Fields

To the east of the approximately 1.5 miles of property frontage on the East River are 42 acres of post-agricultural fields, of which about 25 acres lie within the Preserve. As part of Connecticut's low-elevation coastal ecoregion, this gracefully rolling topography is bordered to the west by the northern reaches of the East River tidal marshes, to the east by unfragmented woodland, and is itself divided into a larger northern and smaller southern field by a strip of woods. Hedgerows further dissect the southern field, with a conifer stand to the west and a gulch to the south that is un-mown, reverting to scrub shrub. These fields are underlain by near-ice-marginal fluviodeltaic deposits of well-drained, stratified sand and gravel. The higher elevations have droughty soils, reflected in sparse or patchy vegetation. Throughout the northern, largest field in particular, exposed soil is typical between the vegetation, and the species present, particularly the established forbs, reflect poor soil conditions.

Although not considered a "natural" community due to its agricultural lineage, these fields contain a diverse flora that is rooted in non-native, cool-season grasses and a variety of forbs (broad-leaved herbs) that have naturalized over time. The dominant grasses at the site include orchard grass (*Dactylis glomerata*), smooth brome (*Bromus inermis*), tall fescue (*Festuca elatior*) and timothy grass (*Phleum pratense*). Other grasses include Kentucky bluegrass (*Poa pratensis*), deer tongue (*Panicum clandestinium*) and purple love grass (*Eragrostis spectabilis*).

There are a large variety of forbs at the site; many of them considered weedy and a few (such as jimsonweed) can be invasive. All are adapted to full sun and droughty, poor soils. Dominant among them are: field sorrel (*Rumex acetosella*), bedstraw (*Gallium sp*), red clover (*Trifolium pratense*), common cinquefoil (*Potentilla simplex*), wild strawberry (*Fragaria virginiana*) and dewberry (*Rubus flagellaris*). Among the more colorful flowering plants at the site are: white campion (*Lychnis alba*), moth mullein (*Verbascum blattaria*), common mullein (*Verbascum Thapsus*), yarrow (*Achillea millefolium*), common milkweed (*Asclepias syriaca*), common St. Johnswort (*Hypericum perforatum*), spotted knapweed (*Centaurea maculosa*), daisy fleabane (*Erigeron annuus*) and yellow goatsbeard (*Tragopogon pratensis*).

Of interest in the southern field are the hedgerows that line either side of low stonewalls. While lined with mature native eastern red cedar (*Juniperus virginiana*) and sassafras (*Sassafras albidum*), these linear features are predominantly populated with invasive, non-native shrubs, including autumn olive (*Elaeagnus umbellata*), multiflora rose, (*Rosa multiflora*), burning bush (*Euonymus atropurpureus*), Japanese barberry (*Berberis thunbergii*) and dense vines of Oriental bittersweet (*Celastrus orbiculatus*). These tangled hedgerows provide considerable wildlife habitat, and are likely maintained by birds and rodents that distribute the abundant seeds produced by these species. A

noteworthy freestanding mature sassafras tree grows just to the west of the north/south trending hedgerow.

It is worth noting that the opening and edge that the fields create in the otherwise natural tendency for the New England landscape to grow into forest, is where there are concentrations of invasive plant species, both native and non-native. Particularly along the southern border of the largest field, bittersweet, multiflora rose and in one area, native Concord grape (*Vitis labrusca)* is particularly abundant. The strip of woods between the north and south fields has abundant occurrences of burning bush.

Field Management – Management of the existing fields provides a number of options for wildlife and plant diversity. The mowing regime will dictate the ability of certain field nesting birds to raise successful broods. Site-specific fieldwork should be employed to determine the existing and potential viability of this site for field-dependent bird species, with an attendant management plan designed for more specific site stewardship. Generally when managing for these species, mowing should be suspended between April 15 and August 15. Depending on the objectives, consideration may be made to increase the field size by removing woodland vegetation along the eastern boundary of the existing fields; this may be done using a phased approach that provides interim habitat for scrub/shrub species. Mowing is recommended regardless of the bird population objectives of the site as a means of controlling invasive plant species and providing edge habitat for species such as fox, raccoon, skunk, owls and raptors.

A rotational field-mowing schedule could address multiple objectives for the fields at this site. In addition to suspending mowing to accommodate grassland bird nesting, allowing areas to remain un-mown in the fall provides important winter seed source for wildlife and invertebrate nesting sites that will provide emerging insects for migratory birds and other small mammals in the spring.

Soil tests of the fields would provide insight into the nutrient profile of this important habitat, and could provide guidance into possible organic supplements or legumes for nitrogen to enhance soil fertility that would maintain or enhance the vigor of representative species. Adding nutrients to this field system would need to be done with care and specific objectives in mind, both to prevent migration beyond the field perimeters and to understand what plant species will benefit. To the extent possible, this soil should not be disturbed (including no till practices), but allowed to build up organic matter to offset current low-nutrient, stony and droughty areas (predominantly on higher elevations) where vegetation is sparse.

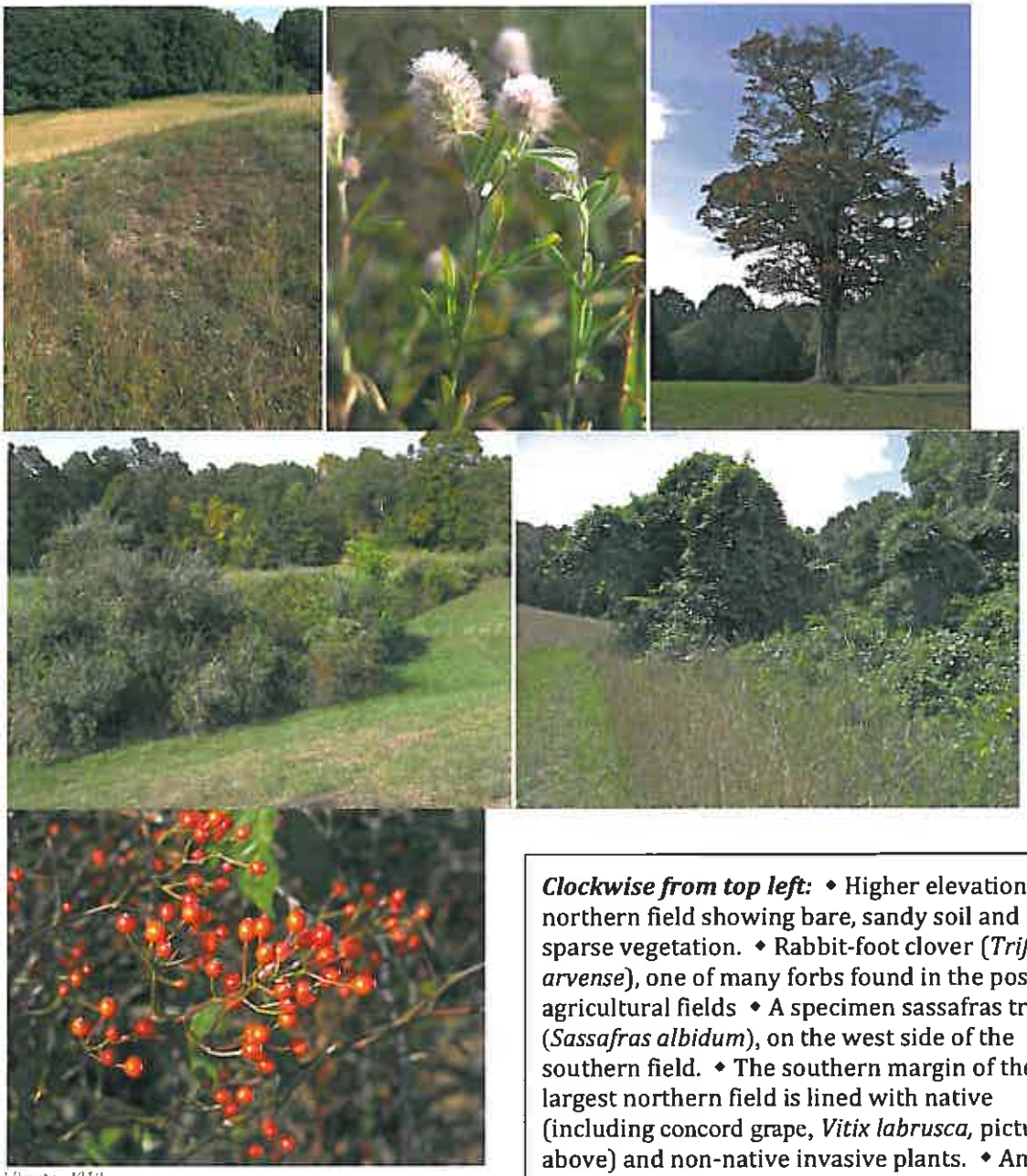
The existing field perimeter trail is useful for passive public access to the site, and helps define how and where foot (and pet) traffic should remain, leaving the interior areas for wildlife. The mown trail is also useful for emergency access and as a potential firebreak.

Invasive species, once again, are the greatest conservation challenge to this ecotype. Abundant examples of invasive plant species can be seen in both the hedgerows and edge, where particularly bittersweet, multiflora rose and autumn olive abound. On the western boundary of the northern field, native but invasive Concord grape has a strong foothold. To the extent that elimination of invasives is not feasible, care should be taken to target the largest occurrences for management, and be vigilant for new introductions in otherwise relatively invasive-free areas. While it can be argued that many invasive plants provide wildlife habitat, native plant species do the same and have co-evolved to be most useful to native wildlife.

Consideration may be given to managing a portion of the existing fields for successional, scrub/shrub habitat: maintaining and introducing native warm season forbs, grasses, shrubs and small trees on a minimum of 5 acres. By manipulating the mowing regime and planting native shrubs that are important high energy food sources (such as blueberries, alder and arrowwood), habitat can be created for some of Connecticut's declining wildlife, such as the New England cottontail, woodcock, and a number of invertebrate species, including declining moths and butterflies. Connecticut has seen significant population declines in 22 of 40 birds associated with scrublands.

A number of existing open grown field (wolf) trees should be kept free of invasive vines that may compromise their vigor. In particular, a large sassafras tree in the southern field is a fine specimen. When these trees die, they should be allowed to stand as habitat (for insects, and as nesting cavities and perch sites).

Other considerations for managing this habitat include restricting horse access throughout the field as a vector (through manure) for invasive plant species. Similarly, any activities that may create substantial soil disturbance should not be permitted.



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Clockwise from top left: • Higher elevation in northern field showing bare, sandy soil and sparse vegetation. • Rabbit-foot clover (*Trifolium arvense*), one of many forbs found in the post-agricultural fields • A specimen sassafras tree (*Sassafras albidum*), on the west side of the southern field. • The southern margin of the largest northern field is lined with native (including concord grape, *Vitix labrusca,* pictured above) and non-native invasive plants. • Among the invasive species found in the field hedgerows, multiflora rose (*Rosa multiflora*) produces abundant red berries that result in bird and rodent dispersal of this plant. • The east-west trending hedgerow in the southern field provides important wildlife habitat, but is also composed predominantly of non-native invasive plant species, including autumn olive (*Elaeagnus umbellata*), multiflora rose, (*Rosa multiflora*), burning bush (*Euonymus atropurpureus*), barberry (*Berberis thunbergii*) and dense vines of bittersweet (*Celastrus orbiculatus*).