

**Survey of Flora and Fauna
Environmental Assessment for East Hampton Airport, November, 2002**

There have been a series of surveys of plant and animal species conducted at East Hampton Airport over the last two decades. These surveys are summarized in the following section excerpted from an Environmental Assessment of a development plan originally published in 2002, but which was subsequently not adopted.

The majority of the unforested land holdings at East Hampton Airport are unusual since it is essentially cut and fill land, i.e., sandy subsoil which has remained uncultivated. However, it supports an extensive variety of native plants and animals. These areas were surveyed in the course of the environmental documentation cited above. This material also summarizes prior site surveys. It is included here as the most comprehensive available inventory of plants and animal species on the Airport.

3-9: Ecology (Biotic Communities and Endangered/Threatened Species of Flora and Fauna)

FAA Order 5050.4A, Environmental Handbook, (Chapter 5, Paragraph 47e(9)(a)) consists of procedures that must be undertaken in order to determine:

- 1) whether a proposed action would take or impact a publicly owned wildlife or waterfowl refuge of local, state, or national significance;
- 2) whether endangered or threatened species are present on the subject site; or
- 3) if the proposed action will affect water resources (i.e., known potential wildlife habitats).

FAA Order 5050.4A, Environmental Handbook, (Chapter 5, Paragraph 47e(10)(a)) states that the Endangered Species Act (as amended) requires that each Federal agency insure that "any action authorized, funded, or carried out by such agency....is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical, unless such agency has been granted an exemption for such action by the Committee..."

The subject site was visited on October 19, 2000 by Orland J. Blanchard, Ph.D. for the purpose of conducting an ecological survey. Additional experience with the site had been gained during an earlier botanical inventory of the East Hampton Airport property and environs on June 10, 1987 for Dru Associates, Inc. (with Ron Abrams, Larry Penny and Randall Christensen).

A total of 134 species were recorded on the subject site, including 35 woody species and 99 herbaceous plants. In addition the following animals were noted: one mammal (by indirect evidence), five bird species, five butterflies and one dragonfly. The October 19, 2000 visit was at a season, and in weather conditions, when few animals are active; the June 10, 1987 visit was almost exclusively devoted to the botany of the site and hence few animals were recorded.

The following ecological communities (see Edinger *et al.*, 2002) were identified on the subject site 1) Pitch Pine- Oak Forest, 2) Mowed Roadside/Pathway 3) Successional Old Field, and 4) Coastal Plain Pond.

The proposed modifications to this very large (607± acres) site are relatively small, widely separated and well-localized. The fourth community--the wetland at Daniel's Hole--is not to be disturbed and is not proximate to any of the ALP projects, and therefore, a detailed discussion of same is not included.

The Pitch Pine-Oak Forest is a major community on the subject site and is the only natural community to be impacted on the site, which is to say that it alone is not maintained by human

activity. It is dominated by a mixture of Pitch Pine (*Pinus rigida*) and oaks--particularly Black Oak (*Quercus velutina*), Scarlet Oak (*Q. coccinea*), and White Oak (*Q. alba*). The amount of Pitch Pine varies tremendously and probably reflects a varied fire history in the immediate area, as well as, perhaps, stages in recovery from earlier clearing of parts of the forest.

Mockernut Hickory (*Carya tomentosa*) and Post Oak (*Quercus stellata*) are present in the tree stratum in smaller numbers. Common low shrubs are Early Lowbush Blueberry (*Vaccinium pallidum*), Late Lowbush Blueberry (*V. angustifolium*), and Black Huckleberry (*Gaylussacia baccata*). Where the forest canopy is more open, areas of the taller shrub species Scrub Oak (*Quercus ilicifolia*) may be found. In general, the herbaceous stratum is sparse. However, a few herbs and other shrubs of medium to low stature are present as well, including Sweetfern (*Comptonia peregrina*), Trailing Arbutus (*Epigaea repens*), Wintergreen (*Gaultheria procumbens*), Sheep Laurel (*Kalmia angustifolia*), Staggerbush (*Lyonia mariana*), Bayberry (*Myrica pensylvanica*), Bracken Fern (*Pteridium aquilinum*), a Sedge (*Carex pensylvanica*), and Catbrier (*Smilax glauca*).

Along edges of the existing roads and airfield clearings, one finds a flora that is akin to pine barrens openings (Edinger *et al.*, 2002), but which also includes dry-ground weeds. These areas characteristically support a mixture of grasses and herbs such as Bluestem (*Andropogon* sp.), Bearberry (*Arctostaphylos uva-ursi*), Wild Indigo (*Baptisia tinctoria*), Golden Aster (*Chrysopsis mariana*), Horseweed (*Conyza canadensis*), Poverty Grass (*Danthonia spicata*), Purple Love Grass (*Eragrostis spectabilis*), Slender Fragrant Goldenrod (*Euthamia caroliniana*), Frostweed (*Helianthemum canadense*), Golden Heather (*Hudsonia ericoides*), False Heather (*Hudsonia tomentosa*), Orangegrass (*Hypericum gentianoides*), Cat's Ear (*Hypochaeris radicata*), Dwarf Dandelion (*Krigia virginica*), Pinweed (*Lechea* sp.), Round-headed Bush-Clover (*Lespedeza capitata*), Ox-eye Daisy (*Leucanthemum vulgare*), Blue Toadflax (*Linaria canadensis*), Cow-Wheat (*Melampyrum lineare*), Pine-Barrens Sandwort (*Minuartia caroliniana*), Poverty Panic Grass (*Panicum depauperatum*), Atlantic Golden Aster (*Pityopsis falcata*), Bracted Plantain (*Plantago aristata*), Bitter Milkwort (*Polygala polygama*), Jointweed (*Polygonella articulata*), Blue-eyed Grass (*Sisyrinchium* sp.), Gray Goldenrod (*Solidago nemoralis*), and Sand Grass (*Triplasis purpurea*).

The second and third vegetation types on the airport property, Mowed Roadside/Pathway and Successional Old Field, are both characterized as "cultural" by Edinger *et al.* (2002), which means that they are maintained by human activity. The two tend to blend into one another depending on the frequency of mowing, which varies in part with distance from the runways proper. In the old field vegetation type, the plants tend to be taller, and woody species are often able to gain a foothold. Also, in general, more weedy species exist closer to the runway perhaps as a result of disturbance of the soil during plowing in the wintertime. Nowhere is there a true turf of grasses.

Without attempting to strictly separate the two vegetation types (see discussion in the *Impacts* subsection in which the impacts on the vegetation types are evaluated), the following are representative of the species that were found in various sections of the mowed part of the site: Bluestem

(*Andropogon* sp.), Bearberry (*Arctostaphylos uva-ursi*), Wild Indigo (*Baptisia tinctoria*), Frostweed (*Helianthemum canadense*), Golden Heather (*Hudsonia ericoides*), False Heather (*Hudsonia tomentosa*), Orangegrass (*Hypericum gentianoides*), Cat's Ear (*Hypochaeris radicata*), Dwarf Dandelion (*Krigia virginica*), Pinweed (*Lechea* sp.), Round-headed Bush-Clover (*Lespedeza capitata*), Cow-Wheat (*Melampyrum lineare*), Pine-Barrens Sandwort (*Minuartia caroliniana*), Poverty Panic Grass (*Panicum depauperatum*), Atlantic Golden Aster (*Pityopsis falcata*), Bracted Plantain (*Plantago aristata*), English Plantain (*Plantago lanceolata*), Bitter Milkwort (*Polygala polygama*), Jointweed (*Polygonella articulata*), Blue-eyed Grass (*Sisyrinchium* sp.), Gray Goldenrod (*Solidago nemoralis*), Sand Grass (*Triplasis purpurea*), Horsetweed (*Conyza canadensis*), Yarrow (*Achillea millefolium*), and saplings of Scrub Oak (*Quercus ilicifolia*) and Black Oak (*Q. velutina*).

The Coastal Plains Pond community consists of Daniel's Hole, a small pond next to its namesake road. It is located to the north of the developed portion of the Airport and no disturbance to same will take place. The slope between the pond and the road is somewhat weedy, supporting such plants as Common Mullein (*Verbascum thapsus*), Butter and Eggs (*Linaria vulgaris*), Evening Primrose (*Oenothera* sp.) and Quack Grass (*Elytrigia repens*). Elsewhere the margins of the pond are relatively undisturbed. Plants of these margins, and the emergent and floating plants within the pond, include a sedge (*Carex scoparia*), Spike Rush (*Eleocharis* sp.), Boneset (*Eupatorium perfoliatum*), Manna Grass (*Glyceria* sp.), Soft Rush (*Juncus effusus*), Water-Horehound (*Lycopus* sp.), Maleberry (*Lyonia ligustrina*), Meadow-Beauty (*Rhexia virginica*), Swamp Dewberry (*Rubus hispidus*), Skullcap (*Scutellaria* sp.), Woolgrass (*Scirpus cyperinus*), Common Cattail (*Typha latifolia*), Steeplebush (*Spiraea tomentosa*), Highbush Blueberry (*Vaccinium corymbosum*) and Lance-leafed Violet (*Viola lanceolata*).

Five species of birds were observed on the site. Of these, two almost never breed on Long Island (Ruby-crowned Kinglet, Yellow-rumped Warbler). When they were seen on October 19, 2000, they were in the status of migrants or winter visitors. The three others, American Kestrel, Blue Jay and Black-capped Chickadee, are included in the following discussion and enumeration.

The published 1980-1985 breeding bird census for New York State (Andrle & Carroll, eds., 1988) indicates that census blocks 7253A and B include parts of the subject site. These blocks also include several other habitats (residential, estuarine, sandpits, etc.) and therefore represent a considerably greater diversity than might be expected on the subject site itself. Accordingly, the lists from the two blocks were merged, but then those species of obvious different habitat preference were eliminated. The approximately 55 remaining confirmed breeders from the merged blocks are listed below.

(Note: The **bolded** names are explained in next paragraph.)

Agelaius phoeniceus
Archilochus colubris
Baeolophus bicolor

Red-winged Blackbird
Ruby-throated Hummingbird
Tufted Titmouse

Bombycilla cedrorum
Bubo virginianus
Buteo jamaicensis
Cardinalis cardinalis
Carpodacus mexicanus
Certhia americana
Charadrius vociferus
Coccyzus americanus
Contopus virens
Corvus brachyrhynchos
Cyanocitta cristata
Dendroica cerulea
Dendroica discolor
Dendroica pensylvanica
Dendroica petechia
Dendroica pinus
Dumetella carolinensis
Empidonax virescens
Falco sparverius
Geothlypis trichas
Hirundo rustica
Hyalocichla mustelina
Icterus galbula
Melospiza georgiana
Melospiza melodia
Mimus polyglottos
Mniotilta varia
Molothrus ater
Myiarchus crinitus
Otus asio
Passer domesticus
Picoides pubescens
Picoides villosus
Pipilo erythrophthalmus
Piranga olivacea
Poecile atricapillus
Polioptila caerulea
Quiscalus quiscula
Sayornis phoebe
Seiurus aurocapillus
Setophaga ruticilla
Spizella passerina
Spizella pusilla
Sturnus vulgaris

Cedar Waxwing
Great Horned Owl
Red-tailed Hawk
Northern Cardinal
House Finch
Brown Creeper
Killdeer
Yellow-billed Cuckoo
Eastern Wood-Pewee
American Crow
Blue Jay
Cerulean Warbler
Prairie Warbler
Chestnut-sided Warbler
Yellow Warbler
Pine Warbler
Gray Catbird
Acadian Flycatcher
American Kestrel
Common Yellowthroat
Barn Swallow
Wood Thrush
Baltimore Oriole
Swamp Sparrow
Song Sparrow
Northern Mockingbird
Black-and-white Warbler
Brown-headed Cowbird
Great Crested Flycatcher
Eastern Screech Owl
House Sparrow
Downy Woodpecker
Hairy Woodpecker
Rufous-sided Towhee
Scarlet Tanager
Black-capped Chickadee
Blue-Gray Gnatcatcher
Common Grackle
Eastern Phoebe
Ovenbird
American Redstart
Chipping Sparrow
Field Sparrow
European Starling

Tachycineta bicolor	Tree Swallow
Toxostoma rufum	Brown Thrasher
Troglodytes aedon	House Wren
Turdus migratorius	American Robin
Tyrannus tyrannus	Eastern Kingbird
Vermivora pinus	Blue-winged Warbler
Vireo griseus	White-eyed Vireo
Zenaidura macroura	Mourning Dove

A further guide as to which of these species might be expected at the subject site may be found in Kerlinger & Doremus (1981), who conducted a study of the breeding birds of New York's pine-barrens habitats. Twenty of those on the above list (shown in **bold**) are also on Kerlinger & Doremus' list. Many of the 55 species listed above should be expected on the subject site, and particularly many of the bolded 20.

The single mammal recorded tentatively on site, the Woodchuck, was inferred from a burrow rather than by direct observation. Paul F. Connor of the New York State Museum studied the mammals of Long Island in the 1960s, and in his published report he illustrated a pine barrens near Flanders in the Town of Southampton (1971, fig. 3). In the caption he describes having found the following species there in 1962:

Blarina brevicauda	Short-tailed Shrew
Didelphis marsupialis	Opossum
Glaucomys volans	Southern Flying Squirrel
Mustela frenata	Long-tailed Weasel
Odocoileus virginianus	White-tailed Deer
Peromyscus leucopus	White-footed Mouse
Pitymys pinetorum	Pine Mouse
Scalopus aquaticus	Eastern Mole
Sciurus carolinensis	Eastern Gray Squirrel

Some of these species are likely to occur at the subject site, as does probably the Raccoon (*Procyon lotor*) as it is a frequent associate of human habitation.

No herpetofaunal species (reptiles and amphibians) were noted during visits to the site. However, the South Fork Natural History Society's list of "Reptiles and Amphibians of the South Fork, Long Island, New York" (Sabin 1995), identifies 14 of the 41 listed species as being either "abundant" or "common." Eliminating the marine and wetland species among these 14 leaves the following:

Bufo woodhousii fowleri	Fowler's Toad
Coluber c. constrictor	Northern Black Racer
Plethodon cinereus	Red-backed Salamander
Terrapene c. carolina	Eastern Box Turtle
Thamnophis sirtalis	Eastern Garter Snake

According to NYSDEC's New York State Amphibian and Reptile Atlas Project, compiled by Alvin Breisch (www.dec.state.ny.us/website/dfwmr/wildlife/herp/, accessed 20 Oct 2002), three additional terrestrial herpetofaunal species were recorded in the years 1990-1999 from the censusing block ("Sag Harbor, N.Y." quadrangle) that includes the subject site. These three are the Eastern Spadefoot (*Scaphiopus holbrooki*), Eastern Hognose Snake (*Heterodon platyrhinos*), and Eastern Milk Snake (*Lampropeltis triangulum*). All are listed as uncommon by Sabin, but like the five above, one or more of them might possibly occur on the site.

At the small wetland identified as Daniel's Hole, some species of frogs, turtles and salamanders undoubtedly occur, but neither Daniel's Hole nor its immediate vicinity are to be impacted by any of the proposed airport projects. Thus, no species will be affected in the area.

Five species of butterfly were seen at the site, all of which are either common, or in the case of the Variegated Fritillary, a frequent late-season stray from the south. Butterflies have short flight seasons and these seasons vary among species. Thus, during any one visit, regardless of the timing, a very incomplete picture of the local diversity is obtained. However, a list of butterfly "possibles" for the site have been compiled by considering species found or noted at other predominantly pine-barrens areas in Suffolk County. Taking together, including five sites visited fairly recently in Southampton and adjacent Brookhaven, i.e. Speonk (two sites, 1997, 1998-99, 2001), Eastport (1999), East Moriches (2001) and Hampton Bays (2002), the following list of 28 additional butterfly species can be assembled:

Ancyloxypha numitor	Least Skipper
Atalopedes campestris	Sachem
Cercyonis pegala	Common Wood Nymph
Colias eurytheme	Orange Sulfur
Danaus plexippus	Monarch
Epargyreus clarus	Silver-spotted Skipper
Erynnis brizo	Sleepy Duskywing
Erynnis icelus	Dreamy Duskywing
Erynnis juvenalis	Juvenal's Duskywing
Everes comyntas	Eastern Tailed Blue
Incisalia augustinus	Brown Elfin
Junonia coenia	Common Buckeye
Limenitis arthemis astyanax	Red-spotted Purple
Megisto cymela	Little Wood Satyr
Papilio glaucus	Tiger Swallowtail
Papilio troilus	Spicebush Swallowtail
Phoebis sennae	Cloudless Sulfur
Phyciodes tharos	Pearl Crescent
Pieris rapae	Cabbage White
Poanes zabulon	Zabulon Skipper
Polites themistocles	Tawny-edged Skipper
Polygonia interrogationis	Question Mark

Satyrrium calanus	Banded Hairstreak
Satyrrium edwardsii	Edwards' Hairstreak
Strymon melinus	Gray Hairstreak
Vanessa atalanta	Red Admiral
Vanessa cardui	Painted Lady
Vanessa virginiensis	American Lady

Together these sights represent observations from every month from May through November. Presumably, a number of the species listed here would be encountered at the subject site in the appropriate season.

Of the 134 plant species recorded at the site, two are listed by the New York Natural Heritage Program (NHP). These are the Pine-Barrens Sandwort (*Minuartia caroliniana*) and the Flax-leaf Whiteatop (*Aster solidagineus*).

The Pine-Barrens Sandwort plants occur in two of the proposed project areas— the triangular "island" formed by the intersection of the three runways, and the northwest side of Runway 22. Until as recently as April 1999, the Pine-Barrens Sandwort was on the "Active" list of the New York Natural Heritage Program (NHP) as an S2 plant.⁶ However, as of at least July 2000, this species was demoted to NHP's Watch List and to S3 status.⁷ The watch list consists of species that "may need more information or monitoring to decide if they should be actively inventoried" by NHP (Young, 1988). Flax-leaf Whitetop was found on the airport property during the 1987 visit, and was located along the edge of the power line cut on the northern edge of the airport property on the west side of Daniel's Hole Road. This species is classified by NHP as an S2 plant, i.e., having fewer than 20 occurrences in New York State. Since, however, it is far from any of the projects, it will remain untouched.

A rare moth, the Aureolaria Seed borer (*Rhodecia aurantiago*), was documented as a caterpillar along the power-line right-of-way just north of the airport. Its caterpillars feed on the Cutleaf False-Foxglove (*Aureolaria pedicularia*) that grows there. Again, the food plants are at a distance from any of the disturbance from ALP projects.

There is also evidence that yet another NHP-listed animal might occur, as well as evidence that a third will not. The butterfly list above includes the Edwards' Hairstreak (*Satyrrium edwardsii*), whose caterpillars feed on Scrub Oak—a plant that is not uncommon at the site. This insect is treated as S3S4 by NHP, meaning that it is known from perhaps 100 or more localities. It could occur wherever Scrub Oak is present in large numbers.

⁶ S2 status means typically 6 to 20 occurrences of an organism.

⁷ S3 means typically 21 to 100 known occurrences of an organism.

One potential occurrence of a rarity species can most likely be dismissed. Our ecologist and two amateurs interested in butterflies had visited Town Line Road on the strength of information that Wild Lupine grew there. This is the food plant of the caterpillar of the Frosted Elfin (*Callophrys irus*), an S1S3 insect. On May 4, 2002, in good weather (when the adult insects should have been flying), the food plant was found in fair numbers, but the insect was not, despite a careful search.

Correspondence of September 8, 1999 was forwarded to the New York State Department of Environmental Conservation (NYSDEC), Division of Fish, Wildlife & Marine Resources, New York Natural Heritage Program (NHP), requesting a determination as to whether the ALP projects would potentially impact threatened/endangered species or natural communities. A response from NHP dated September 21, 1999 indicated that there were no records of known occurrences of rare or state listed animals and plants, of significant natural communities, or of other significant habitats, on or in the immediate vicinity of the Airport. However, in a subsequent letter dated November 7, 2000, NHP advised that two animal species, one plant species, and two natural community types were identified on or near the subject site.

The first animal species, the Aureolaria Seed-borer (*Rhodecia aurantiago*) was also found during the course of the present survey and has already been discussed.

The second animal, the Coastal Barrens Buck Moth (*Hemileuca maia ssp 5*), is listed as a species of "special concern." Thus, there is a documented concern for its continued welfare in New York. The actual sampling that forms the basis of the NHP record apparently took place along the power line right-of-way east of the airport. This location is further confirmed by local Buck Moth expert John Cryan (personal communications). Thus, there is apparently no direct documentation that the insect is present on the subject property. Buck Moth caterpillars feed on Scrub Oak (*Quercus ilicifolia*), and same would be impacted by two of the ALP projects. However, the actual acreage of this forest to be lost constitutes less than one percent of the 900 local acres which the Buck Moth is said to occupy. This amount of loss is negligible.

The plant called the Opelousa Smartweed (*Polygonum hydropiperoides var. opelousanum*) was included as being on or proximate to the subject site. The Opelousa Smartweed, which is protected as a threatened species on the New York state list, was not observed on the site. It is important to note that this is a wetland species whose occurrence is based on a 73-year-old record and whose location is only vaguely indicated. Were it to occur on-site at all, it would be found in Daniel's Hole, where it would be afforded wetlands protection and would in any case be far from the impacts of any of the ALP projects.

The two natural community types are the Pitch Pine-Oak Forest (440 local acres) and the Coastal Oak-Heath Forest (2,700 local acres). Pitch Pine-Oak Forest has recently been revised to S4 rank by NHP and is therefor no longer listed by them. Moreover, the two projects that would impact less than two percent of the total 440 acres of this forest type. Such an impact would be virtually negligible.

The second community type, the Coastal Oak-Heath Forest, is centered on the Long Pond Greenbelt and the surrounding morainal hills to the northwest of the subject site. It is not apparent that this community type actually occurs *on* the subject site at all, but is instead nearby. In any event, the ALP projects will not disturb the northwestern portion of the Airport and therefore no disturbance to the same is expected.

Four species of plant seen at the subject site are listed by NYSDEC as being "exploitably vulnerable." These are

Epigaea repens	Trailing Arbutus
Kalmia angustifolia	Sheep Laurel
Kalmia latifolia	Mountain Laurel
Myrica pensylvanica	Bayberry

Exploitably vulnerable species are so designated because they are subject to being taken from the wild. In the cases of the four woody species listed here, this most likely means that they are dug up by individuals or commercial concerns for landscaping or ornamental plants. In fact, all four of these species are fairly frequent and widespread on Long Island, as can be seen from maps in the "New York Metropolitan Flora Woody Plant Workbook" (Clemants, 1999).

Ecological Survey

Trees, Shrubs and Woody Vines

Acer rubrum	Red Maple
Amelanchier sp.	Shadbush
Arctostaphylos uva-ursi	Bearberry
Aronia sp.	Chokeberry
Carya tomentosa	Mockernut Hickory
Comptonia peregrina	Sweetfern
Epigaea repens	Trailing Arbutus
Gaultheria procumbens	Wintergreen
Gaylussacia baccata	Black Huckleberry
Hudsonia ericoides	Golden Heather
Hudsonia tomentosa	False Heather
Kalmia angustifolia	Sheep Laurel
Kalmia latifolia	Mountain Laurel
Lyonia ligustrina	Maleberry
Lyonia mariana	Staggerbush
Myrica pensylvanica	Bayberry
Pinus rigida	Pitch Pine
Populus grandidentata	Big-toothed Aspen

Quercus alba	White Oak
Quercus coccinea	Scarlet Oak
Quercus ilicifolia	Scrub Oak
Quercus sp.	Oak (seedlings)
Quercus stellata	Post Oak
Quercus velutina	Black Oak
Rhus copallinum	Dwarf Sumac
Rhus glabra	Smooth Sumac
Rubus hispidus	Swamp Dewberry
Rubus sp.	Brambles
Sassafras albidum	Sassafras
Smilax glauca	Catbrier
Smilax rotundifolia	Greenbrier
Spiraea tomentosa	Steeple Bush
Vaccinium angustifolium	Late Lowbush Blueberry
Vaccinium corymbosum	Highbush Blueberry
Vaccinium pallidum	Early Lowbush Blueberry

Herbaceous Plants

Achillea millefolium	Yarrow
Agalinis setacea/tenuifolia	Gerardia
Agalinis purpurea	Purple Gerardia
Agrostis sp.	Bent Grass
Andropogon sp.	Bluestem
Arctium sp.	Burdock
Artemisia vulgaris	Mugwort
Asclepias amplexicaulis	Blunt-leafed Milkweed
Aster linariifolius	Stiff Aster
Aster paternus	White-topped Aster
Aster solidagineus	Flax-leaf White-Top
Aster sp.	Aster
Aureolaria pedicularia	Cutleaf False-Foxglove
Baptisia tinctoria	Wild Indigo
Calystegia sepium	Hedge Bindweed
Carex pensylvanica	Sedge
Carex scoparia	Sedge
Carex sp.	Sedge
Chamaesyce maculata	Wartweed
Chrysopsis mariana	Golden Aster
Cichorium intybus	Chicory

Cirsium pumilum	Pasture Thistle
Comandra umbellata	Bastard Toadflax
Conyza canadensis	Horseweed
Dactylis glomerata	Orchard Grass
Danthonia spicata	Poverty Grass
Deschampsia flexuosa	Common Hairgrass
Digitaria sp.	Crab Grass
Eleocharis sp.	Spikerush
Elytrigia repens	Quack Grass
Eragrostis spectabilis	Purple Love Grass
Eupatorium perfoliatum	Boneset
Euthamia tenuifolia	Slender Fragrant Goldenrod
Festuca sp.	Fescue
Glyceria sp.	Manna Grass
Helianthemum canadense	Frostweed
Helianthemum propinquum	Frostweed
Hieracium caespitosum	King Devil
Hieracium sp.	Hawkweed
Hieracium venosum	Rattlesnake Weed
Holcus lanatus	Velvet Grass
Hypericum gentianoides	Orangegrass
Hypericum sp.	St.-John's Wort
Hypochaeris radicata	Cat's Ear
Juncus effusus	Soft Rush
Juncus greenei	Rush
Juncus tenuis	Path Rush
Krigia virginica	Dwarf Dandelion
Lactuca sp.	Wild Lettuce
Lechea sp.	Pinweed
Lepidium virginicum	Peppergrass
Lespedeza capitata	Round-headed Bush-Clover
Lespedeza intermedia	Bush-Clover
Leucanthemum vulgare	Ox-eye Daisy
Linaria canadensis	Blue Toadflax
Linaria vulgaris	Butter-and-Eggs
Lotus corniculatus	Bird's-foot Trefoil
Lupinus perennis	Wild Lupine
Lycopus sp.	Water-Horehound
Lysimachia quadrifolia	Whorled Loosestrife
Melampyrum lineare	Cow-Wheat
Melilotus officinalis	Yellow Sweet Clover
Minuartia caroliniana	Pine-Barrens Sandwort

Monotropa uniflora
Panicum depauperatum
Panicum sp.
Panicum virgatum
Phytolacca americana
Pityopsis falcata
Plantago aristata
Plantago lanceolata
Polygala polygama
Polygonatum pubescens
Polygonella articulata
Polygonum sp.
Potentilla argentea
Potentilla canadensis
Potentilla recta
Potentilla simplex
Pteridium aquilinum
Rhexia virginica
Rudbeckia hirta
Rumex acetosella
Scirpus cyperinus
Scutellaria sp.
Sisyrinchium atlanticum
Sisyrinchium sp.
Smilacina racemosa
Solidago bicolor
Solidago nemoralis
Tephrosia virginiana
Trifolium arvense
Trifolium pratense
Trifolium procumbens
Triplasis purpurea
Typha latifolia
Verbascum thapsus
Viola lanceolata
Viola sagittata

Indian Pipe
Poverty Panic Grass
Panic Grass
Switch Grass
Pokeweed
Atlantic Golden Aster
Bracted Plantain
English Plantain
Bitter Milkwort
Solomon's Seal
Jointweed
Lady's-Thumb
Silvery Cinquefoil
Dwarf Cinquefoil
Rough-fruited Cinquefoil
Old-field Cinquefoil
Bracken Fern
Meadow-Beauty
Black-eyed Susan
Sheep Sorrel
Woolgrass
Skullcap
Blue-eyed Grass
Blue-eyed Grass
False Solomon's Seal
Silverrod
Gray Goldenrod
Goat's-Rue
Rabbit's-foot Clover
Red Clover
Low Hop Clover
Sand Grass
Common Cattail
Common Mullein
Lance-leafed Violet
Fringed Violet

Mammals

Marmota monax

Woodchuck (burrow)

Birds

Cyanocitta cristata
Dendroica coronata
Falco sparverius
Poecile atricapillus
Regulus calendula

Blue Jay
Yellow-Rumped Warbler
American Kestrel
Black-capped Chickadee
Ruby-crowned Kinglet

Butterflies

Celastrina ladon
Colias philodice
Euptoieta claudia
Junonia coenia
Lycaena phlaeas

Spring Azure
Clouded Sulfur
Variegated Fritillary
Buckeye
American Copper

Odonata

Anax junius

Green Darner

Cumulative Ecological Impacts Associated with the ALP Projects

Given the size of the Airport property (607± acres) and the fact that the proposed modifications are relatively small, widely-separate and well-localized, it is more appropriate to discuss the potential ecological impacts of each individual project. Such discussion is included below.

Impacts are presented on a project-by-project basis, and provide specific and detailed information on the actual organisms and communities to be affected by each project.

Project 1 - Runway 10-28 Protection Zone and Approach Surface

Project 1 would occur in an area defined ecologically as a young Pitch Pine-Oak Forest, in which oaks dominate and few pitch pines (*Pinus rigida*) are present. Heaths form a shrub layer within the area and few herbaceous species were identified in the field. No rare species were noted. In the area that would be disturbed, the following herbaceous and tree species were identified:

Carex pensylvanica
Comptonia peregrina
Epigaea repens
Gaultheria procumbens
Gaylussacia baccata

Sedge
Sweetfern
Trailing Arbutus
Wintergreen
Black Huckleberry

Kalmia angustifolia	Sheep Laurel
Lyonia mariana	Staggerbush
Pinus rigida	Pitch Pine
Quercus alba	White Oak
Quercus coccinea	Scarlet Oak
Quercus ilicifolia	Scrub Oak
Quercus velutina	Black Oak
Rubus hispidus	Swamp Dewberry
Smilax glauca	Catbrier
Vaccinium angustifolium	Late Lowbush Blueberry
Vaccinium pallidum	Early Lowbush Blueberry

Implementation of this project would result in the replacement of this vegetation with low-lying indigenous species and would cause associated displacement of wildlife species. Animals displaced would be expected to disperse to the abundant surrounding woodlands and grasslands as these provide suitable habitat for the species identified. Also, no rare, threatened or endangered species were identified, and thus, no adverse impacts to the same would be expected.

Project 2 - Parallel Taxiway to Runway 10-28

The proposed parallel taxiway would traverse a triangular-shaped area of Mowed Roadside/Pathway community that supports a variety of native and introduced plant species. The following plants were identified along the proposed taxiway route:

Arctostaphylos uva-ursi	Bearberry
Aster linariifolius	Stiff Aster
Carex sp.	Sedge
Chamaesyce maculata	Wartweed
Cichorium intybus	Chicory
Conyza canadensis	Horseweed
Deschampsia flexuosa	Common Hairgrass
Digitaria sp.	Crab Grass
Eragrostis spectabilis	Purple Love Grass
Helianthemum canadense	Frostweed
Hieracium sp.	Hawkweed
Hudsonia tomentosa	False Heather
Hypericum gentianoides	Orangegrass
Lechea sp.	Pinweed
Lepidium virginicum	Peppergrass
Minuartia caroliniana	Pine-Barrens Sandwort
Myrica pensylvanica	Bayberry
Panicum sp.	Panic Grass

Pinus rigida	Pitch Pine seedlings
Pityopsis falcata	Atlantic Golden Aster
Plantago lanceolata	English Plantain
Polygonella articulata	Jointweed
Potentilla argentea	Silvery Cinquefoil
Potentilla recta	Rough-fruited Cinquefoil
Quercus sp.	Oak (seedlings)
Trifolium sp.	Clover
Vaccinium pallidum	Early Lowbush Blueberry

Also noted in this area were lichens, mosses and earth stars. Considerable bare, unvegetated ground was evident as well. Numerous grasshoppers were seen in the area, and an American Kestrel (*Falco sparverius*) flew low over the site and took prey (probably a grasshopper, a major component of their diet) in the northern part of the triangular-shaped area.

Small groups of Pine-Barrens Sandwort (*Minuartia caroliniana*) were found about 50 feet west of the eastern end of the proposed taxiway, and as scattered individuals still further to the west. As indicated in the *Existing Conditions* section, the Pine-Barrens Sandwort was on the "Active" list of the New York Natural Heritage Program (NHP) as an S2 plant.⁸ However, this species was demoted to NHP's Watch List and to S3 status.⁹ The watch list consists of species that "may need more information or monitoring to decide if they should be actively inventoried" by NHP (Young, 1988). Nonetheless, considering that NHP has deemed that this species no longer needs to be actively inventoried, and thus, the removal of same would not be expected to have adverse ecological impacts.

In conclusion, as no rare, threatened or endangered species were identified within the project area, no adverse impacts to the same would be expected.

Project 3 - Runway Safety Areas

Disturbance to vegetation is expected on the northwest side of Runway 22 opposite the triangular-shaped area formed by the intersection of the three runways. This area is presently maintained as a mixture of Mowed Roadside/Pathway and Successional Old Field communities and supports weedy, introduced plant species near the runway and native grasslands species further from the runway.

⁸S2 status means typically 6 to 20 occurrences of an organism.

⁹S3 means typically 21 to 100 known occurrences of an organism.

The plants observed in this area were:

Arctostaphylos uva-ursi	Bearberry
Baptisia tinctoria	Wild Indigo
Conyza canadensis	Horseweed
Euthamia tenuifolia	Slender Fragrant Goldenrod
Helianthemum canadense	Frostweed
Hudsonia tomentosa	False Heather
Hypericum gentianoides	Orangegrass
Hypochoeris radicata	Cat's Ear
Lechea sp.	Pinweed
Minuartia caroliniana	Pine-Barrens Sandwort
Pityopsis falcata	Atlantic Golden Aster
Polygonella articulata	Jointweed
Triplasis purpurea	Sand Grass

Also noted in this area were lichens and mosses. In addition, an animal burrow, apparently that of a woodchuck, was observed. Several unidentified sparrows flew up from clumps of grass and landed in or behind other clumps some distance away.

Several plants of the Pine-Barrens Sandwort were seen in the northern, more native half of the area described above, where they occurred in the vicinity of clones of Bearberry (*Arctostaphylos uva-ursi*). Grading of the RSA will require clearing of vegetation, including the Pine-Barrens Sandwort which may be present. As discussed under Project 2, the Pine-Barrens Sandwort is identified by NHP as being on its Watch List. Species on the Watch List are not actively inventoried, and this particular plant was recently demoted to the NHP Watch List from the "Active List."

In conclusion, as no rare, threatened or endangered species were identified within the project area, no adverse impacts to the same would be expected.

Project 4 - Runway 28 Approach over Daniel's Hole Road

The forested land on the Airport property that would be potentially impacted by the realignment of Daniel's Hole Road was field-surveyed and is described under Project 1. Implementation of this action would result in the removal of this vegetation and would cause associated displacement of wildlife species. As indicated in the impact analysis for Project 1, animals displaced would be expected to disperse to the abundant surrounding woodlands and grasslands as these provide suitable habitat for the species identified. However, as no rare, threatened or endangered species were identified, no adverse impacts to the same would be expected.

Project 5 - Deer Fence Openings

The proposed project involves the installation of fencing and cattle crossing grating to prevent wildlife from entering the Air Operations Area (AOA). During the installation of same, all deer

within the confines of the fenced property (i.e., airport boundary) will be removed so as to avoid trapping the deer within the property line. There are no rare, threatened or endangered species in the area of the proposed fence and thus, same would not be impacted.

Project 6 - Bury Power Lines in Runway 22 Approach

The power lines are not situated on the Airport property but are located within a right-of-way maintained by the Long Island Power Authority (LIPA) adjacent to the north property boundary of the Airport. A rare moth species, the Aureolaria Seed-borer (*Rhodocia aurantiago*), has been reported at the power line right-of-way on the west side of Wainscott Northwest Road. This species was also identified in the New York Natural Heritage's second letter dated November 7, 2000. During the site inspection, Dr. Blanchard inspected the area in the vicinity of the proposed powerline burial area to ascertain whether the food plant of the moth's caterpillar, Cutleaf False-Foxglove (*Aureolaria pedicularia*) was present. The food plant was not present, and therefore, the moth would not be expected in this area. Thus, no adverse impacts to this rare moth are expected.

Project 7 - Taxiway System Improvements

The taxiway alignment that would connect the T-hangar complex to the end of Runway 10 and the by-pass taxiway at Runway 28, will traverse both Mowed Roadside/Pathway, Successional Old Field areas and Pitch Pine-Oak vegetation. The grassland areas are maintained by mowing and are generally weedy next to the runway. However, closer to the forest, the grassland is primarily native in its composition, and consists of the following elements:

- | | |
|-----------------------------|----------------------------|
| Achillea millefolium | Yarrow |
| Agalinis tenuifolia/setacea | Gerardia |
| Arctostaphylos uva-ursi | Bearberry |
| Artemisia vulgaris | Mugwort |
| Baptisia tinctoria | Wild Indigo |
| Conyza canadensis | Horseweed |
| Danthonia spicata | Poverty Grass |
| Epigaea repens | Trailing Arbutus |
| Eragrostis spectabilis | Purple Love Grass |
| Euthamia tenuifolia | Slender Fragrant Goldenrod |
| Hieracium sp. | Hawkweed |
| Hudsonia ericoides | Golden Heather |
| Hypericum gentianoides | Orangegrass |
| Hypochoeris radicata | Cat's Ear |
| Leucanthemum vulgare | Ox-eye Daisy |
| Pityopsis falcata | Atlantic Golden Aster |
| Plantago aristata | Bracted Plantain |

Plantago lanceolata	English Plantain
Polygonella articulata	Jointweed
Quercus ilicifolia	Scrub Oak (seedlings)
Rumex acetosella	Sheep Sorrel
Trifolium arvense	Rabbit's-foot Clover
Trifolium pratense	Red Clover
Vaccinium pallidum	Early Lowbush Blueberry

A second, smaller mowed area, located between the forest and the paved area of the T-hangar complex, also includes some of the plants listed above.

The forested area, through which most of the length of the taxiway will pass is Pitch Pine-Oak Forest in which the pines are taller and of greater girth than the associated oaks. This is a typical example of a fire-suppressed type of pine-barrens vegetation. The principal shrubs are various species of heaths. The following plants were noted:

Arctostaphylos uva-ursi	Bearberry
Carex pensylvanica	Sedge
Carya tomentosa	Mockernut Hickory
Epigaea repens	Trailing Arbutus
Gaultheria procumbens	Wintergreen
Gaylussacia baccata	Black Huckleberry
Monotropa uniflora	Indian Pipe
Myrica pensylvanica	Bayberry
Pinus rigida	Pitch Pine
Pteridium aquilinum	Bracken Fern
Quercus alba	White Oak
Quercus coccinea	Scarlet Oak
Quercus ilicifolia	Scrub Oak
Quercus stellata	Post Oak
Quercus velutina	Black Oak
Vaccinium angustifolium	Late Lowbush Blueberry
Vaccinium pallidum	Early Lowbush Blueberry

Three species of birds were called in--the Black-capped Chickadee (*Poecile atricapillus*), the Ruby-crowned Kinglet (*Regulus calendula*) and the Yellow-rumped Warbler (*Dendroica coronata*). A small group of Blue Jays (*Cyanocitta cristata*) was noted separately.

The vegetation in the area of the proposed new taxiway would be mowed or replaced with ground cover. Animals thus displaced would be expected to disperse to the abundant surrounding woodlands and grasslands as these provide suitable habitat for the species identified.

In conclusion, although some species may be displaced, it is likely they will relocate to the surrounding forested areas. As such, no significant impacts to wildlife in the project area are anticipated.

Project 8 - Automated Weather Observation Station (AWOS)

The AWOS is proposed to be located within the triangular-shaped area outside of the Runway Object Free Areas for each runway. The plant species identified in this area were discussed in Project 2.

As the AWOS is a small device, its location can be finalized in the field at the time of construction, so that it is away from areas that contain the Pine-Barrens Sandwort (*Minuartia caroliniana*). The Pine-Barrens Sandwort is the only species listed by NHP, who record it on its Watch List.

In conclusion, the proposed location of the AWOS does not contain any rare, threatened or endangered species, and therefore, no significant impacts to the same would be expected.

Project 9 - Rehabilitation/Reconstruction of Runway 4-22

The rehabilitation and reconstruction of Runway 4-22 to decrease the length and reduce the width of the runway will involve existing impervious surface areas. Therefore, the ecological impacts will be limited to the potential damage of the vegetated edges while moving machinery during the construction period.

As indicated in the discussion for Project 3, disturbance to vegetation is expected on the northwest side of Runway 22 opposite the triangular-shaped area formed by the intersection of the three runways. This area is presently maintained as a grassland through mowing and supports both weedy, introduced plant species near the runway and native grasslands species further from the runway.

As this project involves the reduction of impervious surface area, there are ecological benefits. Furthermore, the reduction of the runway width will permit an additional seeding of 12.5 feet on each side of the runway with native grassland to help mitigate grassland losses elsewhere.

This project would occur in areas of existing developed areas, and thus, no significant impacts on ecological resources are anticipated.

Cumulative Ecological Impacts Associated with the Release of Lands from the Airport Boundaries

The future release of land from the Airport boundaries would not alter the existing or potential future land use. The properties are currently zoned and partially used for commercial and industrial

uses. Those Industrial Road lots that are currently vacant would most likely be developed with industrial and commercial uses given their location within the Town Industrial park and proximity to the existing Airport and surrounding commercial and industrial uses. The Town has no plans for private or municipal development or uses on the 47± acre parcel north of Daniel's Hole Road. None of the ALP projects would affect any development on these parcels, nor is any development on these parcels dependent on or related to any of the ALP projects.

Conversely, none of the ALP projects are contingent or dependent on or related in any way with the development of any or all of these parcels. The ALP projects affect only the safety and operations of the airport. However, the future development of the Industrial Park and northern parcel would be subject to SEQRA review and other applicable regulations of the Town of East Hampton. Thus, the potential ecological impacts of the potential future development of properties considered for release will be performed at the time when development is proposed.

Cumulative Ecological Impacts Associated with the Future Project Being Considered

As part of the installation of the PAS to Runway 10, the Runway Protection Zone (RPZ) would need to be larger than the existing RPZ. In comparison, the current RPZ is approximately 29 acres and the required RPZ for the PAS would increase to 79± acres. Approximately 35 acres of the total 79 acres are outside the existing property line. The following is an ecological description of the Runway Protection Zone that extends west past Town Line Road into the Town of Southampton. Since access to the site proper was not available, the ecological description is based on the following:

- General experience with the ecology and terrestrial biota of Long Island;
- Published information on the ecology and terrestrial biota of Long Island;
- Earlier participation in floristic and ecological inventories of the East Hampton Airport property and environs in two separate projects--the first on June 10, 1987 for Dru Associates, Inc. (with Ron Abrams, Larry Penny and Randall Christensen), and the second on October 19, 2000 for Freudenthal & Elkowitz Consulting Group, Inc.;
- A past and unrelated visit to Town Line Road on May 4, 2002;
- Independent, unrelated pre-project communication with experienced experts; and
- Examination of aerial photographs.

The RPZ for Runway 10 is predominantly wooded, but various clearings are evident in the west, made accessible via Wainscott Harbor Road (which existed only as an unpaved track through the woods as recently as the late 1960s).

The site slopes gently upward toward its center and toward the west, grading from below 60 feet in elevation to above 70 feet. The soils are primarily Bridgehampton Silt Loam and Plymouth

Loamy Sand with a silty substratum. They differ somewhat from the prevailing soil types around the rest of the airport in being merely well drained as opposed to excessively drained as in the Carver-and-Plymouth Sand and Plymouth Loamy Sand (Warner *et al.*, 1975).

The forest that comprises by far the greatest part of the subject site, is, like that of virtually all of the forest surrounding the airport, Pitch Pine-Oak Forest (see Edinger *et al.*, 2002). In this particular example, the Pitch Pine (*Pinus rigida*) is found in relatively low numbers, especially as compared to the pine-oak forest type on the south side of the airport. The other dominant trees--the oaks--include Black Oak (*Quercus velutina*), Scarlet Oak (*Q. coccinea*), and White Oak (*Q. alba*). Mockernut Hickory (*Carya tomentosa*) and Post Oak (*Quercus stellata*) might also occur. Common low shrubs are Early Lowbush Blueberry (*Vaccinium pallidum*), Late Lowbush Blueberry (*V. angustifolium*), and Black Huckleberry (*Gaylussacia baccata*). Where the forest canopy is more open, areas of the taller shrub species Scrub Oak (*Quercus ilicifolia*) may be found. In general, the herbaceous stratum is sparse, but a few herbs and other shrubs of medium to low stature are present as well, including at least some from the following list:

Arctostaphylos uva-ursi	Bearberry
Carex pensylvanica	Sedge
Comptonia peregrina	Sweetfern
Epigaea repens	Trailing Arbutus
Gaultheria procumbens	Wintergreen
Kalmia angustifolia	Sheep Laurel
Lyonia mariana	Staggerbush
Monotropa uniflora	Indian Pipe
Myrica pensylvanica	Bayberry
Pteridium aquilinum	Bracken Fern
Smilax glauca	Catbrier

Much smaller areas of open ground and road edges (such as that along Town Line Road where occasional grading or mowing keep back the woody species) may support a flora that is similar to that of pine barrens openings (Edinger *et al.*, 2002), but which also includes weeds characteristic of drier habitats. These areas typically support a mixture of grasses and herbs, such as

Andropogon sp.	Bluestem
Arctostaphylos uva-ursi	Bearberry
Baptisia tinctoria	Wild Indigo
Chrysopsis mariana	Golden Aster
Conyza canadensis	Horseweed
Danthonia spicata	Poverty Grass
Eragrostis spectabilis	Purple Love Grass
Euthamia caroliniana	Slender Fragrant Goldenrod
Helianthemum canadense	Frostweed

Hudsonia ericoides	Golden Heather
Hudsonia tomentosa	False Heather
Hypericum gentianoides	Orangegrass
Hypochaeris radicata	Cat's Ear
Krigia virginica	Dwarf Dandelion
Lechea sp.	Pinweed
Lespedeza capitata	Round-headed Bush- Clover
Leucanthemum vulgare	Ox-eye Daisy
Linaria canadensis	Blue Toadflax
Melampyrum lineare	Cow-Wheat
Minuartia caroliniana	Pine-Barrens Sandwort
Panicum depauperatum	Poverty Panic Grass
Pityopsis falcata	Atlantic Golden Aster
Plantago aristata	Bracted Plantain
Polygala polygama	Bitter Milkwort
Polygonella articulata	Jointweed
Sisyrinchium sp.	Blue-eyed Grass
Solidago nemoralis	Gray Goldenrod
Triplasis purpurea	Sand Grass

A small subset of these species would be expected to be found in any such openings that are present on the expanded RPZ site.

Other plants seen in the vicinity of the airport, a few of which may occur on the RPZ site, are

Acer rubrum	Red Maple
Achillea millefolium	Yarrow
Agalinis purpurea	Purple Gerardia
Agrostis sp.	Bent Grass
Amelanchier sp.	Shadbush
Aronia sp.	Chokeberry
Artemisia vulgaris	Mugwort
Asclepias amplexicaulis	Blunt-leafed Milkweed
Aster linariifolius	Stiff Aster
Aster sp.	Aster
Aureolaria pedicularia	Cutleaf False-Foxglove
Calystegia sepium	Hedge Bindweed
Carex scoparia	Sedge
Carex sp.	Sedge
Chamaesyce maculata	Wartweed
Cichorium intybus	Chicory
Cirsium pumilum	Pasture Thistle

Comandra umbellata	Bastard Toadflax
Dactylis glomerata	Orchard Grass
Deschampsia flexuosa	Common Hairgrass
Digitaria sp.	Crab Grass
Festuca sp.	Fescue
Helianthemum propinquum	Frostweed
Hieracium pratense	King Devil
Hieracium sp.	Hawkweed
Hieracium venosum	Rattlesnake Weed
Holcus lanatus	Velvet Grass
Juncus greenei	Rush
Juncus tenuis	Path Rush
Kalmia latifolia	Mountain Laurel
Lactuca sp.	Wild Lettuce
Lepidium virginicum	Peppergrass
Lespedeza intermedia	Bush-Clover
Linaria canadensis	Blue Toadflax
Lotus corniculatus	Bird's-foot Trefoil
Lupinus perennis	Wild Lupine
Lysimachia quadrifolia	Whorled Loosestrife
Melilotus officinalis	Yellow Sweet Clover
Panicum sp.	Panic Grass
Phytolacca americana	Pokeweed
Plantago lanceolata	English Plantain
Polygonatum pubescens	Solomon's Seal
Populus grandidentata	Big-toothed Aspen
Potentilla argentea	Silvery Cinquefoil
Potentilla canadensis	Dwarf Cinquefoil
Potentilla recta	Rough-fruited Cinquefoil
Potentilla simplex	Old-field Cinquefoil
Rhus copallinum	Dwarf Sumac
Rhus glabra	Smooth Sumac
Rubus hispidus	Swamp Dewberry
Rubus sp.	Brambles
Rudbeckia hirta	Black-eyed Susan
Rumex acetosella	Sheep Sorrel
Sassafras albidum	Sassafras
Smilacina racemosa	False Solomon's Seal
Smilax rotundifolia	Greenbrier
Solidago bicolor	Silverrod
Tephrosia virginiana	Goat's-Rue
Trifolium arvense	Rabbit's-foot Clover

Trifolium pratense	Red Clover
Trifolium procumbens	Low Hop Clover
Viola sagittata	Fringed Violet

Birds that might occur on this site would be the same as in the list given under Existing Conditions for the airport as a whole, but would be even more skewed toward the pine-barrens breeders (**bolded**), since the proposed expanded RPZ is primarily Pitch Pine-Oak Forest.

Likewise, possible mammals, herpetofauna and butterflies would be the same as for the airport site as a whole, although in the case of the mammals, the woodchuck would probably not be found, given its usual habits and habitat. Similarly, for most species of butterfly the relative lack of open areas and their associated nectar-source flowers would probably limit these insects' abundance.

Since rare species are just that--rare, none would be *expected* on the proposed expanded RPZ. The one NHP-listed plant species that elsewhere may be impacted by the ALP projects is the Pine-barrens Sandwort (*Minuartia caroliniana*). This is a plant of open areas and for that reason would not be likely to occur on the RPZ site. The Pine-barrens Sandwort has recently been demoted by NHP from their Active List to their Watch List.

One potential rarity, a butterfly called the Frosted Elfin (*Callophrys irus*), was shown earlier not to be present. A search on Town Line Road in the RPZ area, where the insect's food plant occurs and at a season when the butterfly would be expected to be on the wing, failed to identify it.

Pitch Pine-Oak Forest, though classified as S3S4 in NHP's November 7, 2000 letter, has since been reclassified as strictly S4, i.e., "apparently secure in New York State." In any event, virtually no disturbance will occur to this plant community except for the possible felling or "topping" of a few of the tallest trees.

3-10: Wetlands

FAA Order 5050.4A Airport Environmental Handbook (Chapter 5, Paragraph 47e(11)(a)) states that wetlands are defined in Executive Order 11990, Protection of Wetlands, as "those areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. Wetlands also include estuarine areas, tidal overflows, and shallow lakes and ponds with emergent vegetation. The wetland ecosystem includes those areas which affect or are affected by the wetland itself (i.e., adjacent uplands or regions upstream and downstream). Areas covered with water for such a short time that there is no effect on moist soil vegetation are not included within the definition of wetlands nor are the permanent waters of