125: Selma loam

152: Drummer silty clay loam

279A: Rozetta silt loam, 0 to 3 % slopes

361C2: Kidder loam, 9 to 15 % slopes, eroded

415: Orion silt loam

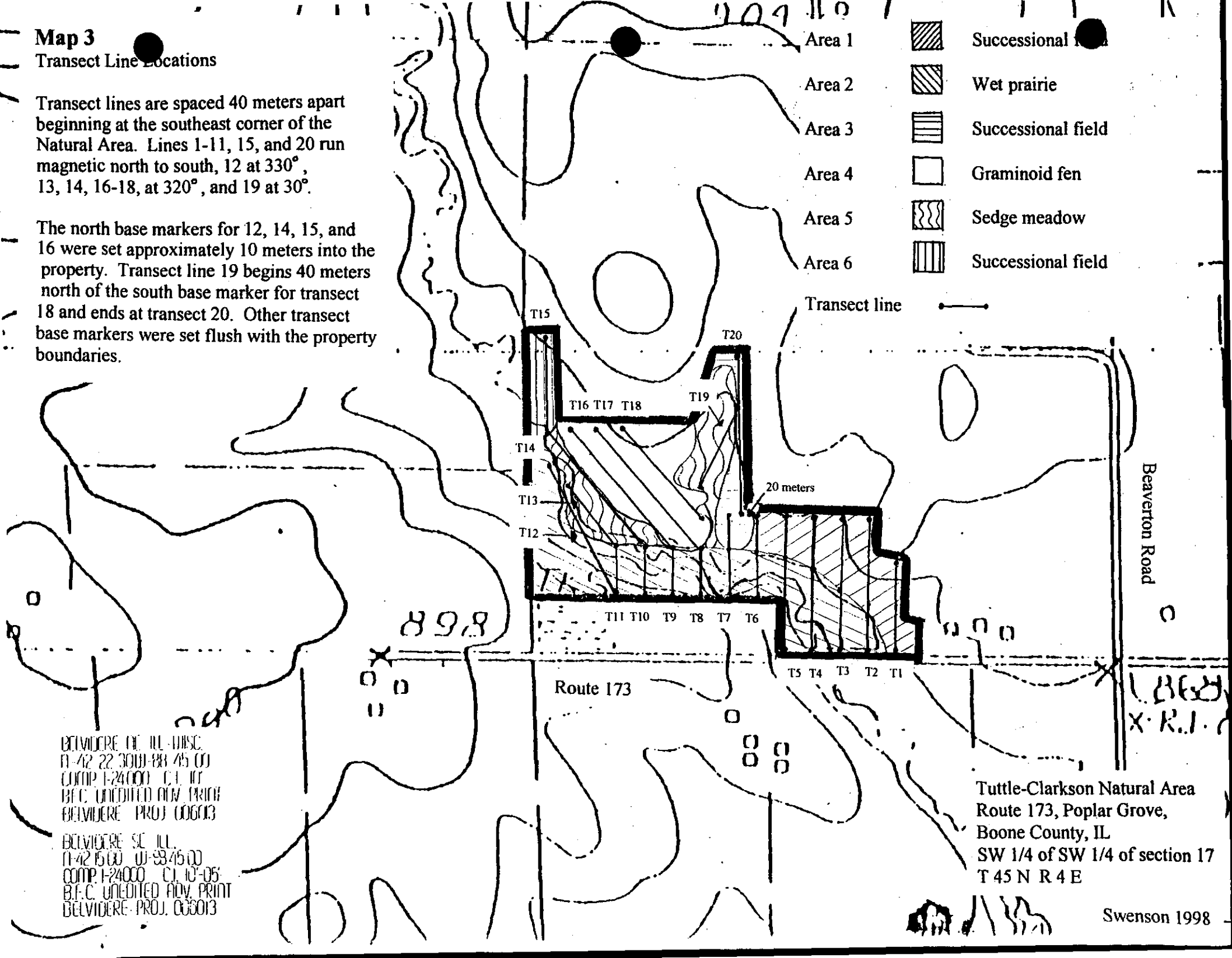
777: Adrian muck

soil survey of
Winnebago and
Boone Counties, Illinois
United States Department of Agriculture
Soil Conservation Service
in cooperation with
Illinois Agricultural Experiment Station

Map 3
Transect Line Locations

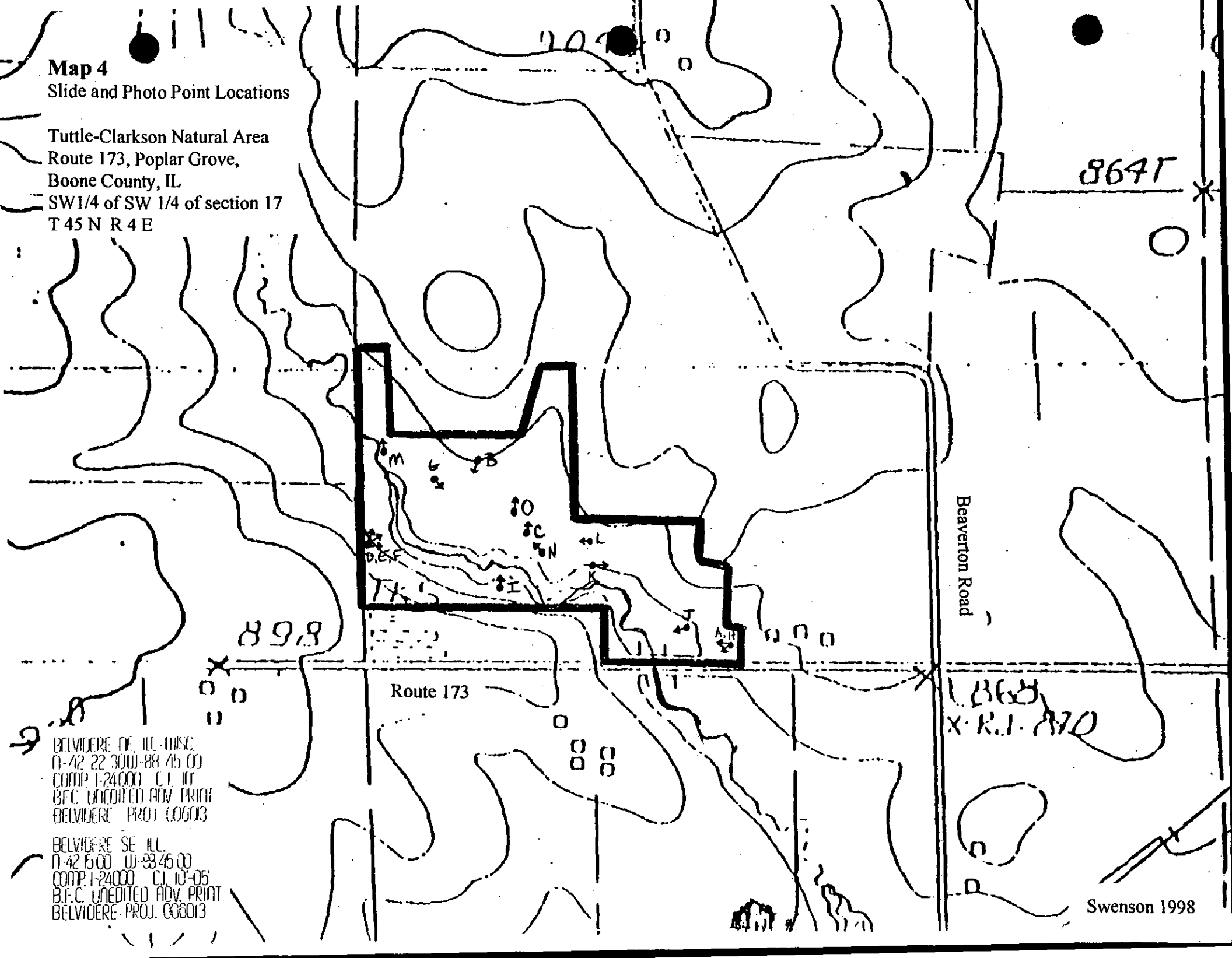
Transect lines are spaced 40 meters apart beginning at the southeast corner of the Natural Area. Lines 1-11, 15, and 20 run magnetic north to south, 12 at 330°, 13, 14, 16-18, at 320°, and 19 at 30°.

The north base markers for 12, 14, 15, and 16 were set approximately 10 meters into the property. Transect line 19 begins 40 meters north of the south base marker for transect 18 and ends at transect 20. Other transect base markers were set flush with the property boundaries.



Tuttle-Clarkson Natural Area
Route 173, Poplar Grove,
Boone County, IL
SW 1/4 of SW 1/4 of section 17
T 45 N R 4 E

Swenson 1998


Map 4
Slide and Photo Point Locations
Tuttle-Clarkson Natural Area
Route 173, Poplar Grove,
Boone County, IL
SW1/4 of SW 1/4 of section 17
T 45 N R 4 E
Route 173
Beaverton Road
Swenson 1998