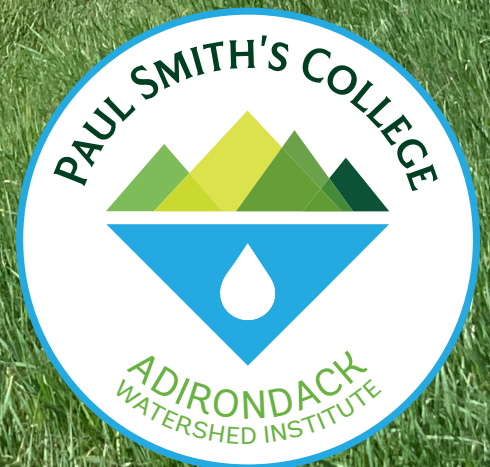


# The Tablelands at Uihlein Farm: Current Ecological Survey, Grassland Bird Potential, and Future Recommendations

Prepared for the Henry Uihlein II & Mildred A. Uihlein Foundation  
by the Paul Smith's College Adirondack Watershed Institute

2020





# **The Tablelands at Uihlein Farm: Current Ecological Survey, Grassland Bird Potential, and Future Recommendations - 2020 Report to the Uihlein Foundation**

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## Introduction

In 2020, the Henry Uihlein II and Mildred A. Uihlein Foundation Trust (Uihlein Foundation) acquired a parcel of land totaling approximately 428 acres, previously donated to Cornell University and used for potato production and research until its transfer back to the Uihlein Foundation. Formerly Tablelands Farm and purchased in 1906 by the Lake Placid Club, the farm was one of several which supplied the dining rooms of the Club and provided dairy products, poultry, beef, and fresh produce including potatoes. Purchased by Henry and Mildred Uihlein in 1949 to add to the Heaven Hill estate, and donated to Cornell University in 1961 to establish a research potato seed farm, it remained with Cornell until its transfer back to the Uihlein Foundation this year (Lake Placid-North-Elba Historical Society 2020). This parcel, which we have often referred to as “the potato field,” was the subject of research by the Paul Smith’s College Adirondack Watershed Institute (AWI), in partnership with the Uihlein Foundation, during summer 2020.

AWI has been working with the Uihlein Foundation since 2019 to examine how bobolinks and other bird species respond to management practices in hay fields on Heaven Hill Farm, an adjacent parcel across Bear Cub Lane in Lake Placid, NY. These efforts are focused primarily on grassland specialist bird species including the bobolink (*Dolichonyx oryzivorus*) and savannah sparrow (*Passerculus sandwichensis*). These species depend on grassland habitat for successful breeding and are often found in hay meadows and pastures in the Northeast US in part due to the dearth of natural grassland habitat. As a group, grassland birds are one of the most imperiled on the continent, primarily as a result of long-term habitat loss and fragmentation combined with intensifying agricultural production on remaining farmlands.

Heaven Hill Farm fields are currently managed for forage production for a herd of cattle. The Uihlein Farm was used to grow potatoes and the land was terraced and drained to facilitate the scientific studies undertaken there by Cornell University, but all potato cultivation ceased by 2017. Because this former agricultural parcel will no longer be cultivated to the same extent, the potato fields, hereafter referred to as the Tablelands at Uihlein Farm, provide an opportunity for future grassland bird conservation as well as a variety of education and interpretation activities. For both the Heaven Hill Field and the Tablelands, the Uihlein Foundation will develop ideas for future management consistent with its mission, which includes scientific and educational uses related to forests and farming. Many people and organizations are invited to use these lands and nature observation is of interest to many of the recreational users. We were thrilled to have the opportunity to build on our work at Heaven Hill and to expand our partnership



with the Uihlein Foundation through efforts to document wildlife and ecological characteristics at the Tablelands to provide a basis for future restoration and management of those lands for grassland birds and other species.

## Methods and Findings

We undertook a variety of survey methods to document baseline conditions at the Tablelands. In accordance with our expertise and concurrent work at Heaven Hill, these methods focused primarily on wildlife and habitat characteristics of the site.

### Birds

We made visits to the site throughout the summer of 2020 from early June through late August. We were



**Table 1. Bird species detected at the Tablelands during June – August, 2020.**

Common name	Scientific name	AOU** code	# of visits on which species was detected
American crow	<i>Corvus brachyrhynchos</i>	AMCR	8
American goldfinch	<i>Spinus tristis</i>	AMGO	3
American kestrel	<i>Falco sparverius</i>	AMKE	3
American robin	<i>Turdus migratorius</i>	AMRO	1
Black-and-white warbler	<i>Mniotilta varia</i>	BAWW	1
Black-capped chickadee	<i>Poecile atricapillus</i>	BCCH	2
Black-throated blue warbler*	<i>Setophaga caerulescens</i>	BTBW	1
Black-throated green warbler	<i>Setophaga virens</i>	BTNW	2
Blue jay	<i>Cyanocitta cristata</i>	BLJA	7
Blue-headed vireo	<i>Vireo solitarius</i>	BHVI	6
Bobolink*	<i>Dolichonyx oryzivorus</i>	BOBO	5
Canada goose	<i>Branta canadensis</i>	CAGO	3
Cedar waxwing	<i>Bombycilla cedrorum</i>	CEDW	4
Chestnut-sided warbler	<i>Setophaga pensylvanica</i>	CSWA	6
Chipping sparrow	<i>Spizella passerina</i>	CHSP	1
Common yellowthroat	<i>Geothlypis trichas</i>	COYE	1
Dark-eyed junco	<i>Junco hyemalis</i>	DEJU	1
Eastern bluebird	<i>Sialia sialis</i>	EABL	6
Eastern kingbird	<i>Tyrannus tyrannus</i>	EAKI	1
Eastern phoebe	<i>Sayornis phoebe</i>	EAPH	2
Hermit thrush	<i>Catharus guttatus</i>	HETH	6
Indigo bunting	<i>Passerina cyanea</i>	INBU	5
Least flycatcher	<i>Empidonax minimus</i>	LEFL	1
Mourning warbler	<i>Geothlypis Philadelphia</i>	MOWA	2
Nashville warbler	<i>Leiostyris ruficapilla</i>	NAWA	1
Northern flicker	<i>Colaptes auratus</i>	NOFL	4
Northern harrier*	<i>Circus hudsonius</i>	NOHA	6
Northern parula	<i>Setophaga americana</i>	NOPA	2
Ovenbird	<i>Seiurus aurocapilla</i>	OVEN	4
Red-breasted nuthatch	<i>Sitta Canadensis</i>	RBNU	2
Red-eyed vireo	<i>Vireo olivaceus</i>	REVI	7
Savannah sparrow	<i>Passerculus sandwichensis</i>	SAVS	9
Song sparrow	<i>Melospiza melodia</i>	SOSP	9
Tree swallow	<i>Tachycineta bicolor</i>	TRSW	1
Turkey vulture	<i>Cathartes aura</i>	TUVU	1
Wild turkey	<i>Meleagris gallopavo</i>	WITU	3
Yellow-rumped warbler	<i>Setophaga coronata</i>	YRWA	2

\* Considered Species of Greatest Conservation Need in New York State by NYS Department of Environmental Conservation. \*\* American Ornithological Union 4 letter codes.

intensely focused on documenting breeding behavior of bobolink and savannah sparrow at Heaven Hill during June and so the majority of our activity at Tablelands took place in July and August, though we did visit on several occasions in June. We conducted walking surveys during each visit and noted all species of birds we detected on site every time we visited and recorded observations in field notebooks as well as periodic uploads to eBird. A joint project by the Cornell Lab of Ornithology and Audubon, eBird is a free online program that allows birders to track their sightings, and allows other birders watch and search in real-time from among its database of more than 100 million bird sightings collected from around the globe.

At Tablelands, we made 130 detections of 38 bird species, primarily passerines. Most bird detections were by ear, and therefore most were songbirds though birds that do not vocalize as regularly were also often detected on site. Most common species by numbers of detections were savannah sparrow, song sparrow, and American crow and some of the more infrequently detected species included tree swallow, eastern kingbird, and chipping sparrow. We spent the majority of our time in the open field portions of the property. As such, although we detected numerous forest birds from the nearby woodlands, most detections were of species associated with more open habitat types (Table 1).

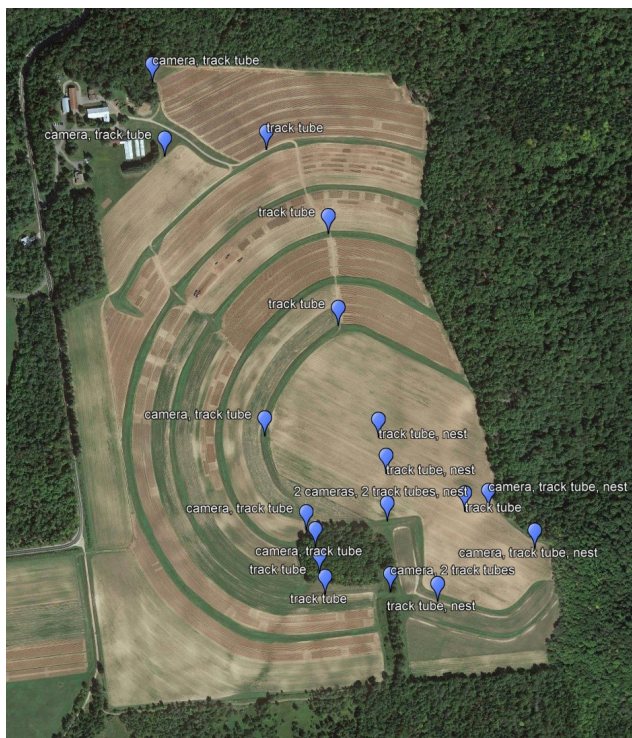


**Track tube (left) and associated track plate with footprints of small mammals.**

*Mammals*

We used two primary means of survey for mammalian species. In addition to informal observations on site, which were limited to white-tailed deer, we utilized passive sampling methods of trail cameras and track tubes to detect occurrences of other mammals. We established a set of points arrayed along the dirt road/track that runs through the largest section of the field and placed track tubes and cameras along it in order to facilitate locating and accessing them multiple times and to capture the variety of habitat types present in the open areas at Tablelands. We took advantage of a number of features present on the site in order to deploy cameras in particular, including a number of posts marking boundaries or drainage features which facilitate the ability to hang the cameras high enough to be above most of the vegetation. We deployed a total of 10 passive infrared cameras and 20 track tubes either singly or in pairs (Figure 1). Passive infrared cameras, or trail cameras, are remotely triggered by animals moving past the infrared sensor and are used to assess mammal occurrence and distribution in terrestrial habitats. These run on batteries and can be programmed to varying levels of sensitivity, either in camera or video mode, to best capture likely species on site. We placed them at a minimal height of 3 feet and above the vegetation to the best of our abilities.

In order to detect smaller mammals, we used track tubes, which are small tunnels constructed from plastic rain gutter and in which a tracking surface is located. Tubes are baited with peanut butter and rolled oats and small ink pads are placed at each end; animals enter the tubes from either end and, in the course of obtaining the bait, transfer ink from the ink pads to a tracking surface, on which a permanent record of tracks is then obtained. This method does not allow



**Figure 1. Locations of infrared cameras, track tubes, and artificial nests used for detecting mammal activity at Uihlein Farm.**





**Artificial nest deployed at Tablelands.**

for identification to the species level but is good for assessing relative abundance and activity at the family level for common small mammals in the Adirondacks (Glennon et al. 2002).

Last, though not systematically deployed, we also utilized a number of artificial nests in close proximity to track tubes and cameras at a small number of locations. Artificial nests are primarily used in bird studies as a means of assessing the predator community that may be preying on ground nesting birds. They are commonly constructed from grass-like materials in which are placed a small number of artificial songbird eggs on which teeth marks from mammals can be detected (we used Spanish moss obtained from crafting supply stores and plain, air-dry child safe modeling clay). We had built a number of these for a separate project and made use of them here for an additional source of information; they often serve as enough of an attractant that cameras pointed at artificial nests can capture photos of mammals who spend time investigating them.

This combination of methods resulted in the detection of several mammal species at Tablelands. The only mammals detected by the trail cameras were humans and white-tailed deer (*Odocoileus virginianus*), perhaps not surprisingly because these cameras are best used for detections of mid- to large-size mammals.

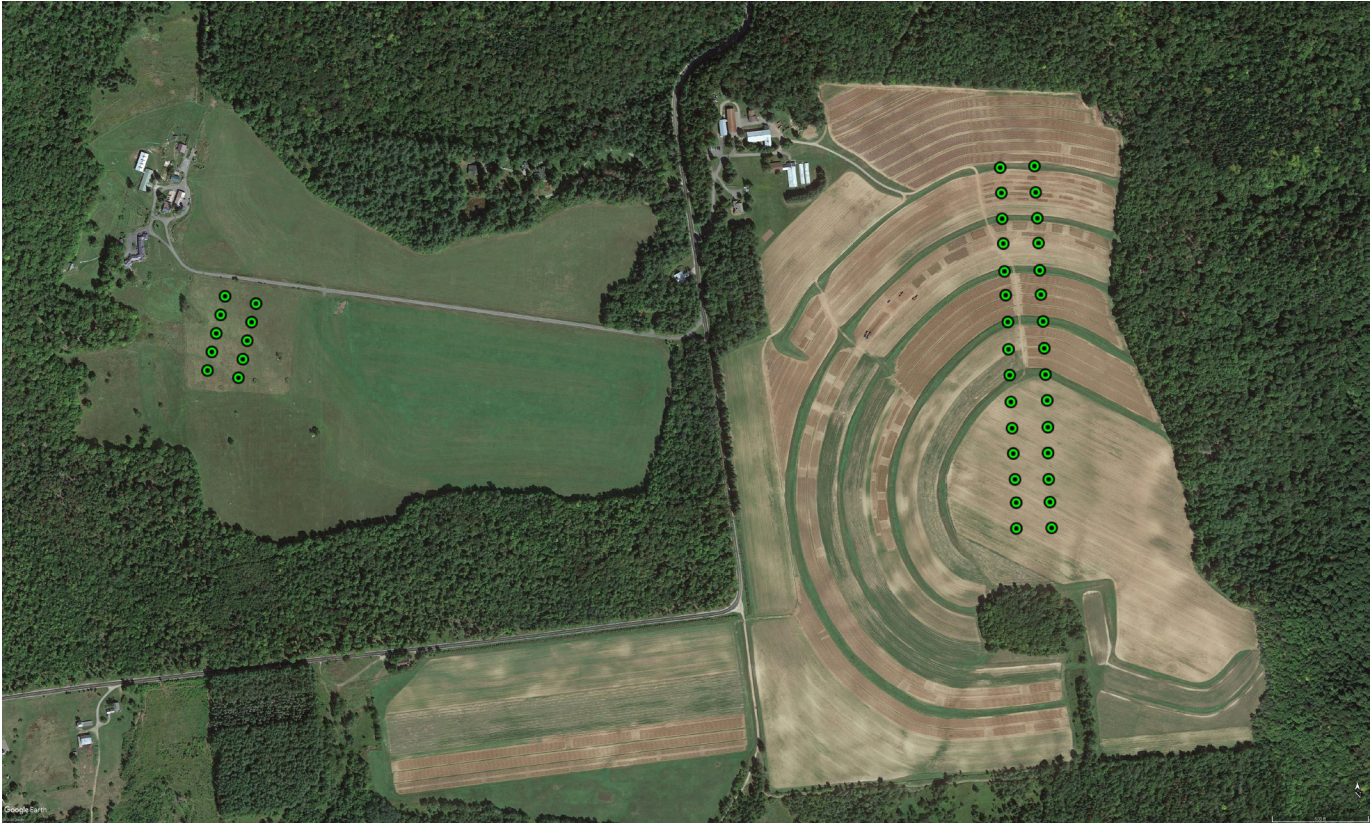
Though we cannot resolve the track plate and artificial nest information to the individual species level, the combination of recorded footprints and other mammalian sign detected led us to believe that, at a minimum, the following species are also present at Tablelands: Eastern chipmunk (*Tamias striatus*), American red squirrel (*Tamiasciurus hudsonicus*), meadow vole (*Microtus pennsylvanicus*), deer mouse and/or white-footed mouse (*Peromyscus spp.*), and masked and/or smoky shrew (*Sorex spp.*).

#### *Pollinators*

We conducted pollinator surveys at 4 locations at Tablelands utilizing the methods of the Empire State Native Pollinator Survey (White et al. 2018). The pollinator survey consists of a transect of 15 bee bowls left in place for a period of 5 hours and combined with systematic timed searches. Bee bowls or pan traps are small bowls filled with soapy water which trap pollinating insects such as bees and flies. Systematic timed searches are 30 minutes long and make use of hand nets to catch and collect aerial insects. These efforts were conducted primarily by local experts Linda (“Stick”) LaPan and Janet Mihuc, both of whom have extensive experience in insect trapping and handling and are familiar with the pollinator survey methodology; we served primarily as assistants and extra hands.

Some identification of species is done during the pollinator survey, particularly for species captured in nets during timed searches. The majority of identification occurs at a later time, however, and requires microscope observation and strong familiarity with insect taxonomy. Some identification will be done locally, but specimens are primarily identified by New York Natural History Program staff in Albany. A species list from the pollinator survey will be available at a later date.





**Figure 2. Location of vegetation sampling plots at Heaven Hill and Tablelands.**

### *Vegetation*

In contrast to some of the broader and less-structured baseline survey methods used for vertebrate taxa, we conducted a systematic vegetation survey with the distinct goals of both capturing the species composition and relative abundance of herbaceous vegetation at Tablelands and comparing and contrasting it to the vegetation community at Heaven Hill. Given the existing investment on behalf of the Uihlein Foundation, we assume that grassland bird conservation will be considered among the goals for the future use of the Tablelands parcel. Because we know that bobolinks and savannah sparrows breed at Heaven Hill, we sought to understand and measure the differences in the current vegetation composition and structure between the two sites to inform future restoration or habitat enhancement to benefit these species. Savannah sparrow is a relatively generalist species and is already present in large numbers at Tablelands and probably breeding successfully. Bobolink, a more imperiled species, is also more specific in its habitat requirements and is likely to respond positively to habitat management that creates grassland conditions similar to Heaven Hill if they were to be undertaken on some portion of the Tablelands.

In order to sample the primary open field vegetation

types at Tablelands and compare them to the habitat characteristics at Heaven Hill, we established a series of 1-m<sup>2</sup> plots, 10 of them located in the set aside area at Heaven Hill and 30 located at Tablelands (Figure 2). Heaven Hill is relatively uniform in the open grassland area, whereas Tablelands is more variable and required a much larger number of plots to more accurately capture the diversity of species present on site. We used an adaptation of the methods of Peet et al. (1998) to capture the vegetation composition and structure within each 1-m<sup>2</sup> plot, recording all





Figure 3. Vegetation characteristics at Heaven Hill, left, and Tablelands, right.

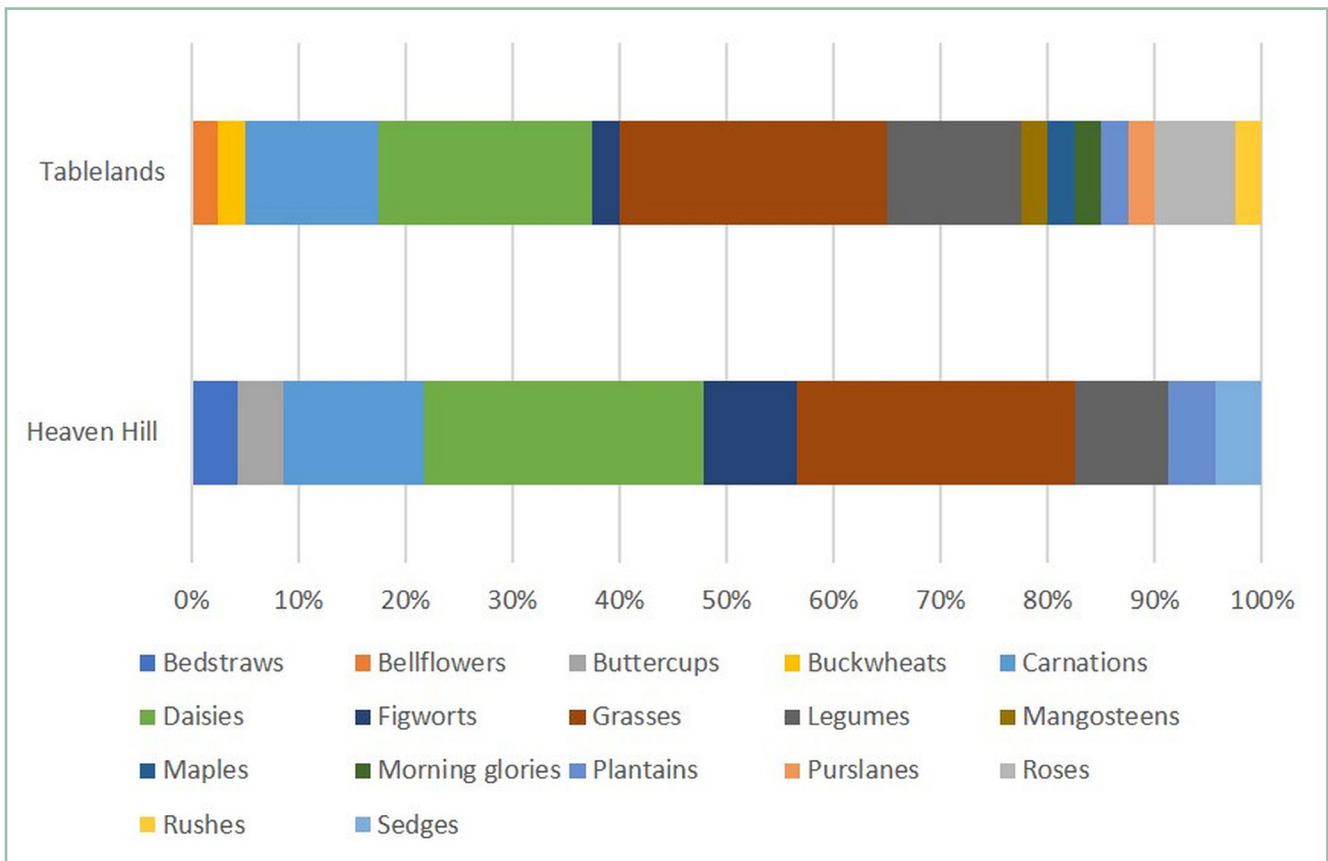


Figure 4. Proportional representation of plant families in vegetation surveys at Heaven Hill and Tablelands, Lake Placid.

species present as well as the percent cover of each within categories as per Daubenmire (1959). We retained samples for later identification of any species that could not be identified in the field. Ray Curran performed all species identifications of reference specimens as well as most identifications in the field until such time that we were comfortable in our own capabilities of identification.

For reference purposes, and to aid in further identification, each plant species observed during sampling was entered into iNaturalist (more on iNaturalist below). Polygons outlining the Tablelands and the Heaven Hill Fields were submitted to iNaturalist as “places” which could be used to aggregate and accumulate iNaturalist observations by any others using the application. These observations facilitate the collaborative work with other naturalists helping to describe the biology of the two “places” in the iNaturalist sense.

Subsequent analysis of vegetation data was used to examine the types and abundances of species on the two locations at the species level as well as broader structural categories and native vs non-native status. Additional sampling may be desired in the future in the interest of long-term vegetation monitoring, but we believe that the 40 plots established provide a good starting point for understanding the differences between the two locations and informing future habitat management.

We found that the total number of species present was higher at Tablelands ( $n = 41$ ) than at Heaven Hill ( $n = 23$ ), which is evident in visual inspections of these fields (Figure 3). If all observations on site are taken into account (as recorded in iNaturalist), in addition to those solely within the sample plots, these totals are 78 species for Tablelands and 43 for Heaven Hill. Both sites are dominated by herbs and grasses, but Tablelands has a broader diversity of plant families represented (Figure 4).

There are 2 means by which the relative amount of each type of vegetation can be compared between the two sites, which we denote as prevalence and dominance (Appendix 1). Prevalence denotes the proportion of total plots in which each species was represented from among all surveyed locations. Dominance is measured by the relative cover of each species within the plots. Our full dataset is contained in Appendix 1 and indicates all species detected, their prevalence and dominance in both locations, as well as additional characteristics. Among the most common species in both locations, by both prevalence



**Dan Spada, botanist and wetlands expert, at Tablelands.**

across plots and dominance by cover within them, are common forms of hay (Timothy, Rye, Brome). Bobolinks in New York State have been observed to increase in number with the age of hayfields that were initially planted with standard legume-dominated species but increased in dominance of grass species over time. These fields featured significant diversity of height and density, and became more diverse with age (Bollinger 1995). Our findings, along with Bollinger’s, support the conclusion that if the former potato field is enhanced via additional seeding with these three common species, this location, given the variety of other grasses and species present, has strong potential to become a breeding habitat for bobolinks. Though bobolinks are already known to use the site, their likelihood of nesting may be increased with increased cover of these common hay species.

#### *Expert visits*

We invited a number of local naturalists to make visits to the Tablelands in order to help document flora and fauna on the site, as well as to hear from them on their impressions and any recommendations for its future management. We took small groups out on a number of different dates and surveyed a variety of habitats on the parcel.

Experts participating included:

Ellen Jones	Expert birder and local naturalist
Brian McAllister	Expert birder and local naturalist
Audrey Hyson	Expert birder and local naturalist
Larry Master	Expert birder and local naturalist, former director of NatureServe
Janet Mihuc	Professor of biology and entomology at Paul Smith’s College, moth expert
Craig Milewski	Professor of ecological restoration, fisheries, and aquatic sciences at Paul Smith’s College
Dan Spada	Retired director of the Resource Analysis and Scientific Services staff at the Adirondack Park Agency, botanist and wetlands expert
Stick LaPan	Avid local naturalist, dragonfly expert
Steve Langdon	Botanist, boreal wetlands expert, director of the Shingle Shanty Preserve and Research Station in Long Lake, NY
Dan Kelting	Director of the Paul Smith’s College Adirondack Watershed Institute, soils and hydrology expert
Hadley Kruczek-Aaron	SUNY-Potsdam department chair of anthropology, archaeologist, board member of John Brown Lives! and local expert on Gerrit Smith and Timbucto

*Aerial surveys*

We invited retired engineer, developer, and local philanthropist Ed McNeil to fly over the site with his self-built, two-seater AirCam floatplane. Ed’s plane has a high-definition video camera mounted on the nose and he donates abundant time to making films in the service of environmental protection. He is deeply engaged in a long-term project documenting the biology of the Northern Forest in film and photos as part of his role as president of the Northern Forest Atlas Project. Ed provided us with an edited, high definition, 3-minute video documenting several passes over the main field at Tablelands which can be used for education, research, and baseline documentation.

*iNaturalist*

We have set up an online collection point for Tablelands observations on iNaturalist, located at [www.inaturalist.org/places/uihlelein-farm](http://www.inaturalist.org/places/uihlelein-farm). iNaturalist is an online social network for sharing biodiversity information and crowdsourcing species identification. iNaturalist began as a student master’s project at UC Berkeley in 2008 and later became an independent LLC and an initiative of the California Academy of Sciences and the National Geographic Society. One of the world’s most popular nature apps, iNaturalist has grown into a global resource that combines observational data collected by users with artificial intelligence and community expertise in an effort to connect people to nature. Social media are an

increasingly powerful tool for data collection in the sciences, resulting in the discovery of new species, early detection of invasive pest species, and a public more enabled to engage and participate in natural history. To date, iNaturalist has more than a million members and more than 25 million observations. At the moment, the Tablelands at Uihlein Farm is





designated as a “location” within iNaturalist, identified by a polygon depicting the approximate parcel boundary, and the Tablelands information consists of 134 observations of 94 species. Over time, as additional observations accumulate and additional users become familiar with the site and with the iNaturalist platform, we recommend designating it as an official iNaturalist project. This would enhance its visibility and allow broader communication among observers; it would also allow for easily setting up a bioblitz on the site. In either case, whether a location or an official project, an advantage of the platform is that the data are readily available for exploring, filtering, and downloading at any time, and are contributing toward a global-scale effort to document the natural world.

### *Archaeology*

Though outside the scope of wildlife and habitat characteristics, among the local experts invited to the Tablelands was SUNY Potsdam Anthropology Department Chair and archaeology professor Hadley Kruzcek-Aaron. Dr. Kruzcek-Aaron has an interest in Northeast historical archaeology and she is closely involved with the Timbucto project in addition to being a board member of John Brown Lives! Dr. Kruzcek-Aaron has directed several field schools with SUNY-

Potsdam students, including one at the John Brown’s Farm State Historic Site and one at the Timbucto Settlement, where African-American farmers in the mid-1800s worked land given to them by the North Country abolitionist Gerrit Smith. Though Timbucto did not flourish, one family did remain, that of Lyman Epps, Sr. Survey maps suggest that the Epps Family homestead is located at the Tablelands. We spent time in the portion of the field believed to be the potential location of this historic site, conducting informal surveys with metal detectors. Dr. Kruzcek-Aaron believes there to be enough potential there that she is interested in exploring the idea of a field school with students to conduct a systematic survey of the site in the future. This research and potential findings provide an excellent opportunity for student learning as well as historical and interpretive opportunities for the Tablelands.

### **Recommendations**

The potential of the Tablelands at Uihlein Farm seems nearly unlimited and we appreciate the opportunity to provide recommendations for the site. Though the process of determining its potential uses and allowing for public access will be a long-term one, we can provide some preliminary thoughts related mainly to ecology, and are happy to discuss any of them in additional detail at any time.

#### *Long-term ecological monitoring*

The size, location, and ecological characteristics of this site make it one for which long-term ecological monitoring would be tremendously valuable, both for educational purposes as well as current and future research. We make an assumption that the majority of the site will be maintained as an open landscape, which is rare in the heavily forested High Peaks region of the Adirondacks. The dominant Adirondack ecosystem type is northern hardwood and conifer forest, and large openings on the landscape are primarily man-made and maintained and, at this scale, often for cultivation. Though some of our large wetland complexes, and in particular bogs and fens, do reach these sizes and share some similarities with grasslands, an open grassland site that will no longer be cultivated will be tremendously valuable for wildlife. Small grasslands, even in the context of more heavily forested environments, have been shown to have great value for imperiled grassland birds in the Northeast (Weidman and Litvaitis 2011).

Previous analysis of the distribution and protection status of habitat types in the Adirondacks has shown that open habitat, non-forested habitats at low elevation are disproportionately represented on private lands (Glennon and Curran 2013) and are therefore dependent on human management activities for their maintenance. These habitats – such as ruderal shrub and grasslands and agricultural areas – are important to a multitude of species, including at least 26 birds, 5 reptiles and amphibians, and 4 mammals that are considered to be Species of Greatest Conservation Need in New York State. Species of concern such as bobolink, Northern harrier, barn owl, smooth greensnake, and hoary bat will be among the beneficiaries of the Tablelands. **We recommend establishing a long-term monitoring program to document the occurrence of vertebrates and other species at the site.** If the Uihlein Foundation should choose to allow a portion of the site to revert to forest, we suggest that the comparison of the open and forested habitats and their changes over time presents an opportunity to witness and document the process of ecological succession in the Adirondack High Peaks eco-region.

The data that we have collected during 2020 at Tablelands provide a baseline for future monitoring, but there are ample means by which a monitoring



program could be established and maintained. **At a minimum, we recommend that birds, mammals, herptiles, vegetation, soils and insects be monitored and suggest that citizen science could play a strong role in some of these efforts including birds and insects in particular.**

#### *Bird-specific habitat management and interpretation*

Because birds are easily observed and charismatic, and because birds are among the species groups who will benefit the most from Tablelands, we recommend a number of bird-specific habitat management and interpretation activities that could be done at the site to increase its value to both birds and birders alike. A number of grassland specialists are on site already including bobolink, savannah sparrow, and Northern harrier. Bobolink and savannah sparrow are most likely to nest on the site and will benefit from a mowing regime that does not interrupt breeding activities. **We therefore recommend that any mowing of the site for maintenance be conducted outside of the primary breeding season, either before May or after mid-August.** We also recommend restricting dogs on the site. Though challenging, this recommendation was made by several experts that visited and is also recommended by conservation organizations in the context of grassland bird management, including Audubon.

**We also recommend that the Foundation consider fertilizing and potentially seeding some portions of the property to increase the proportion of grass species and to more closely match the habitat characteristics of Heaven Hill.** A full analysis of suitable grass species mixtures is beyond the scope of our expertise, but we do suggest that increasing the prevalence of native grass species, if a seed source can be found, would greatly increase the ecological value of the grassland habitat. Relatedly, though sometimes challenging to establish in our region, warm-season grasses have many advantages including erosion control because their extensive root systems help to build soil and restore soil health. Increasing the prevalence of warm-season grasses on the site may also increase the adaptive capacity of the site with respect to responding to climate change. Dickerson et al. (1997) provide a wealth of useful information with respect to native grasses and their establishment in the Northeast and Ochterski (2006) provides a set of very practical and straightforward recommendations for grassland habitat improvement in New York State.

**We recommend that the best area to be safeguarded or maintained for grassland birds on the site is the**

**height of land adjacent to and surrounding the forested island.** Bobolinks and savannah sparrows favor the highest elevation portions of open grasslands because they afford the best opportunities for viewing any potential predators. If any section of the property is to be targeted for grassland bird habitat enhancement specifically, we suggest that that area has the highest potential. **Further, we recommend that the Foundation consider adding a small number of scattered saplings, shrubs, or posts that could be used as perches for bobolinks and other species.** Their strong use of these features at Heaven Hill suggests that the addition of a small number of perches throughout the open setting would be highly valuable.

Beyond grassland birds, we also see tremendous potential for benefiting aerial insectivores, a group of birds which are in decline and vulnerable to pesticides used on the farmland habitats that they inhabit. These include species like Eastern bluebird and tree swallow, which occur on site and occur in high abundance at nearby Heaven Hill. Both of these species are cavity-nesters which will readily make use of human-provided cavities in the form of bird boxes. **We recommend installing bird boxes at Tablelands, which would likely be utilized within days of their appearance.** American kestrel is another cavity-nesting species that is present at Uihlein Farm and would be likely to make use of bird boxes.

Last, we see the site as an opportunity to provide habitat for and highlight the value of some charismatic large avifauna including Northern harrier (*Circus hudsonius*) and sandhill crane (*Antigone canadensis*). Northern harrier, as mentioned, may use the site for nesting but in any case is a majestic and highly visible bird which we observed on multiple occasions on site, hunting singly or in a pair. It is a large hawk which hunts by flying low over the ground and relying heavily on its sense of hearing to capture its prey including small mammals, reptiles, amphibians and birds. On more than one occasion, we had the opportunity to observe harriers in flight for long periods of time; such an up-close encounter with this large species will be valued even by those who do not consider themselves to be “bird” people. Similarly, sandhill crane is another very large and imminently observable bird that is now increasing its range and regularly spotted in some parts of the Adirondack Park. Sandhill crane was first documented as breeding in New York State at the Montezuma wildlife refuge in 2003. Since that time, sightings of the species have increased and cranes were first documented as breeding in the Adirondack Park in Tupper Lake marsh in 2015. More recently,

nesting pairs have been observed in Bloomingdale Bog and in Oseetah Marsh, and sandhills have been observed in the post-breeding period in open field habitats in several locations nearby to the Tablelands including Averyville Road. This species nests in marshy habitat and would likely make use of some of the open alluvial corridor adjacent to the Chubb River for nesting nearby to the Tablelands, but the large open field provides foraging opportunities for this generalist omnivore in the time after chicks have fledged and prior to migration. It is entirely within the realm of possibility that as this species continues to expand its range in the Adirondacks, they may appear at Tablelands. Sandhill cranes are very large (5 feet tall) and, like Northern harrier, provide an opportunity for visitors to observe a highly-visible and charismatic bird species. **We recommend that charismatic species such as these could be highlighted in interpretive information at the site.**

#### *Experiential Restoration and Climate Refugia*

A number of experts discussed possible guiding ideas or visions for the property that might be of use including experiential restoration and climate refugia. Ecological restoration describes the process of aiding in the recovery of an ecosystem that has been degraded or damaged and is relevant to Tablelands in the sense







that the land will recover natural ecological function as it is no longer actively farmed. The process of ecological succession will occur naturally but requires assistance if there is a wish to steer it to a particular state and recover its full health. In most circumstances, old field habitats in the northeastern US will revert to forest. Though maintenance will be required to prevent the Tablelands from reverting to forest, the concept of experiential restoration conveys a purposeful restoration aimed at providing aesthetic and emotional pleasure. It is difficult to deny the tremendous aesthetic value of the Tablelands given the rarity of such a viewscape in this region. Climate refugia is another concept that may be useful in thinking about the future of the Tablelands. Refugia are areas that remain relatively buffered from contemporary climate change over time and enable persistence of valued physical, ecological, and sociocultural resources. Like many bird species, the bobolink is vulnerable to climate change and its range is expected to shift northwards as the climate warms. Grassland habitats located in higher elevation, northern regions like the Tablelands will become increasingly important refugia

for this and other grassland specialist species as these habitats decline more rapidly in areas to the south. **We suggest that both experiential restoration and climate refugia provide useful ecological and philosophical foundations for management of the Tablelands.**

#### *Fire as a Management Tool*

Unless maintained, the natural process of ecological succession will result in a reversion to forest at Tablelands. We assume that the Foundation will choose to maintain the Tablelands in its open characteristic and suggest that both mowing and burning afford means by which this maintenance could be undertaken. Recommendations for timing of mowing should take into account nesting ecology of grassland species on the site, however **we also recommend the Foundation consider prescribed burning is a useful tool for grassland management.** Grasslands are adapted to fire as a natural disturbance and Native Americans used fire to improve habitat and prevent woody plant encroachment in small grassland islands that existed at the time of European settlement in the eastern US. Prescribed fire is a tool used by the New



York State Department of Environmental Conservation to manage fire-dependent ecosystems in particular areas of the state including grassland habitats on Long Island. Prescribed fires require significant advance planning but produce good results in grassland systems and also provide valuable training opportunities for local firefighters, forest rangers, and other personnel.

#### *Potential Model Sites*

**We suggest looking to a number of locations that may serve as models from which to borrow ideas as your planning for the site advances.** One that was suggested to us by a visiting expert is Rea Farm, also known as “the Beanery,” in Cape May, NJ. This site was a former working lima bean farm and has been rehabilitated to include 3 connected fields surrounded by woodlands and bordered by tractor paths. The geographic location of the site and its open landscape surrounded by trees make it one of the warmest spots on Cape Island and one of the premier sites for observing migrating birds in Cape May. This is a privately-owned site on which access is restricted to New Jersey Audubon and/or Cape May Bird Observatory members and pass holders through a unique arrangement in which the “birding rights” to the site have been leased by NJ Audubon. Though restricting access may not be within the

interests of the Uihlein Foundation, a “member” or “friends of” type structure may be of interest for the purpose of generating support for initiatives at Tablelands. Another model that may provide ideas is the Great Hollow Nature Preserve in New Fairfield, CT. Approximately twice the size of Tablelands, Great Hollow is a preserve that blends public access for year-round exploration and enjoyment of nature with a variety of additional activities including applied ecological research and experiential environmental education. The director of Great Hollow, Dr. Chad Seewagen, is a friend and research collaborator and we would be happy to invite him to the Adirondacks to share his experiences with starting this type of project from the ground up, as he did beginning in 2016. These two examples are somewhat representative of the ends of a spectrum with respect to public access and the variety of activities associated with each site. We are happy to assist with identifying additional sites that may serve as sources of ideas.

#### *Tablelands as a Demonstration Site for Grassland Management*

One of the potential values of Tablelands in the future will be as a demonstration site for habitat management techniques, particularly with respect to grassland specialist species. We have been developing a database



of nearby landowners with grassland habitat and working toward holding a workshop to bring together other grassland habitat owners, encourage them to learn about species such as bobolink and savannah sparrow that may be found on their lands, and to recommend management practices to minimize impacts to nesting birds. Though COVID-19 has prevented us from holding this gathering in person as we would prefer, we continue to explore ways to share the findings and experiences from our grassland bird work at Heaven Hill and Tablelands with additional audiences. **In the post-COVID future, we suggest that Tablelands serve as an exceptional location to which interested landowners can be invited to demonstrate in person the recommended habitat management techniques that can be used to benefit grassland species.**

*Collaboration for Research, Public Engagement, and STEM Education*

Collaboration is certain to be a major component of the future of Tablelands and we can provide information on the opportunities for collaboration relative to our own institution, the Adirondack Watershed Institute, and more broadly across Paul Smith’s College (PSC). AWI is happy to have been involved to date and very happy to continue to be involved in any capacity. We specialize in ecological research and can help provide recommendations for long-term monitoring and engaging with the public, particularly with respect to stewardship. More broadly, the college provides a source of students who frequently work throughout the region in a variety of ways through the Paul Smith’s College capstone program, our annual internship program, our summer courses and fieldwork with professors, independent study, and the recently established PSC Master’s Degree Program in Natural Resource Conservation. Within AWI, our director Dan Kelting supervises a cohort of National Science Foundation STEM scholars, who have received scholarships from NSF to support their attendance at PSC. A requirement of their scholarships is participation in scientific research. Because they are STEM scholars for the entirety of their 4-year college experience, this provides an opportunity to engage them for longer periods of time than a traditional capstone or independent study project. The lead author of this report assists Dr. Kelting with the supervision of the STEM scholar program and the inclusion of these students in research or interpretive activities at Tablelands would be low cost and easily achievable. **We recommend that the Foundation explore opportunities to work with students, researchers, and**

**nonprofits to further support the goals of the site.**

*Grants*

In several conversations with Jim McKenna and others we have discussed grants that might be applicable to for implementing large scale activities at Tablelands in the future. A multitude of grants exist to support wildlife habitat conservation, public access and recreation, ecological restoration, environmental education, and grassland improvement. **We recommend these and other funding opportunities be considered as the Foundation sets plans for future activities.** Among those that may be best suited to wildlife habitat protection or improvement at Tablelands are:

- National Fish and Wildlife Foundation Acres for America
- NFWF Monarch Butterfly and Pollinators Conservation Fund
- US Fish and Wildlife Service Private Stewardship Grants Program
- USDA Farm Service Agency Conservation Reserve Program State Acres for Wildlife (SAFE) Initiative
- Wildlife Conservation Society Climate Adaptation Fund



### *Other Considerations*

Among the additional considerations raised by experts who visited the site were a number of small recommendations that do not fit well into these larger categories but are worthy of mention. **Improvement and/or installation of a new weather station is one such recommendation.** Given the existence of the small tower on the site and the possibility of some available infrastructure once used to support a weather station, it may be possible to get the existing platform up and running again without extensive effort. This would be beneficial to any research occurring at the site, but would also contribute toward regional efforts. The dearth of weather stations in the Adirondack Park is an ongoing challenge for climate-related research in the region and the value of ground level data is difficult to overstate.

**We also strongly recommend the continued exploration of the archaeological potential on the site.** If, as described, the real possibility exists of locating and examining the former homestead of the Epps family, this would provide an extremely valuable opportunity to highlight the story of Timbucto and

its importance in the history of our region. Beyond participatory student research, the site would afford the opportunity for education and interpretation and would be an important contribution to the broader discussion on social justice, diversity, and inclusion in the Adirondack region.

**Last, several experts recommended to us the creation of additional virtual spaces for the sharing of ideas, photos, natural history observations, etc. for the Tablelands.** The iNaturalist site is a start, but a number of other platforms could also enhance the communication among those who visit the site and document what they see there. A shared Google drive may be an essential first step as your planning committee is developed and begins to formulate ideas. In the future, a more public facing outlet such as a Facebook group may be useful.

We are appreciative of the opportunity to work on the site and remain enthusiastic about its future. We congratulate the Uihlein Foundation on the protection of this special and valuable parcel and are happy to help implement your future goals in any way we can.



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Appendix 1. Species observed in vegetation plots at Heaven Hill (n = 10) and the Tablelands (n = 30) in Lake Placid, August 2020. Prevalence denotes the proportion of total plots at which each species was detected per site. Dominance is a measurement of total relative cover of each species within plots at each site.

Species	Scientific Name	Prevalence HH	Dominance HF	Prevalence UF	Dominance UF	Family	Class	Native?
Common hair grass	<i>Avenella (Deschampsia) flexuosa</i>	100%	29	27%	17	Poaceae	grass/rush	Yes
Timothy grass	<i>Phleum pratense</i>	90%	20	37%	20	Poaceae	grass/rush	No
Vetch sp	<i>Vicia craca</i>	60%	6	67%	24	Fabaceae	herb/forb	No
Redtop	<i>Agrostis gigantea</i>	50%	10	73%	55	Poaceae	grass/rush	No
Smooth brome	<i>Bromus inermis</i>	40%	10	27%	23	Poaceae	grass/rush	No
Canada goldenrod	<i>Solidago canadensis</i>	40%	6	10%	3	Asteraceae	herb/forb	Yes
Perennial rye grass	<i>Lolium perene</i>	30%	4	47%	25	Poaceae	grass/rush	No
Flat topped goldenrod	<i>Euthania graminifolia</i>	20%	3	13%	5	Asteraceae	herb/forb	Yes
White alsike clover	<i>Trifolium hybridum</i>	10%	1	27%	17	Fabaceae	herb/forb	No
Common toadflax	<i>Linaria vulgaris</i>	10%	1	3%	1	Scrophulariaceae	herb/forb	No
German knawel	<i>Scleranthus annuus</i>	10%	2	37%	12	Caryophyllaceae	herb/forb	No
Grass leaved chick-weed	<i>Stellaria graminea</i>	10%	2	30%	13	Caryophyllaceae	herb/forb	No
Yellow hawkweed	<i>Pilosella caespitosa</i>	10%	2	3%	3	Asteraceae	herb/forb	No
<b>Found only at Heaven Hill</b>								
English plantain	<i>Plantago lanceolata</i>	60%	7			Plantaginaceae	herb/forb	No
Orchard grass	<i>Dactylis glomerata</i>	60%	10			Poaceae	grass/rush	No
Common dandelion	<i>Taraxacum officinale</i>	50%	5			Asteraceae	herb/forb	No
Meadow buttercup	<i>Ranunculus acris</i>	30%	1			Ranunculaceae	herb/forb	No
Soft-stemmed bulrush	<i>Schoenoplectus tabernaemontani</i>	10%	0			Cyperaceae	grass/rush	Yes
Flat top white aster	<i>Doellingaria umbellata</i>	10%	1			Asteraceae	herb/forb	Yes
Meadow salsify	<i>Tragopogon pratensis</i>	10%	1			Asteraceae	herb/forb	No
Thyme leaved sand-wort	<i>Arenaria serpyllifolia</i>	10%	1			Caryophyllaceae	herb/forb	No
Yellow rattle	<i>Rhinanthus minor</i>	10%	1			Scrophulariaceae	herb/forb	Yes
Hedge bedstraw	<i>Galium mollugo</i>	10%	2			Rubiaceae	herb/forb	No

Appendix 1 (continued)

Found only at the Tablelands									
Sheep's sorrel	<i>Rumex acetosella</i>				57%	22	Polygonaceae	herb/forb	No
Ragweed	<i>Ambrosia artemisiifolia</i>				57%	33	Asteraceae	herb/forb	No
Horseweed	<i>Erigeron canadensis</i>				37%	14	Asteraceae	herb/forb	Yes
Hopclover	<i>Trifolium agrarium</i>				30%	14	Fabaceae	herb/forb	No
Yarrow	<i>Achillea millefolium</i>				27%	9	Asteraceae	herb/forb	Yes
Evening lychnis	<i>Lychnis alba</i>				23%	7	Caryophyllaceae	herb/forb	No
Bare ground					23%	18			
Hawkweed	<i>Hieracium sp.</i>				17%	5	Asteraceae	herb/forb	No
White clover (chevron)	<i>Trifolium repens</i>				13%	7	Fabaceae	herb/forb	No
Fine leaf species (unknown)	<i>Poaceae sp.</i>				10%	1	Polygonaceae	grass/rush	
Wild strawberry	<i>Fragaria sp.</i>				10%	7	Rosaceae	herb/forb	Yes
Yellow foxtail	<i>Setaria pumila</i>				10%	3	Poaceae	grass/rush	No
Meadow sweet	<i>Spiraea alba</i>				7%	2	Rosaceae	shrub	Yes
Long leaved chickweed	<i>Stellaria longifolia</i>				7%	4	Caryophyllaceae	herb/forb	Yes
Rough cinquefoil	<i>Potentilla norvegica</i>				7%	2	Rosaceae	herb/forb	Yes
Slender path rush	<i>Juncus tenuis</i>				7%	2	Juncaceae	grass/rush	Yes
Indian tobacco	<i>Labella inflata</i>				7%	2	Campanulaceae	herb/forb	Yes
Fine grass sp (#3)	<i>Poaceae sp.</i>				7%	2	Poaceae	grass/rush	
Wild chamomille	<i>Matricaria chamomilla.</i>				7%	2	Asteraceae	herb/forb	No
Bird's foot trefoil	<i>Lotus corniculatus</i>				3%	1	Fabaceae	herb/forb	No
Hairy crabgrass	<i>Digitaria sanguinalis</i>				3%	1	Poaceae	grass/rush	No
Common purslane	<i>Portulaca oleracea</i>				3%	1	Portulacaceae	herb/forb	No
Protonema sp	<i>unknown moss</i>				3%	3			
St Johnswort	<i>Hypericum canadense</i>				3%	1	Clusiaceae	herb/forb	Yes
Bindweed	<i>Convolvulus arvensis</i>				3%	1	Convolvulaceae	herb/forb	No
Mouse eared chickweed	<i>Cerastium fontanum</i>				3%	1	Caryophyllaceae	herb/forb	No
Red maple	<i>Acer rubrum</i>				3%	1	Aceraceae	tree	Yes
Common plantain	<i>Plantago major</i>				3%	0	Plantaginaceae	herb/forb	No
Mexican muhly	<i>Muhlenbergia mexicana</i>				3%	1	Poaceae	grass/rush	Yes