Appendices Page

Appendix A. Plan Contributors

Department of Conservation and Recreation

Name	Affiliation	Area of Expertise
Ron Aseltine	District 2 Fire Warden	Forest Fire Control
Steve Asen	Lakes and Ponds Program	Lake & Pond Management
Andy Backman	Director, Regional Planning Program	Natural Resource Planning
Jim Baecker	Regional Planning Program	Capital & Resource Planning
Ellen Berkland	Office of Cultural Resources	Archaeology
Dan Bertrand	Office of the Commissioner	Legislative Relations
Gary Briere	Bureau of Recreation	OHV Policy
Jeff Carter	Southeast Region Beach Manager	Beach Management
Paul Cavanagh	Regional Planning Program	Planning
Jeff Dumas	District Ranger	Security
Anne Fiesinger	Office of External Affairs	Public Outreach
Catherine Garnett	Environmental Planning Program	Landscape Architecture
Paul Gregory	Management Forester	Forest Management
Paul Jahnige	Recreation Facilities Planning Program	Trails Design
Arian Johnston	Legal Services	Cottage Agreements
David Kimball	GIS Program	GIS
Nathanael Lloyd	Director, GIS Program	GIS
Don Matinzi	Cape Cod District Manager	Operations & Management
Margot Mays	Camping Coordinator	Camping Management
Tom McCarthy	Director, Universal Access Program	Universal Access Design
Danny O'Brien	Recreation Facilities Planning Program	Bike Trail Planning & Design
Loni Plocinski	GIS Program	GIS
John Roberts	Myles Standish State Forest Supervisor	Operations & Management
Jessica Rowcroft	Regional Planning Program	Cultural Resources
Brian Shanahan	Southeast Region Director	Operations & Management
Raul Silva	Bureau of Engineering	Capital Planning
Jim Straub	Director, Lakes and Ponds Program	Lake & Pond Management
Ellen Walsh	MSSF Administrative Assistant	Park Operations
Heather Warchalowski	Environmental Planning Program	Ecology
Chris Williams	Deputy Chief Ranger	Ranger Services
Amy Wilmot	Regional Interpreter	Environmental Education
Joe Yetman	Regional Engineer	Infrastructure Engineering

Other Affiliations

Name	Affiliation
Kathleen Anderson	Founding Director, Manomet Center for Conservation Services
Peggy Baker	Director Emerita Pilgrim Society, Plymouth 400th Committee
Bob Bale	The Nature Conservancy, Massachusetts Field Office
Lt. Dean Belanger	Massachusetts Environmental Police
Bob Bentley	Friends of MSSF
Bill Boles	New England Mountain Biking Association
Chief Michael Botieri	Plymouth Police Department
Sgt. James Cullen	Massachusetts Environmental Police
John Crane	Environmental Consultant
Glen d'Entremont	Friends of MSSF, Birding Chair
Trooper Jeffrey Diotte	Massachusetts State Police

Appendix A. Plan Contributors (Continued)

Other Affiliations, Continued

Melissa Guimont	Friends of MSSF, Native Bird Support Group Chair
Sharl Heller	President, Friends of MSSF
Curtiss Hoffman	Archaeologist, Massachusetts Archaeological Society
Irina Kadis	Arnold Arboretum, Friends of MSSF Native Plant Propagation Project Chair
Malcolm MacGregor	Past Member, Plymouth Planning Board
Peter McLaughlin	Friends of MSSF, Trails Enhancement Program Chair
Rose Mellino	Friends of MSSF
Jim Nelson	Friends of MSSF, Fearing Pond Camp Association
Mike Nelson	Entomologist, Natural Heritage and Endangered Species Program
Randy Parker	Simes House Foundation
Wayne Peterson	Director, MassAudubon Important Bird Areas Program
Evelyn Strawn	Plymouth Conservation Commission, Friends of MSSF Vice Chair
Jessica Thomas	Vernal Pool Volunteer
Bill Vickstrom	Friends of MSSF
Ellen Williams	Bay State Trail Riders Association
Alexey Zinovejev	Friends of MSSF, Plant Inventory

Appendix B. Glossary

Active recreation - recreational activities requiring equipment, facilities or a degree of energy.

Archeological - pertaining to the study of the material remains of past human life and activities.

Bathhouse - buildings located at swimming areas for clothes changing and toilet use.

Bog iron - mineral formed in swamps and shallow lakes when water deposits iron oxide between the inorganic bottom surface and layers of decaying plants.

Bog iron furnace - a furnace used to concentrate iron from bogs by burning off the organic material.

Camping area - areas containing a varied number of campsites.

Canopy - the overhead covering of trees.

Civilian Conservation Corps (CCC) - the U.S. civilian labor force initiated during the 1930s (the Great Depression). The CCC planted trees and built roads, trails, recreation areas and buildings in Massachusetts forests and parks.

Coastal Plain Pondshore Community - seasonal and long-term fluctuations in the water table regularly expose and inundate portions of the pond margins. The assemblage of plants that exist in this fluctuating environment is known as the Coastal Plain Pondshore Community. This community is listed as priority habitat for rare and endangered species by the Massachusetts Natural Heritage Endangered Species Program (NHESP).

Comfort station - buildings providing men‘s and women‘s toilets.

Commercial thinning - an intermediate cut in the main forest stand designed to enhance the growth and quality of crop trees. The cut material is large enough or of such quality as to be saleable under normal market conditions.

Contact station - building set aside for liason between DCR staff and park users.

Cottages - privately-owned buildings located on state-owned land.

Cutin - an insoluble mixture containing waxes, fatty acids, soaps and resinous material that forms a continuous layer on the outer wall of a plant.

Day use area - recreational areas that are set aside for use during daylight hours only.

Defoliation - the removal of leaves from a plant, usually caused by leaf eating insects.

Deposition - the act or process of laying down layers of sediments.

Droughty - not being able to hold water very long and therefore drying up quickly.

Drumlin - elongated or oval hill of glacial deposits.

Easement - a right to use land of another owner for a specific limited use.

Ecosystem - a biological community and its environment consisting of all the organisms living in a particular area, as well as all non-living components of the environment with which the organisms interact, such as air, soil, water and sunlight.

Ecoregion (i.e., ecological region) - an extensive landscape with similar geology, physiology, vegetation, climate and land use history.

Eutrophic - a body of water in which the increase of mineral and organic nutrients has reduced the dissolved oxygen, producing an environment that favors plant over animal life.

Extinct - plant or animal species that have been completely eliminated from the earth.

Extirpated - plant or animal species that have been eliminated from a specific location or range.

Appendix B. Glossary (Continued)

Fire access road - any road providing access for fire-fighting vehicles to a forested area for the prevention, detection or suppression of fires.

Frost pocket - a depression that will become colder in relation to surrounding uplands due to the normal sinking or down-slope flow of cold air.

Game - those animal species that are hunted, trapped or fished for sport.

Geology - the science that deals with the history and structure of the earth as recorded in rocks.

Glacial - produced by a glacier, a large mass of ice that moved down a slope or spreads over a land surface.

Glacial till - unsorted, non-stratified (not layered) glacial drift, consisting of particles ranging in size from clay to boulders, transported and deposited by glacial ice.

Glaciofluvial deposits - material moved by glaciers and subsequently sorted and deposited by streams flowing from the melting ice; the deposits are stratified and occur in the form of kames, eskers, deltas and outwash plains.

Gneiss - a banded, granite like metamorphic rock (rock altered in texture, composition and structure by heat and pressure) with minerals arranged in layers.

Granite - a course grained, hard, igneous rock (volcanic or molten origin) that consists of quartz and feldspar. Granite is often used for buildings and monuments.

Group sites - areas set aside for groups of overnight campers, usually non-profit organizations serving youth.

Habitat - the place or type of site where a plant or animal naturally or normally lives and grows.

Historic - in New England, the time period following European settlement and at least 50 years before the present.

Improvement cut - a cutting made in forest stands for the purpose of improving composition and quality by removing trees of undesirable species, form or condition from the main canopy.

Indigenous - having originated in and living naturally in a particular region.

In-holdings - private land that is surrounded by land owned by the DCR.

Intensive recreation - high density recreational activities involving a high number of participants on a given site. Examples include paved trails, restrooms, picnic shelters, playgrounds, sports areas, swimming areas and boat launch facilities.

Intermediate cut (thinning) - trees are removed which are of poor form, in poor condition or of a commercially undesirable species as well as desirable trees whose removal will accelerate the growth of other desirable trees.

Interpretive program - educational or recreational programs which focus on the natural and cultural history of the area, as well as DCR management objectives and public education on the proper use of DCR properties.

Invasive species - are non-native plant or animal species whose introduction causes harm to native species living in the ecosystem under consideration.

Kame - a variety of stratified landforms deposited by melt water streams in contact with the ice of a glacier.

Kettle hole - a depression formed by the melting of large chunks of buried glacial ice.

Kettle hole pond - a pond formed in a kettle hole when a portion of the depression is located below the water table.

Leaching field - an underground area designed to receive liquid overflow from septic tanks.

Appendix B. Glossary (Continued)

Legume - any of a large family of herbs, shrubs and trees bearing nodules on the roots that contain nitrogen fixing bacteria, including important food and forage plants.

Lepidoptera - the order of insects that consists of the butterflies and moths.

Legacy species - when rare species occur either entirely or mostly on DCR properties and nowhere else in Massachusetts, as determined by the Massachusetts Natural Heritage and Endangered Species Program.

Microclimate - the essentially uniform local climate of a small site or habitat.

Moorland - a boggy area containing peat and dominated by grasses and sedges.

Moraine - a landform made of glacial till, typically a ridge deposited at the edge of a glacier.

N**atural communities** - a distinct grouping of plant species that occur together in recurring patterns.

Non-game - animal species that are not hunted or fished for sport.

Non-native plant - When a plant is moved from its natural range to a new ecosystem. These species can become invasive, outcompeting other native species for nutrients, space, and light resources.

Off-highway vehicle (OHV) - a motor vehicle designed to travel over unimproved terrain.

Open space - undeveloped land managed to protect existing and future well fields, aquifers and recharge areas, watershed land, agricultural land, grasslands, fields, forest land, fresh and salt water marshes and other wetlands, ocean, river, stream, lake and pond frontage, beaches, dunes and other coastal lands, lands to protect scenic vistas, land for wildlife or nature preserve and land for recreational use.

Outwash plain - a generally flat land area made up of sand and gravel deposited by melt water flowing from a glacial ice margin.

Overstory type - the dominant forest vegetative cover type.

Partial in-holding - private land that is partially surrounded by land owned by the DCR.

Passive recreation - recreation activities which do not require extensive energy, facilities or equipment.

Percolation - the act of liquid passing through a permeable surface (such as water passing through soil).

Perennial - Plants persisting for several years, with new herbaceous growth each year.

Pine Barrens - are characterized by sandy soils that are poor in nutrients and prone to drought. Pine Barrens refers collectively to several variations of plant communities, distinguished from each other by their relative proportions of two defining trees: pitch pine and scrub oak. In some areas, pitch pine forms a dominant overstory that shades the ground, resulting in a fairly open understory. In other areas, dense thickets of scrub oak dominate. And in others, a mixture of pitch pine and scrub oak occurs.

Plantation - stands of forests or trees that have been artificially planted.

Pond shore species - those species that occur along the fringe of ponds that must be adapted to alternately dry and wet conditions.

Pre-contact - in New England, the time period prior to European settlement.

Productive species - those tree species that provide salable wood products (e.g. red oak, white pine and black walnut).

Rare species- extremely uncommon plants or animals. In Massachusetts, rare species are listed by the Natural Heritage and Endangered Species Program and protected under the Massachusetts Endangered Species Act.

Appendix B. Glossary (Continued)

Reforestation - the process of putting forest trees on a site that is presently non-forested or had its forests previously removed.

Right-of-way - a legal right of passage over another person‘s land.

Root crown - the uppermost part of a plant‘s root system that lies at ground level and forms the base for the plant stem, also called the root collar.

Riverfront area - the area of land regulated by the Wetlands Protection Act located between a river‘s mean annual high water line and a parallel line measured horizontally (310 CMR 10.58). The environmental attributes of riverfront areas include flood control, the prevention of storm damage and pollution, the protection of water supply and the provision of wildlife habitat.

Sample plot - an area small enough to permit complete measurement, to an established standard of scientific accuracy, of the vegetation or animals occupying the plot.

Sanctuary - a refuge where plants and animals are protected from human disturbance.

Septic system - a system for disposal of sanitary waste including a septic tank, distribution box and leaching field that is regulated by Title V of the State Sanitary Code.

Silviculture - one branch of forestry concerned with the theory and practice of controlling forest establishment, composition and growth.

Soil profile - the soil from the surface of the ground to the unchanged parent material beneath, commonly divided into layers known as horizons, formed by the action of living organisms on the original parent material.

Species of limited distribution - plants or animals that are found in only a small geographic range.

Stand - an aggregation of trees or other growth occupying a specific area and sufficiently uniform in species composition, age and condition as to be distinguishable from other growth on adjoin areas.

Understory type - the vegetative cover type that lies beneath the overstory.

Vista - a distant view through or along a road, field, opening or water body.

Visual intrusion - an object or objects that block a portion of a vista.

Vernal pool - unique wildlife habitats best known for the amphibians and invertebrate animals that use them to breed. They typically fill with water in the autumn or winter due to rising ground water and rainfall and remain ponded through the spring and into summer. Vernal pools often dry completely by the middle or end of summer each year or at least every few years. Occasional drying prevents fish from establishing permanent populations and preying upon many amphibian and invertebrate species.

Watershed - A geographic area of land delineated by topographic features in which all surface and ground water flows downhill to a common river, lake or ocean. Watersheds provide drinking water, offer recreational opportunities and help sustain life.

Wetlands - lakes, ponds, streams, marsh, swamp or land subject to flooding that is protected by Massachusetts Wetlands Protection Act.

Wildlife plot - an area cleared and maintained with food and/or cover for wildlife.

Wisconsinan ice sheet - discontinuous glacier extending from Nantucket and Martha‘s Vineyard across Block Island to southern Long Island**.** These glaciers, over several thousands of years, slowly advanced and rapidly melted, depressing the land, scouring its surface and leaving behind layers of debris. The Wisconsin ice sheet was the most recent glacier, ending approximately 10,000 years ago. It is responsible for most topographic features in New England.

Appendix C. Plant Species List for MSSF

Prepared by Irina Kadis and Alexey Zinovjev
20 Nov 2006 - 22 Oct 2010
Images available on line at: http://fmssf.salicicola.com

Aceraceae
Acer platanoides L. (Norway maple) — Barrett Pond
Acer rubrum L. (red maple) — common
Agavaceae
Yucca filamentosa L. (Spanish bayonet, Adam's needle) — around headquarters
Alismataceae
Sagittaria engelmanniana J. G. Small (acid-water arrowhead)
Sagittaria latifolia Willd. (common arrowhead)
Sagittaria teres S. Watson (pondshore or terete arrowhead) — common at some ponds
Amaranthaceae
Froelichia gracilis (Hooker) Moq. (slender cottonweed) — Bumps Pond
Anacardiaceae
Rhus copallina L. (flameleaf sumac, winged sumac) — occasional
Rhus vernix L. = *Toxicodendron vernix* (L.) Kuntze (poison sumac) — Maple Spring Rd., Wareham (S of Park border)
Toxicodendron radicans (L.) Kuntze = *Rhus radicans* L. (poison ivy) — occasional
Apiaceae
Daucus carota L. (Queen Anne's lace) — common
Apocynaceae
Apocynum androsaemifolium L. (spreading dogbane) — occasional
Apocynum cannabinum L. (Indian hemp) — near headquarters
Aquifoliaceae
Ilex glabra (L.) Gray (inkberry) — common
Ilex opaca Ait. (American holly) — rare (seen twice)
Ilex verticillata (L.) Gray (common winterberry) — occasional
Nemopanthus mucronatus (L.) Loes. (catberry) — occasional
Araliaceae
Aralia hispida Vent. (bristly sarsaparilla) — once
Aralia nudicaulis L. (wild sarsaparilla) — occasional
Asclepiadaceae
Asclepias amplexicaulis Sm. (clasping milkweed) — rare
Asclepias incarnata ssp. pulchra (Ehrh. ex Willd.) Woodson (downy swamp milkweed)
Asclepias syriaca L. (common milkweed) — occasional
Asteraceae
Achillea millefolium L. (yarrow) — occasional
Ambrosia artemisiifolia L. (annual ragweed)
Antennaria neglecta Greene (pussytoes)
Antennaria neodioica Greene (Greene's pussytoes) — rare
Aster acuminatus Michaux = *Oclemena acuminata* (Michx.) Greene 1903 (sharp-leaved aster, whorled wood aster) — once, EastHead Res.
Aster dumosus L. = *Symphyotrichum dumosum* G.L.Nesom 1994 (long-stalked aster) — rare; det. Arieh Tal

Appendix C. Plant Species List for MSSF (Continued)

Asteraceae

Aster ericoides L. = *Symphyotrichum ericoides* G.L. Nesom 1994 (heath white aster) *Aster lanceolatus* Willd. = *Symphyotrichum lanceolatum* Nesom 1994 (tall white aster, panicled aster) *Aster lateriflorus* (L.) Britton = *Symphyotrichum lateriflorum* (L.) A. et D. Löve 1982 (calico aster) *Aster linariifolius* L. = *Ionactis linariifolia* (L.) Greene 1897 (stiff aster, spruce-aster) — common *Aster novi-belgii* L. = *Symphyotrichum novi-belgii* (L.) Nesom 1994 (New York aster) — common *Aster pilosus* Willd. = *Symphyotrichum pilosum* G.L.Nesom 1994 (white oldfield aster) — common *Aster racemosus* Ell. = *Symphyotrichum racemosum* Nesom 1994 (smooth white oldfield aster) — occurs; det. Arieh Tal

Aster spectabilis Ait. = *Eurybia spectablis* (Ait.) G.L.Nesom 1994 (showy aster) — common

Bidens connata Muhl. ex Willd. (swamp beggar-ticks) — common

Centaurea maculosa Lam. = *C. biebersteinii* DC. (spotted or bushy knapweed) — occasional

Cirsium pumilum (Nutt.) Sprengel (pasture thistle) — A small population of half-a-dozen flowering plants and rosettes at a frost-pocket margin

Cirsium vulgare (Savi) Ten. (bull thistle) *Conyza canadensis* (L.) Cronq. (horseweed, hogweed) — occasional

Conyza canadensis var. pusilla (Nutt.) Cronq. = *Conyza parva* Cronq. (dwarf horseweed, coastal horseweed) — occasional

Coreopsis rosea Nutt. (pink tickweed) — common at some ponds

Erechtites hieracifolia (L.) Raf. ex DC. (burnweed, fireweed, pilewort) — occasional

Erigeron strigosus Muhl. (rough fleabane)

Eupatorium leucolepis var. novae-angliae Fernald = *E. novae-angliae* V.I. Sullivan (New England boneset, pondshore boneset)

Eupatorium perfoliatum L. (boneset, thoroughwort) — occurs (East Head Reservoir)

Eupatorium pilosum Walter = *E. rotundifolium var. saundersii* (Porter) Cronq. (rough bonesent, verbena boneset)

Eupatorium rotundifolium var. ovatum (Bigelow) Torrey = *E. pubescens* Muhl. ex Willd. (hairy boneset)

Euthamia graminifolia (L.) Nutt. = *Solidago graminifolia* (L.) Salisb. (flat-topped goldenrod)

Euthamia tenuifolia (Pursh) Nutt. = *Solidago tenuifolia* Pursh = *Euthamia caroliniana* (L.) Greene ex Potter et Britton (slender goldenrod) — common around ponds

Gnaphalium obtusifolium L. (sweet everlasting)

Helenium flexuosum Raf. = *H. nudiflorum* Nutt. (purple-head sneezeweed) — once

Hieracium gronovii L. (Gronovius' hawkweed)

Hieracium pilosella L. (mouse-ear hawkweed)

Hieracium pratense Tausch = *H. caespitosum* Dumort. (king-devil, meadow hawkweed) — W border

Hieracium sabaudum L. = *H. canadense* hort. Goett ex Froel. (Savoy hawkweed, Canada hawkweed)

Hypochaeris radicata L. (hairy cat's-ear) — occurs

Krigia virginica (L.) Willd. (dwarf dandelion) — W border

Lactuca canadensis L. (yellow wild lettuce) — occurs

Leontodon autumnalis L. (fall dandelion) — once

Liatris scariosa var. novae-angliae Lunell (New England blazing-star) — occurs

Pityopsis falcata (Pursh) Nutt. = *Chrysopsis falcata* (Pursh) Ell. (sickle-leaved golden aster) — common

Prenanthes sp.

Prenanthes trifoliolata (Cass.) Fern. (tall rattlesnake-root) — occasional

Rudbeckia hirta var. pulcherrima Farw. (black-eyed Susan) — occasional

Sericocarpus asteroides (L.) B.S.P. = *Aster paternus* Cronq. (toothed white-topped aster) — occasional

Sericocarpus linifolius (L.) B.S.P. = *Aster solidagineus* Michaux (narrow-leaved white-topped aster) — occasional

Solidago bicolor L. (silverrod, white goldenrod) — occasional

Solidago canadensis L. (Canada goldenrod) — occasional

Solidago nemoralis Ait. (gray goldenrod) — occurs; det. Arieh Tal

Appendix C. Plant Species List for MSSF (Continued)

Asteraceae

Solidago odora Aiton (licorice goldenrod, sweet goldenrod) — common
Solidago puberula Nutt. (downy goldenrod) — common *Solidago rugosa* P. Miller (rough-stemmed goldenrod) — common
Solidago rugosa ssp. aspera (Aiton) Cronq. (rough goldenrod, barrens goldenrod)
Tanacetum vulgare L. (common tansy) — occurs
Tragopogon pratensis L. (yellow goat's-beard)
Tussilago farfara L. (coltsfoot) — W border

Betulaceae

Alnus serrulata (Ait.) Willd. (smooth alder, common alder) — occasional
Betula papyrifera Marsh. (paper birch) — rare, occurs around East Head Reservoir *Betula populifolia* Marsh. (gray birch) — common

Bignoniaceae

Campsis radicans (L.) Seemann ex Bureau (trumpet-creeper) — once, near camp grounds at Curlew Pond

Brassicaceae

Alliaria petiolata (Bieb.) Cavara et Grande = *A. officinalis* Andrz. (garlic mustard)
Draba verna L. (whitlow-grass) — occasional
Erysimum x marshalli (Henfr.) Bois = *E. garden hybrid, parentage uncertain* (wallflower) — once, at West Entrance
Lepidium campestre (L.) Aiton f. (field-cress, cow-cress) — occasional
Lepidium virginicum L. (Virginia pepperweed)
Teesdalia nudicaulis Ait. f. (shepherd cress) — once, at W border, near mobile homes

Cabombaceae

Brasenia schreberi J.F. Gmel. (watershield) — dominant
Cabomba caroliniana A. Gray (Carolina fanwort) — dominant in EastHead Res.

Campanulaceae

Jasione montana L. (sheep's bit) — occasional
Lobelia dortmanna L. (water lobelia) — present in Curlew Pond; common in Fawn and Little Long Ponds

Caprifoliaceae

Lonicera morrowii A. Gray (Morrow's honeysuckle)
Viburnum dentatum var. lucidum Ait. = *V. recognitum* Fern. (northern arrow-wood) — occasional
Viburnum nudum var. cassinoides (L.) Torr. et Gray (wild raisin, witherod) — common

Caryophyllaceae

Dianthus armeria L. (debtford pink) — occurs
Lychnis chalcedonica L. (scarlet lychnis, Maltese cross) — single location: West Entrance
Silene latifolia ssp. alba (P. Mill.) Greuter et Burdet = *Lychnis alba* P. Miller (white campion or evening lychnis)
Silene vulgaris (Moench) Garcke = *S. cucubalus* Wibel (bladder-campion) — occurs
Spergula arvensis L. (spurrey) — occasional

Celastraceae

Celastrus orbiculata Thunb. (Oriental bittersweet, Asian bittersweet)

Cistaceae

Helianthemum canadense (L.) Michx. (longbranch frostweed) — common
Hudsonia ericoides L. (pinebarren golden heather) — common
Lechea intermedia Leggett ex Britt. (large-podded pinweed)
Lechea sp. (pinweed)

Clethraceae

Clethra alnifolia L. (sweet pepperbush) — dominant

Appendix C. Plant Species List for MSSF (Continued)

Clusiaceae
Hypericum canadense L. (Canadian St. Johnswort) — occasional
Hypericum gentianoides (L.) B.S.P. (orangegrass) — common
Hypericum mutilum L. (dwarf St. Johnswort) — occasional
Hypericum perforatum L. (common St. Johnswort) — occasional
Triadenum virginicum (L.) Raf. = *Hypericum virginicum* L. (Virginia marsh St. Johnswort) — occasional
Cornaceae
Cornus amomum P. Mill. (silky dogwood)
Cupressaceae
Chamaecyparis thyoides (L.) B.S.P. (Atlantic white cedar) — single location: northern East Head Reservoir
Juniperus communis L. (common juniper, pasture juniper)
Juniperus virginiana L. (eastern red cedar)
Cuscutaceae
Cuscuta gronovii Willd. ex J.A. Schultes (dodder) — occasional
Cyperaceae
Bulbostylis capillaris (L.) C.B. Clarke (sand-sedge)
Carex annectens (Bickn.) Bickn. (yellow-fruited fox sedge) — occasional
Carex atlantica ssp. capillacea (Bailey) Reznicek = *C. howei* Mackenzie (threadstem sedge) — occasional dominant
Carex lurida Wahlenb. (sallow sedge) — occasional dominant
Carex pensylvanica Lam. (Pennsylvania sedge)
Carex scoparia Schkuhr. ex Willd. (broom sedge) — common
Carex vulpinoidea Michaux = *C. setacea* Dewey
Cyperus dentatus Torrey (pondshore flatsedge) — common
Cyperus lupulinus (Spreng.) Marcks. = *C. filiculmis* Vahl (slender sand flatsedge)
Dulichium arundinaceum (L.) Britton (three-way sedge) — occasional
Eleocharis obtusa (Willd.) J.A. Schultes (soft-stemmed spike-rush)
Eleocharis sp. — abundant in mucky lagoons with Sagittaria teres
Fimbristylis autumnalis (L.) R. et S. (northern fimbry) — common
Fuirena pumila (Torrey) Sprengel (annual umbrella-sedge) — occurs
Rhynchospora alba (L.) Vahl. (white beak-rush) — common
Rhynchospora capitellata (Michx.) Vahl. (brown beak-rush) — dominant
Rhynchospora macrostachya Torrey ex A. Gray (big-headed horned sedge) — Hoyt's Pond
Scirpus cyperinus (L.) Kunth (common bulrush) — common
Dennstaedtiaceae
Dennstaedtia punctilobula (Michaux) T. Moore (hayscented fern) — rare
Pteridium aquilinum (L.) Kuhn (bracken fern) — dominant
Droseraceae
Drosera filiformis Raf. (thread-leaf sundew) — dominant at least at two ponds
Drosera intermedia Hayne (spoonleaf sundew) — occasional
Drosera rotundifolia L. (roundleaf sundew) — occasional
Dryopteridaceae
Athyrium filix-femina (L.) Roth (northern lady-fern) — rare: Wamkinco R.; W border
Dryopteris intermedia (Muhl. ex Willd.) A. Gray (intermediate wood fern) — rare (East Head Reservoir; W border)
Onoclea sensibilis L. (sensitive fern) — rare
Elaeagnaceae
Elaeagnus umbellata Thunb. (autumn-olive, oleaster) — occasional (e.g., Barrett Pond) to dominant at Cutter Field (planted)

Appendix C. Plant Species List for MSSF (Continued)

Empetraceae

Corema conradii (Torrey) Torrey ex Loudon (broom-crowberry)

Ericaceae

Arctostaphylos uva-ursi A. et D. Love et Kapoor (kinnikinnik, bearberry) — dominant

Chamaedaphne calyculata (L.) Moench (leatherleaf, cassandra) — dominant around ponds *Epigaea repens* L. (trailing arbutus, mayflower) — occasional

Gaultheria procumbens L. (wintergreen, checkerberry, eastern teaberry) — dominant

Gaylussacia baccata (Wangenh.) K. Koch (black huckleberry) — dominant

Gaylussacia dumosa (Andr.) Torrey and A. Gray (bog hucklberry) — once, EastHead Res.

Gaylussacia frondosa (L.) Torr. et Gray ex Torr. (blue huckleberry, dangleberry) — occasional

Kalmia angustifolia L. (sheep laurel) — dominant around some ponds and in frost pockets *Kalmia latifolia* L. (mountain laurel) — once

Lyonia ligustrina (L.) DC. (maleberry) — common around ponds

Rhododendron viscosum (L.) Torr. (swamp azalea) — occasional

Vaccinium angustifolium Ait. (lowbush blueberry) — common

Vaccinium corymbosum L. (highbush blueberry) — common

Vaccinium fuscatum Ait. = *V. atrococcum* (Gray) Heller (black highbush blueberry) — occasionally common

Vaccinium macrocarpon Ait. (American cranberry, large cranberry) — occasional

Vaccinium pallidum Ait. = *V. vacillans* Kalm ex Torr. (hillside blueberry, dryland blueberry) — dominant

Eriocaulaceae

Eriocaulon aquaticum (Hill) Druce = *E. septangulare* With. (pipewort, white buttons) — common

Euphorbiaceae

Euphorbia maculata L. = *E. supina* Raf. = *Chamaesyce maculata* (L.) Small (spotted spurge) — rare

Fabaceae

Baptisia tinctoria (L.) R. Br. ex Ait. f. (yellow wild indigo, horsefly weed) — occasional

Chamaecrista nictitans (L.) Moench = *Cassia nictitans* L. (wild sensitive plant)

Cytisus scoparius (L.) Link (scotch broom) — common in some fields

Desmodium canadense (L.) DC. (showy ticktrefoil) — in sown field near College Pond

Desmodium marilandicum (L.) DC. (Maryland or smooth small-leaved tick-trefoil) — unpaved road and field edge N of Three Cornered Pond Rd.

Lespedeza capitata Michx. (round-headed bush-clover) — occasional

Lespedeza hirta (L.) Hornem. (hairy bush-clover) — occasional

Lespedeza intermedia (S. Wats.) Britt. (intermediate bush-clover) — occasional

Lespedeza thunbergii ssp. formosa (Nakai) H. Ohashi (tall bushclover) — dominant at gas line NE of East Head Res., in some fields, along some roads

Robinia hispida L. (bristly locust) — occasionally dominates (Alden Rd./high-voltage line intersection)

Robinia pseudoacacia L. (black locust) — dominant in some fields (near College Pond; off Cutterfield Rd.)

Tephrosia virginiana (L.) Pers. (goat's rue) — common

Trifolium agrarium L. = *T. aureum* Pollich (golden clover, palmate clover) — occasional

Trifolium arvense L. (rabbit-foot clover) — occasional

Trifolium repens L. (white clover) — rare

Vicia tetrasperma (L.) Schreber (four-seed vetch)

Fagaceae

Castanea dentata (Marsh.) Borkh. (American chestnut) — rare (found twice)

Quercus alba L. (white oak) — occasional to common

Quercus coccinea Muenchh. (scarlet oak) — rare

Quercus ilicifolia Wangenh. (scrub oak, bear oak) — dominant

Quercus prinoides Willd. (dwarf chestnut oak) — occasional

Quercus rubra L. (northern red oak) — occasional

Appendix C. Plant Species List for MSSF (Continued)

Fagaceae
Quercus velutina Lam. (black oak) — occasional to common
Gentianaceae
Bartonia paniculata (Michaux) Muhl. (panickled screw-stem)
Bartonia virginica (L.) B.S.P. (screw-stem)
Sabatia kennedyana Fern. (Plymouth gentian) — a single known location
Haloragaceae
Myriophyllum humile (Raf.) Morong (lowly water-milfoil)
Myriophyllum sp.
Proserpinaca palustris L. (mermaid-weed)
Proserpinaca pectinata Lam. (cut-leaved mermaid-weed)
Iridaceae
Iris versicolor L. (northern blueflag) — occasional to rare
Sisyrinchium angustifolium P. Miller (stout blue-eyed-grass) — rare
Juncaceae
Juncus articulatus L. (jointed rush) — occasional dominant
Juncus canadensis Gay ex LaHarpe (marsh or Canada rush) — occasional dominant
Juncus effusus L. (common rush) — common
Juncus greenei Oakes et Tuckerman (Greene's rush) — high-voltage line/Alden Rd. intersection
Juncus marginatus Rostk. (grass-leaf rush)
Juncus tenuis Willd. (path rush, yard rush) — occasional dominant
Lamiaceae
Hyssopus officinalis L. (hyssop) — once, at the dumpster
Lycopus uniflorus Michaux (tuberous water-horehound) — occasional
Lycopus virginicus L. (Virginia water-horehound, floodplain water-horehound) — occasional
Prunella vulgaris ssp. vulgaris L. (Eurasian heal-all) — rare
Pycnanthemum muticum (Michaux) Pers. (short-toothed mountain mint)
Pycnanthemum tenuifolium Schrader (slender-leaved mountain mint) — a single known location
Trichostema dichotomum L. (forked bluecurls) — occasional
Lauraceae
Sassafras albidum (Nutt.) Nees (sassafras) — rare
Lentibulariaceae
Utricularia cornuta Michaux (horned bladderwort, naked bladderwort) — dominant at some ponds
Utricularia gibba L. (humped bladderwort) — once, scarce
Utricularia inflata Walter (inflated bladderwort) — a single known population *Utricularia intermedia* Hayne (northern bladderwort, flat-leaved milfoil)
Utricularia purpurea Walt. (purple bladderwort) — common
Utricularia radiata Small = *U. inflata var. minor* Chapman (small floating bladderwort) — occasional
Liliaceae
Hypoxis hirsuta (L.) Cov. (yellow star-grass)
Lilium philadelphicum L. (wood lily) — rare (two known subpopulations)
Maianthemum canadense Desf. (Canada mayflower) — common
Uvularia sessilifolia L. (little merrybells) — occasional
Linaceae
Linum usitatissimum L. (common flax) — once, at West Entrance
Linum virginianum L. (Virginia yellow flax) — occasional
Lycopodiaceae
Lycopodiella inundata (L.) Holub (northern bog clubmoss) — a single known location *Lycopodium clavatum* L. (running clubmoss, common clubmoss) — rare

Appendix C. Plant Species List for MSSF (Continued)

Lycopodiaceae
Lycopodium obscurum L. (princess-pine or tree clubmoss) — rare
Lythraceae
Decodon verticillatus (L.) Ell. (swamp loosestrife, water-willow) — common
Lythrum salicaria L. (purple loosestrife) — common at some places
Melastomataceae
Rhexia virginica L. (northern meadowbeauty, wingstem meadow-pitchers) — occasional to common at some ponds
Menyanthaceae
Nymphoides cordata (Ell.) Fern. (floating heart) — common in Little Long Pond; Three-Cornered Pond
Molluginaceae
Mollugo verticillata L. (carpetweed) — rare (or occasional)
Monotropaceae
Monotropa hypopitys L. (pine-sap, false beech-drops) — rare
Monotropa uniflora L. (Indian pipe) — occasional
Myricaceae
Comptonia peregrina (L.) Coulter (sweet-fern) — common
Myrica gale L. (sweet gale) — common to dominant around some ponds
Myrica pensylvanica Loisel. (bayberry, wax-myrtle) — common
Nymphaeaceae
Nuphar variegata Durand ex Clinton (yellow water-lily) — common
Nymphaea odorata Ait. (American white waterlily, fragrant waterlily) — common
Onagraceae
Ludwigia palustris (L.) Ell. (water-purslane, mud-loosestrife) — common at Bumps Pond *Oenothera biennis* L. (common evening-primrose) — occasional to common at disturbed habitats
Orchidaceae
Cypripedium acaule Aiton (pink lady's slipper) — occasional
Goodyera tesselata Lodd. (checkered rattlesnake-plantain) — occasional around East Head Reservoir
Platanthera blephariglottis (Willd.) Lindley = *Habenaria blephariglottis* (Willd.) Hooker (white fringed orchid) — a single known location
Spiranthes cernua (L.) L.C. Rich. (nodding ladies' tresses) — a single known location *Spiranthes tuberosa* Raf. (little ladies' tresses) — a single known location
Osmundaceae
Osmunda cinnamomea L. (cinnamon fern) — rare (Wamkinco R.; W border)
Osmunda claytoniana L. (interrupted fern) — once, Wamkinco R.
Osmunda regalis L. (royal fern) — rare
Oxalidaceae
Oxalis stricta L. = *O. europaea* Jordan (common yellow wood-sorrel)
Phytolaccaceae
Phytolacca americana L. (pokeweed) — rare
Pinaceae
Larix decidua P. Miller (European larch) — rare (planted)
Picea abies (L.) Karst. (Norway spruce) — occasional to dominant (spreading from plantations)
Picea rubens Sarg (red spruce) — once, Three-Cornered Pond
Pinus banksiana Lamb. (Jack pine) — rare (planted at Charge Pond and some other locations)
Pinus resinosa Ait. (red pine) — all across the Forest; only in plantations
Pinus rigida P. Mill. (pitch pine) — dominant
Pinus strobus L. (white pine, Weymouth pine)
Pinus sylvestris L. (Scotch pine) — occasional, planted

Appendix C. Plant Species List for MSSF (Continued)

Pinaceae

Tsuga canadensis (L.) Carr. (eastern hemlock) — seen twice (Charge Pond; W Forest border)

Plantaginaceae

Plantago aristata Michaux (bracted plantain) — available image from Myles Standish: [1]

Plantago lanceolata L. (narrow-leaved plantain, English plantain) — occasional

Plantago major L. (common plantain, white man's foot) — occasional

Poaceae

Andropogon glomeratus (Walter) B.S.P. = *A. virginicus var. abbreviatus* (Hackel) Fern. et Grisc. (bunched broom-sedge) — occasional

Anthoxanthum odoratum L. (sweet vernalgrass)

Bromus inermis Leysser (awnless brome) — occasionally abundant

Bromus sterilis L. (barren brome) — occasionally abundant

Calamagrostis canadensis (Michaux) Beauv. (Canada bluejoint) — occasional

Calamagrostis coarctata (Torrey) Eaton = *C. cinnoides* W. Barton (reed bluejoint)

Dactylis glomerata L. (orchard grass) — occasional

Danthonia compressa Austin ex Peck (trail oatgrass) — common

Dichanthelium acuminatum var. fasciculatum (Torrey) Freckmann = *Panicum lanuginosum* Ell. (fascicled panic-grass) — occasional

Dichanthelium clandestinum (L.) Gould = *Panicum clandestinum* L. (deer-tongue) — occasional

Dichanthelium commutatum (J.A.Schultes) Gould (changeablepanic-grass) *Dichanthelium dichotomum* (L.) Gould = *Panicum dichotomum* L. (forked panic-grass)

Dichanthelium sp.

Digitaria filiformis (L.) Koeler (slender crabgrass)

Eragrostis spectabilis (Pursh) Steudel (purple lovegrass)

Festuca ovina L. (sheep fescue) — occasional dominant

Glyceria striata (Lam.) A. S. Hitche (fowlmeadow grass) — Hoyt's Pond

Leersia oryzoides (L.) Sw. (rice cutgrass) — Hoyt's Pond

Panicum capillare L. (witch-grass) — occasional

Panicum virgatum L. (switchgrass) — occasional

Phalaris arundinacea L. (reed canarygrass) — occasional dominant

Phleum pratense L. (timothy) — occasional

Piptochaetium avenaceum (L.) Parodi = *Stipa avenacea* L. (black oatgrass) — once, in a frost pocket

Poa compressa L. (flat-stemed bluegrass, Canada bluegrass) — occasional

Schizachyrium scoparium (Michaux) Nash (little bluestem) — dominant

Setaria faberi Herrm. ex Rosen (giant foxtail) — occurs

Setaria viridis (L.) Beauv. (green foxtail)

Spartina pectinata Link (freshwater or prairie cordgrass) — once, at Curlew Pond

Polygalaceae

Polygala cruciata L. (cross-leaved milkwort) — common to dominant around some ponds/wetlands

Polygala nuttallii Torrey et A. Gray (Nuttall's milkwort) — a single known location

Polygala verticillata L. (whorled milkwort)

Polygonaceae

Polygonella articulata (L.) Meisner (jointweed) — occasional to common

Polygonum convolvulus L. (false buckwheat, black bindweed) — once, high-voltage line

Polygonum hydropiper L. = *Persicaria hydropiper* (water-pepper)

Polygonum sagittatum L. (arrow-leaf tearthumb)

Rumex acetosella L. (sheep sorrel, red sorrel) — occasional

Pontederiaceae

Pontederia cordata L. (pickerel-weed) — common

Appendix C. Plant Species List for MSSF (Continued)

Potamogetonaceae

Potamogeton epihydrus Raf. (surface pondweed, ribbon-leaf pondweed) — occurs *Potamogeton natans* L. (floating pondweed) — occasional

Potamogeton sp.

Primulaceae

Lysimachia quadrifolia L. (whorled loosestrife) — common

Lysimachia terrestris (L.) B.S.P. (swamp-candles) — occasional

Trientalis borealis Raf. (American starflower) — common

Pyrolaceae

Chimaphila maculata (L.) Pursh (striped pipsissewa, spotted wintergreen) — occasional

Chimaphila umbellata ssp. cisatlantica (Blake) Hulten (pipsissewa) — rare

Pyrola americana Sweet = *P. rotundifolia var. americana* (Sweet) Fern. (round-leaved shinleaf, glossy shinleaf) — occasional

Ranunculaceae

Anemone quinquefolia L. (wood anemone, wind-flower) — common

Rhamnaceae

Rhamnus frangula L. = *Frangula alnus* P. Miller (glossy buckthorn) — occasional

Rosaceae

Amelanchier canadensis (L.) Medicus (thicket shadbush, eastern serviceberry, juneberry) — occasional

Amelanchier sp. cf. laevis — rare

Amelanchier stolonifera Wiegand (running serviceberry, running shadbush)

Aronia arbutifolia (L.) Ell. (red chokeberry) — seen twice, both times on west bank of East Head Reservoir

Aronia melanocarpa (Michx.) Ell. (black chokeberry) — common

Fragaria sp. — old house site at Barrett Pond

Malus baccata (L.) Borkh. (Siberian crabapple) — occasional

Malus sp. — occasional along roads

Potentilla argentea L. (silver cinquefoil)

Potentilla canadensis L. (dwarf cinquefoil)

Potentilla norvegica L. (three-finger, strawberry weed) — occasional

Potentilla recta L. (sulphur cinquefoil) — occasional

Potentilla simplex Michaux (common cinquefoil) — old house site at Barrett Pond

Prunus maritima Marsh. (beach plum) — a single known location (Kamesit Rd.)

Prunus persica (L.) Batsch (peach) — a single young fruiting tree at EastHead Res. dam

Prunus pumila var. susquehanae (Willd.) Jaeger (sand cherry) — occasional to dominant at frost pockets and along roads

Prunus serotina Ehrh. (black cherry) — common

Rosa multiflora Thunb. ex Murray (multiflora rose) — once, in field near College Pond

Rosa palustris Marsh. (swamp rose) — occasional

Rubus allegheniensis Porter (Allegheny blackberry, common blackberry) — occasional

Rubus hispidus L. (bristly dewberry, swamp dewberry) — dominant

Rubus idaeus ssp. strigosus (Michaux) Focke (wild red raspberry) — once

Sanguisorba minor ssp. muricata (Spach) Nordb. (garden burnet) — once, in backyard woods bordering the Forest

Spiraea alba var. latifolia (Aiton) Dippel = *S. latifolia (Aiton) Borkh.* (meadowsweet) — common

Spiraea tomentosa L. (steeplebush) — common

Rubiaceae

Diodia teres Walter (buttonweed) — large population at a single known location (EastHead Res. dam)

Galium palustre L. (common marsh bedstraw) — occurs

Galium pilosum Aiton (hairy bedstraw)

Appendix C. Plant Species List for MSSF (Continued)

Rubiaceae

Houstonia caerulea L. = *Hedeyotis caerulea* (L.) Hooker (bluets) — occasional (dominant around New Grassy Pond)

Ruppiaceae

Ruppia maritima L. (ditch-grass, widgeon-grass) — so far found only in EastHead Reservoir

Salicaceae

Populus grandidentata Michaux (bigtooth aspen) — occasional

Populus tremuloides Michaux (trembling aspen) — rare (found twice)

Salix atrocinerea Brotero = *S. cinerea ssp. oleifolia* (Smith) Macreight (rusty willow) — common around ponds

Salix nigra Marsh. (black willow) — seen twice (E shore of Little Long Pond, Barrett Pond)

Salix sericea Marsh. (silky willow) — seen once: a solitary bush at abandoned cranberry plantation at West border

Salix sp. (hybrid) — once: Wamkinco R. at headquarters

Salix tristis Ait. = *S. humilis var. microphylla* (Anderss.) Fern. = *S. occidentalis* Walter (dwarf upland willow) — rare (five subpopulations along roads and in two frost pockets)

Scrophulariaceae

Agalinis paupercula (A. Gray) Britton = *Gerardia purpurea var. parviflora* Bentham (small-flowered gerardia) — identified once

Agalinis purpurea (L.) Pernnell = *Gerardia purpurea* L. (purple false foxglove)

Aureolaria pedicularia (L.) Raf. = *Gerardia pedicularia* L. (fernleaf yellow false foxglove) — occasional to common (along Alden Rd.) *Gratiola aurea* Pursh (golden hedge-hyssop) — common

Melampyrum lineare Desr. (cow-wheat) — common

Nuttallanthus canadensis (L.) D.A. Sutton = *Linaria canadensis* (L.) Chaz. (blue toadflax, old-field toadflax) — common

Verbascum thapsus L. (common mullein) — occasional

Smilacaceae

Smilax glauca Walter (sawbrier, wild sarsaparilla) — common

Smilax rotundifolia L. (catbrier, bullbrier) — common

Sparganiaceae

Sparganium americanum Nutt. (common bur-reed) — occasional

Thelypteridaceae

Thelypteris noveboracensis (L.) Nieuwl. (New York fern) — rare (Wamkinco R.; W border)

Thelypteris palustris Schott (marsh fern) — rare

Typhaceae

Typha latifolia L. (broad-leaved cattail) — occasional

Verbenaceae

Verbena hastata L. (blue vervain, common vervain) — once (a large population at the dumpster)

Violaceae

Viola lanceolata L. (bog white violet, lance-leaf violet) — common around some ponds and on high-voltage line

Viola macloskeyi ssp. pallens (Banks ex DC.) M.S. Baker (northern white violet) — occurs

Viola pedata L. (birdsfoot violet) — common

Viola sagittata Aiton = *V. fimbriatula* J.I. Smith (arrow-leaf violet) — occasional

Viola x primulifolia L. (primrose-leaf violet) — occasional

Vitaceae

Parthenocissus quinquefolia (L.) Planchon (Virginia creeper) — common

Vitis labrusca L. (fox grape) — occasional

Xyridaceae

Xyris torta Small (twisted yellow-eyed grass) — common in/around some ponds and in wetland

Appendix D. Mammal Species List for MSSF

SPECIES NAME	COMMON NAME	PRESENCE AT MSSF[1]	SPECIAL HABITAT REQUIREMENTS[2]
Marsupialia – Marsupials			
Didelphis virginiana	Virginia Oppossum	Confirmed	Log or tree cavity
Insectivora – Shrews & Moles			
Sorex cinereus	Masked Shrew	Potential	Damp woodlands, ground gover
Blarina brevicauda	Short-tailed Shrew	Confirmed (DEM, 2000)	Low vegetation, damp, loose leaf litter
Parascalops breweri	Hairy-tailed Mole	Potential	Loose, moist, well-drained soil
Scalopus aquaticus	Eastern Mole	Potential	Loamy or sandy, soft moist soils containing earthworms
Chiroptera – Bats			
Pipistrellus subflavus	Eastern Pipistrelle	Potential	Warm, draft-free, damp sites for hibernation, open woods
Eptesicus fuscus	Big Brown Bat	Confirmed (DEM, 2000)	Cold, dry areas of caves or buildings for hibernation
Lasiurus borealis	Red Bat	Potential	Deciduous trees on forest edges for roosting
Lasiurus cinereus	Hoary Bat	Potential	Edges of coniferous forests
Lagomorpha – Rabbits & Hares			
Sylvilagus floridanus	Eastern Cottontail	Confirmed (Burrell & Turner, 1971)	Brush piles, stone walls, dens or burrows; herbaceous and shrubby cover
Sylvilagus trasitionalis	New England Cottontail	Confirmed (DFW, 2011)	Shrubby Pine Barrens
Lepus americanus	Snowshoe Hare	Confirmed (Burrell & Turner, 1971)	Dense, brushy cover.
Rodentia – Rodents			
Tamias striatus	Eastern Chipmunk	Confirmed	Forest edge or shrub cover, elevated perches, logs
Marmota monax	Woodchuck	Confirmed (Burrell & Turner, 1971)	Open land
Sciurus carolinensis	Gray Squirrel	Confirmed (Burrell & Turner, 1971)	Tall trees for dens or leafnests
Tamiasciurus hudsonicus	Red Squirrel	Confirmed	Woodlands with mature trees, conifers preferred
Glaucomys volans	Southern Flying Squirrel	Confirmed (DEM, 2000)	Mature trees, cavities for winter dens; arboreal lichens
Peromyscus leucopus	White-footed Mouse	Confirmed	
Microtus pennsylvanicus	Meadow Vole	Confirmed	Common mammal in New England, can occur in open woods (Godin, 1977)
Microtus pinetorum	Woodland Vole	Potential	Ground-cover of leaves (duff) or grass; moist well-drained soils
Rattus norvegicus	Norway Rat	Potential	Buildings, dumps or loose soil for digging burrows
Mus musculus	House Mouse	Potential	Buildings in winter
Zapus hudsonius	Meadow Jumping Mouse	Potential	Herbaceous groundcover, loose soils

Appendix D. Mammal Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	PRESENCE AT MSSF[1]	SPECIAL HABITAT REQUIREMENTS[2]
Carnivora – Carnivores			
Vulpes vulpes	Red Fox	Confirmed	Mixture of forest and open areas preferred, sutiable den habitat
Urocyon cinereoargenteus	Gray Fox	Confirmed (DEM, 2000)	Hollow logs, tree cavities, rock crevices
Procyon lotor	Raccoon	Confirmed	Hollow trees, dens usually located 10 ft. or more above ground
Mustela erminea	Ermine	Potential	Dense brushy cover, slash
Mustela frenata	Long-tailed Weasel	Potential	Prefers open woodland and brushland in rocky areas near water
Mephitis mephitis	Striped Skunk	Confirmed	
Canis latrans	Coyote	Confirmed	
Mustela frenata	Long-tailed Weasel	Potential	Previously excavated burrows or natural hollows for dens
Mustela vison	Mink	Confirmed (DEM, 2000)	Den sites inside hollow logs, natural cavities near lake edges
Artiodactyla – Deer & Moose			
Odocoileus virginianus	White-tailed Deer	Confirmed (Burrell & Turner, 1971)	Dense cover for winter shelter, adequate browsing

[1] Based on the available habitat data, it is possible that these species occur at MSSF. However, if marked as ~~p~~otential," their presence has not been confirmed.

[2] Habitat requirements and special habitat needs compiled from DeGraff, R.M. and D.D. Rudis, 1983, *New England Wildlife: Habitat, Natural History, and Distribution*, U.S. Forest Service, unless otherwise indicated.

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Appendix E. Bird Species List for MSSF

SPECIES NAME	COMMON NAME	BREEDING STATUS AT MSSF[1]	BREEDING FREQUENCY[2]	SPECIAL HABITAT REQUIREMENTS[3]
Ardeidae - Bitterns & Herons				
Ardea herodias	Great Blue Heron	Migrant (d'Entremont, 2000)	None	Undisturbed rookery, tall trees
Butorides striatus	Green Heron	Confirmed (DEM, 2000)	Less Common	
Botaurus lentiginosus	American Bittern	Possible Migrant (DEM, 2000)	Rare	
Gaviidae - Loons				
Gavia immer	Common Loon	Fly-over (DEM, 2000)		
Podicipedidae				
Podilymbus podiceps	Pied-billed Grebe	Possible Migrant (DEM, 2000)		
Anatidae - Geese, Swans & Ducks				
Branta canadensis	Canada Goose	Confirmed (Burrell & Turner, 1971)	Less Common	
Cygnus olor	Mute Swan	Potential (Veit & Peterson, 1993)	Common	Shallow waters with abundant vegetation
Anas rubripes	American Black Duck	Confirmed (Burrell & Turner, 1971)	Less Common	
Anas platyrhynchos	Mallard Duck	Confirmed (Burrell & Turner, 1971)	Less Common	Shallow waters
Mergus merganser	Common Mergenser	Winter Resident (DEM, 2000)		
Bucephala clangula	Common Goldeneye	Winter Resident (DEM, 2000)		
Bucephala albeola	Bufflehead	Winter Resident (DEM, 2000)		
Aix sponsa	Wood Duck	Confirmed (DEM, 2000)	Rare	
Aythya collaris	Ring-necked Duck	Migrant (DEM, 2000)		
Anas crecca	Green-winged Teal	Migrant (DEM, 2000)		
Anas discors	Blue-winged Teal	Migrant (DEM, 2000)		
Mergus serrator	Red-breasted Mergenser	Winter Resident or Migrant (DEM, 2000)		
Lophodytes cucllatus	Hooded Mergenser	Possible Migrant (DEM, 2000)		
Cathartidae				
Cathartes aura	Turkey Vulture	Confirmed (DEM, 2000)	Less Common	
Pandioninae				
Pandion haliaetus	Osprey	Common Migrant, Fly-over (DEM, 2000)		

Appendix E. Bird Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	BREEDING STATUS AT MSSF[1]	BREEDING FREQUENCY[2]	SPECIAL HABITAT REQUIREMENTS[3]
Accipitridae - Kites, Eagles & Hawks				
Accipiter gentilis	Northern Goshawk	Common Migrant (DEM, 2000)		Extensive mature mixed woodlands
Buteo jamaicensis	Red-tailed Hawk	Confirmed (Lloyd-Evans, 1974)	Common	Mature forest-field ecotone
Circus cyaneus	Northern Harrier	Confirmed (d'Entremont, 2000)	Rare	Open grasslands
Accipiter cooperii	Cooper's Hawk	Confirmed (d'Entremont, 2000)	Rare	Forests, interrupted with clearings
Buteo platypterus	Broad-winged Hawk	Confirmed (Burrell & Turner, 1971)	Rare	Extensive, dry woodlands
Accipiter striatus	Sharp-shinned Hawk	Common Migrant (DEM, 2000)		
Haliaeetus leucocephalus	Bald Eagle	Fly-over (DEM, 2000)		
Falconidae – Falcons & Merlins				
Falco sparverius	American Kestrel	Less Common Migrant (Lloyd-Evans, 1974)		
Falco peregrinus	Peregrine Falcon	Rare Migrant (DEM, 2000)		
Falco columbarius	Merlin	Rare Migrant (DEM, 2000)		
Phasianidae - Pheasants & Quails				
Bonasa umbellus	Ruffed Grouse	Confirmed (Burrell & Turner, 1971)	Common	Fallen logs amidst dense saplings
Colinus virginianus	Northern Bobwhite	Confirmed (d'Entremont, 2000)	Less Common	Brushy pastures, open woodlands
Phasianus colchicus	Ring-necked Pheasant	Stocked (Burrell & Turner, 1971)	None	
Meleagris gallopavo	Wild Turkey	Stocked (Burrell & Turner, 1971)	Common (Mason, pers.comm.)	Mast-producing, open woodlands, large conifers for roosting, water
Columbidae - Pigeons & Doves				
Zenaida macroura	Mourning Dove	Confirmed (d'Entremont, Burrell)	Abundant (DEM, 2000)	Open land with bare ground
Strigidae - Typical Owls				
Bubo virginianus	Great Horned Owl	Confirmed (Lloyd-Evans, 1974)	Common (DEM, 2000)	Large abandoned hawk nests, large tree cavities
Aegolius acadicus	Northern Saw-whet Owl	Confirmed (d'Entremont, 2000)	Less Common	Coniferous and decidious forests, tree cavities (minimum dbh 12")
Otus asio	Eastern Screech-Owl	Confirmed (d'Entremont, 2000)	Rare	Open woodlands, cavity nesting and roosting in trees (minimum dbh 12")

Appendix E. Bird Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	BREEDING STATUS AT MSSF[1]	BREEDING FREQUENCY[2]	SPECIAL HABITAT REQUIREMENTS[3]
Picidae - Woodpeckers				
Colaptes auratus	Northern Flicker	Confirmed (Lloyd-Evans, 1974)	Common (DEM, 2000)	Open areas; trees with column of decayed wood (min dbh 12") forest edges
Picoides pubescens	Downy Woodpecker	Confirmed (DEM, 2000)	Common	Trees, limbs with decay column (minimum dbh 6")
Melanerpes carolinus	Red-bellied Woodpecker	Confirmed (d'Entremont, 2000)	Rare	Mature forests with dead trees or trees with dead limbs for nesting
Picoides villosus	Hairy Woodpecker	Confirmed (d'Entremont, 2000)	Rare	Trees, limbs with decay column (minimum dbh 10")
Tyrannidae - Tyrant Flycatchers				
Contopus virens	Eastern Wood-Pewee	Confirmed (d'Entremont, 2000)	Common	Forest edge or open woods
Miachus cinerascens	Great Crested Flycatcher	Confirmed (d'Entremont, 2000)	Less Common	Mature cavity trees, deciduous forest, edges
Tyrannus tyrannus	Eastern Kingbird	Confirmed (Lloyd-Evans, 1974)	Less Common	Clearings, fields, orchards
Contopus borealis	Olive-sided Flycatcher	Confirmed (d'Entremont, 2000)	Rare	Coniferous forests near clearings. prefers to be near water
Empidonax alnorum	Alder Flycatcher	Confirmed (d'Entremont, 2000)	Rare	Areas with dense, low shrubs and clearings (edges)
Sayornis phoebe	Eastern Phoebe	Confirmed (DEM, 2000)	Common	
Vireonidae - Vireos				
Vireo gilvus	Warbling Vireo	Potential		
Vireo olivaceus	Red-eyed Vireo	Migrant (DEM, 2000)		
Corvidae - Jays & Crows				
Corvus brachyrhynchos	American Crow	Confirmed (DEM, 2000)	Common	
Cyanocitta cristata	Blue Jay	Confirmed (Lloyd-Evans, 1974)	Abundant (DEM, 2000)	
Corvus ossifragus	Fish Crow	Confirmed (d'Entremont, 2000)	Less Common	Low, coastal country near tidalwater and pine barrens
Hirundinidae - Swallows				
Tachycineta bicolor	Tree Swallow	Confirmed (d'Entremont, 2000)	Common	Cavity trees (min dbh 10") open areas, especially near water
Hirundo rustica	Barn Swallow	Confimed (DEM, 2000)	Less Common	
Paridae - Titmice				
Poecile atricapillus	Black-capped Chickadee	Confirmed (Lloyd-Evans, 1974)	Common (DEM, 2000)	Cavity trees in small woodlands, clearings or open woodlands
Parus bicolor	Tufted Tit-mouse	Confimed (DEM, 2000)	Common	

Appendix E. Bird Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	BREEDING STATUS AT MSSF[1]	BREEDING FREQUENCY[2]	SPECIAL HABITAT REQUIREMENTS[3]
Sittidae - Nuthatches				
Sitta canadensis	Red-breasted Nuthatch	Confirmed (d'Entremont, 2000)	Less Common (DEM, 2000)	Dense evergreen stands
Thryothorus ludovicianus	White-breasted Nuthatch	Confirmed (DEM, 2000)	Common	
Troglodytidae - Wrens				
Troglodytes aedon	House Wren	Confirmed (Lloyd-Evans, 1974)	Common (DEM, 2000)	Cavity trees, shrubs
	Carolina Wren	Confirmed (DEM, 2000)	Less Common	
Turdidae - Bluebirds & Thrushes				
Catharus guttatus	Hermit Thrush	Confirmed (d'Entremont, 2000)	Common	Coniferous or mixed woodlands with dense undergrowth
Hylocichla mustelina	Wood Thrush	Migrant (Lloyd-Evans, 1974)		Cool, moist, mature deciduous or mixed forest
Sialia sialis	Eastern Bluebird	Confirmed (d'Entremont, 2000)	Less Common	Low cavities, open country
Catharus ustulatus	Swainson's Thrush	Migrant (Lloyd-Evans, 1974)		
Turdus migratorius	American Robin	Confirmed (d'Entremont, 2000)	Common	
Mimidae - Mimic Thrushes				
Dumetella carolinensis	Gray Catbird	Confirmed (d'Entremont, 2000)	Common	Shrubs, thickets in open country or forest understory
Mimus polyglottos	Northern Mockingbird	Confirmed (Lloyd-Evans, 1974)	Common (DEM, 2000)	Low thickets, high perches; persistent fruits
Sturnidae - Starlings				
Sturnus vulgaris	European Starling	Confirmed (DEM, 2000)	Common	Cavity trees with 10" min dbh
Bombycilldae - Waxwings				
Bombycilla garrulus	Cedar Waxwing	Potential (Veit & Peterson, 1993)	Common	Open country with scattered trees, thickets with presistent fruits
Parulidae - Wood Warblers				
Dendroica petechia	Yellow Warbler	Potential (DeGraff & Rudis, 1987)	Common	Scattered small trees or dense shrubs, esp. near water
Dendroica pinus	Pine Warbler	Confirmed (d'Entremont, 2000)	Abundant	Larger pines over 30 ft. high (d'Entremont, 2000)
Dendroica virens	Black-throated Green Warbler	Migrant (Lloyd-Evans, 1974)		Coniferous or mixed woodlands

Appendix E. Bird Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	BREEDING STATUS AT MSSF[1]	BREEDING FREQUENCY[2]	SPECIAL HABITAT REQUIREMENTS[3]
Parulidae - Wood Warblers				
Geothlypis trichas	Common Yellow-throat	Confirmed (d'Entremont, 2000)	Common	
Mniotilta varia	Black-and-white Warbler	Confirmed (d'Entremont, 2000)	Rare	
Seiurus aurocapillus	Ovenbird	Confirmed (d'Entremont, 2000)	Common	
Vermivora pinus	Blue Winged Warbler	Confirmed (d'Entremont, 2000)	Rare	Old fields with scattered shrubs and small trees
Dendroica discolor	Prairie Warbler	Confirmed (d'Entremont, 2000)	Abundant	Disturbed areas with pines < 30 ft. (d' Entremont, 2000)
Vermivora ruficapilla	Nashville Warbler	Confirmed (d'Entremont, 2000)	Rare	Scattered trees interspersed with brush
Dendroica coronata	Yellow-Rumped Warbler	Confirmed (d'Entremont, 2000)	Less Common	Coniferous and mixed forests
Dendroica palmarum	Palm Warbler	Migrant (Lloyd-Evans, 1974)		
Vermivora chrysoptera	Golden-winged Warbler	Potential (d'Entremont, 2000)	Historic	Abandoned field and pastures grown to saplings
Dendroica pensylvanica	Chestnut-sided Warbler	Confirmed (DEM, 2000)	Less Common	
Emberizidae - Sparrows & Allies				
Junco hyemalis	Dark-eyed Junco	Migrant (Lloyd-Evans, 1974)		Woods road with cut bank, uprooted tree for nest site
Melospiza melodia	Song Sparrow	Potential (DeGraff & Rudis, 1987)	Abundant	
Pipilo erythrophthalmus	Eastern Towhee	Confirmed (d'Entremont, 2000)	Abundant	Dense, brushy understory, well-drained soils
Zonotrichia albicollis	White-throated Sparrow	Migrant (Lloyd-Evans, 1974)		
Spizella passerina	Chipping Sparrow	Confirmed (d'Entremont, 2000)	Abundant	Larger pines over 30 ft. high (d'Entremont, 2000)
Spizella pusilla	Field Sparrow	Confirmed (d'Entremont, 2000)	Less Common	Open areas with low shrubs and trees
Melospiza lincolnii	Lincoln's Sparrow	Confirmed (d'Entremont, 2000)	Rare	Low brushy growth 4-8 ft high with grassy openings
Spizella pallida	Clay-colored Sparrow	Confirmed (d'Entremont, 2000)	Rare	
Pooecetes gramineus	Vesper Sparrow	Confirmed (d'Entremont, 2000)	Rare	Open areas with short, herbaceous vegetation, singing perches
Zonotrichia leucophrys	White-crowned Sparrow	Migrant (DEM, 2000)		
Cardinalidae - Cardinals & Allies				
Cardinalis cardinalis	Northern Cardinal	Confirmed (Veit & Peterson, 1993)	Common	Thickets, vines
Passerina cyanea	Indigo Bunting	Potential		Forest- fields ecotones, brushy vegetation, elevated perches
Plectrophenax nivalus	Snow Bunting	Migrant (DEM, 2000)		

Appendix E. Bird Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	BREEDING STATUS AT MSSF[1]	BREEDING FREQUENCY[2]	SPECIAL HABITAT REQUIREMENTS[3]
Icteridae - Blackbirds, Orioles & Allies				
Agelaius phoeniceus	Red-winged Blackbird	Potential (Veit & Peterson, 1993)	Common	Grasslands, marshes
Icterus galbula	Northern Oriole	Migrant (Lloyd-Evans, 1974)		Tall scattered deciduous (preferably elm) trees
Molothrus ater	Brown-headed Cowbird	Migrant (Lloyd-Evans, 1974)		
Quiscalus quiscula	Common Grackle	Potential (Veit & Peterson, 1993)	Common	
Fringillidae - Fringilline Finches				
Carduelis tristis	American Goldfinch	Confirmed (Lloyd-Evans, 1974)	Common (DEM, 2000)	
Carduelis pinus	Pine Siskin	Migrant (DEM, 2000)		
Scolopacidae – Sandpipers & Woodcock				
Scolopax minor	American Woodcock	Confirmed (d'Entremont, 2000)	Common	Field or small forest opening for courtship activities
Actitis macularia	Spotted Sandpiper	Migrant (DEM, 2000)		
Tringa flavipes	Lesser Yellowleg	Migrant (DEM, 2000)		
Tringa melanoleuca	Greater Yellowleg	Migrant (DEM, 2000)		
Charadrius vociferus	Killdeer	Possible (DEM, 2000)	Rare	
Cuculidae – Cuckoos & Roadrunners				
Coccyzus erythropthalmus	Black-billed Cuckoo	Confirmed (d'Entremont, 2000)	Common	Low, dense, shrubby vegetation, dry, open, upland woods
	Yellow-billed Cuckoo	Confirmed (d'Entremont, 2000)	Less Common	Low, dense, shrubby vegetation, dry, open, upland woods
Chordeilinae - Nightjars				
Caprimulgus vociferus	Whip-poor-will	Confirmed (d'Entremont, 2000)	Common	Dry, open woodlands, with small to medium pine, oak or beech
Chordeiles minor	Common Nighthawk	Confirmed (d'Entremont, 2000)	Historic	
Mockingbirds & Thrashers				
Toxostoma rufum	Brown Thrasher	Confirmed (d'Entremont, 2000)	Less Common	Thickets, fields with scrub, and woodland borders
Chaeturinae - Swifts				
Chaetura pelagica	Chimney Swift	Potential (d'Entremont, 2000)	Rare	Nests almost exclusively in chimneys, but sometimes in hollow trees

Appendix E. Bird Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	BREEDING STATUS AT MSSF[1]	BREEDING FREQUENCY[2]	SPECIAL HABITAT REQUIREMENTS[3]
Kinglets				
Regulus calendula	Ruby-crowned Kinglet	Migrant (Lloyd-Evans, 1974)		
Regulus satrapa	Golden-crowned Kinglet	Confirmed (d'Entremont, 2000)	Rare	Dense, old conifer stands
Carduelinae - Finches & Grosbeaks				
Carpodacus purpureus	Purple Finch	Confirmed (Lloyd-Evans, 1974)	Rare	Coniferous trees
Carpodacus mexicanus	House Finch	Confirmed (DEM, 2000)	Common	
	Rose-breasted Grosbeak	Confirmed (DEM, 2000)	Rare	
	Evening Grosbeak	Migrant (DEM, 2000)		
Rallinae - Rails, Gallinules & Coots				
Rallus limicola	Virginia Rail	Migrant (d'Entremont, 2000)	None	Fresh water marshes
Fulica americana	American Coot	Migrant (DEM, 2000)		
Certhiidae - Creepers				
Certhia americana	Brown Creeper	Migrant (Lloyd-Evans, 1974)		
Thraupinae - Tanager				
Piranga olivacea	Scarlet Tanager	Confirmed (DEM, 2000)	Rare	Woodlands, often in pine-oak and oak-hickory forests
Laridae - Gulls & Terns				
Sterna hirundo	Common Tern	Fly-over (DEM, 2000)		
Sterna antillarum	Least Tern	Fly-over (DEM, 2000)		
Larus argentatus	Herring Gull	Fly-over (DEM, 2000)		
Larus marinus	Great Black-backed Gull	Fly-over (DEM, 2000)		
Larus delawarensis	Ring-billed Gull	Fly-over (DEM, 2000)		
Larks				
Eremophila alpestris	Horned Lark	Migrant (DEM, 2000)		

[1] Breeding status at MSSF defined as: Migrant = birds observed at MSSF during spring and fall migration; Confirmed = birds observed breeding at MSSF; Potential = birds whose breeding range and habitat requirements are fulfilled at MSSF, but have not been recorded in past field surveys.

[2] Breeding frequency documented in field observations and past surveys. Breeding frequency defined as: Abundant = found breeding frequently at high densities in MSSF; Common = often found breeding in Plymouth County area; Less Common = found breeding, but less frequently than common, at MSSF; Rare = found breeding on rare occasion at MSSF over last 15 to 30 years. Historic = historically found breeding at MSSF, but no longer breeding due to changes in habitat.

[3] Habitat requirements and special habitat needs compiled from DeGraff, R.M. and D.D. Rudis, 1983, *New England Wildlife: Habitat, Natural History, and Distribution*, U.S. Forest Service, unless otherwise indicated.

Appendix F. Amphibian and Reptile Species List for MSSF

SPECIES NAME	COMMON NAME	PRESENCE AT MSSF[1]	SPECIAL HABITAT REQUIREMENTS[2]
		Amphibians	
		Caudata - Salamanders	
Ambystoma opacum	Marbled Salamander	Potential	Ponds or swamps in wooded areas for breeding
Ambystoma maculatum	Spotted Salamander	Confirmed (DEM, 2000)	Mesic woods with semi-permenant water for breeding
Notophthalmus v. viridescens	Red-Spotted Newt	Potential	Water w/ aquatic vegetation for adult newt
Plethodon cinereus	Redback Salamander	Confirmed (DEM, 2000)	Logs, stumps, rocks etc.
		Anura - Toads and Frogs	
Bufo a. americanus	Eastern American Toad	Confirmed	Shallow waters for breeding
Scaphiopus h. holbrookii	Eastern Spadefoot	Potential	Sandy soils, temporary pools for breeding
Bufo woodhousii fowleri	Fowler‘s Toad	Confirmed (DEM, 2000)	Sandy soils, shallow waters for breeding
Hyla c. crucifer	Northern Spring Peeper	Confirmed (DEM, 2000)	Pools for breeding
Hyla versicolor	Gray Treefrog	Confirmed (DEM, 2000)	Seeps, aquatic sites for breeding
Rana catesbeiana	Bullfrog	Confirmed (DEM, 2000)	Deep permanent water with floating and emergent vegetation
Rana sylvatica	Wood Frog	Potential	Vernal pools
Rana palustris	Pickerel Frog	Confirmed (DEM, 2000)	Shallow, clear water of bogs or woodland ponds for breeding
Rana clamitans	Green Frog	Confirmed (DEM, 2000)	Water bodies
Rana pipiens	Northern Leopard Frog	Potential	Wet meadows
		Reptiles	
		Testudines – Turtles	
Chelydra s. serpentina	Common Snapping Turtle	Confirmed (DEM, 2000)	Aquatic habitat, sandy soils or gravelly soil or banks
Sternotherus odoratus	Stinkpot	Confirmed (DEM, 2000)	Permanent water bodies, entirely aquatic except when laying eggs
Clemmys guttata	Spotted Turtle	Potential	Unpolluted shallow water
Chrysemys p. picta	Eastern Painted Turtle	Confirmed (DEM, 2000)	Ponds with projecting or floating logs
Terrapene c. carolina	Eastern Box Turtle	Confirmed	Old fields, powerline clearings, ecotones with sandy soils favored
Pseudemys rubriventris	Plymouth Redbelly Turtle	Confirmed	Muddy -bottomed shallow with abundant aquatic vegetation

Appendix F. Amphibian and Reptile Species List for MSSF (Continued)

SPECIES NAME	COMMON NAME	PRESENCE AT MSSF[1]	SPECIAL HABITAT REQUIREMENTS[2]
Serpentes - Snakes			
Nerodia s. sipedon	Northern Water Snake	Confirmed (DEM, 2000)	Branches, logs overhanging water
Storeria d. dekayi	Northern Brown Snake	Potential	
Storeria o. occipitomaculata	Northern Redbelly Snake	Potential	Woodlands (prefers pine, oak-hickory, aspen, and hemlock)
Thamnophis s. sirtalis	Eastern Garter Snake	Confirmed (DEM, 2000)	
Thamnophis s. sauritus	Eastern Ribbon Snake	Potential	Mesic woodlands with aquatic habitat
Heterodon platyrhinos	Eastern Hognose Snake	Confirmed (DEM, 2000)	Sandy soils, open woodlands
Diadophis punctatus edwardsi	Northern Ringneck Snake	Confirmed (DEM, 2000)	Mesic conditions with abundant cover
Coluber c. constrictor	Northern Black Racer	Confirmed (DEM, 2000)	
Opheodrys v. vernalis	Eastern Smooth Green Snake	Confirmed (DEM, 2000)	Upland grassy opening
Lampropeltis t. triangulum	Eastern Milk Snake	Confirmed (DEM, 2000)	Slash, woodpiles, debris or loose soil for egg laying

[1] Based on the available habitat data, it is possible that these species occur at MSSF. However, if marked as ~~"p~~otential," their presence has not been confirmed.

[2] Habitat requirements and special habitat needs compiled from DeGraff, R.M. and D.D. Rudis, 1983, *New England Wildlife: Habitat, Natural History, and Distribution*, U.S. Forest Service, unless otherwise indicated.

Appendix G. Fisheries Resources of MSSF

Pond Name	Size (acres)	Average Depth (feet)[1]	Maximum Depth (feet)[1]	Location	Stocked[2]	Fishery Type[2]	Latest MDFW Survey[3]	Species Present[4]
Barrett	16	6	17	Southwest	Historically	Warm	1993	CP, YP, LmB, GS, Ps, Sf, BB
Bumps	20	1	3	East	Historically	Warm	1952	no data
Charge	23	6	17	South	Historically	Warm	1995	LmB, SmB, Ps, YP, K, AE
Cherry	2	no data	no data	North-central	No	Warm	no data	no data
College	53	10	24	Central	Historically	Warm	1995	no data
Curlew	43	11	31	Northwest	Historically	Warm	1988	SmB, LmB, BC, Ps, Bg, YP, WP, CP, BK
Doctors	2	no data	no data	Southeast	No	no data	no data	no data
East Head[5]	86	no data	no data	Southwest	No	Warm	no data	LmB
Fearing	24	10	20	South-central	Yes (currently)	Cold/ Warm	1992	YP, BT, RT, BrT, LmB, Sf, BK,
Grassy	3	no data	4	Southeast	Historically	Warm	no data	no data
Hooper	3	no data	2	North-central	No	no data	no data	no data
Little College	3	no data	no data	North-central	No	no data	no data	no data
Little Widgeon	7	no data	no data	Northwest	No	Warm	no data	CP, YP
Manters Hole	2	no data	no data	Northwest	No	no data	no data	no data
New Grassy	6	no data	5	Southeast	No	Warm	no data	no data
New Long	23	2	5	Central	Historically	Warm	1987	LmB, YP, GS
Rocky	20	no data	19	Northwest	Historically	Warm	1998	no data
Round	10	3	5	Central	Historically	Warm	1987	YP, GS
Sawpit		no data	no data	East	No	no data	no data	no data
Three Cornered	14	3	5	Central	Historically	Warm	1987	no data
Torrey	3	3	5	Central	Historically	Warm	1987	YP
Widgeon	24	7	26	Northwest	Historically	Warm	1995	YP, Ps, BB, CP, LmB, GS

[1] Water depth information taken from: McCann, J., G. Wood and E. Kraus. 1972. An Inventory of the Ponds, Lakes and Reservoirs of Massachusetts, Plymouth County. Water Resources Research Center, University of Massachusetts-Amherst, Pub No. 10-5.

[2] Fisheries type and stocking information obtained from Steve Hurley Southeast District Fisheries Manager, MDFW and McCann, J., G. Wood, and E. Kraus. 1972. An Inventory of the Ponds, Lakes and Reservoirs of Massachusetts, Plymouth County. Water Resources Research Center, University of Massachusetts-Amherst, Pub No. 10-5.

[3] Fisheries survey information obtained from Steve Hurley, Southeast District Fisheries Manager, MDFW.

[4] Fisheries species information obtained from Steve Hurley, Southeast District Fisheries Manager, MDFW.

Species Abbreviations:

AE = American Eel (*Anguilla rostrata*)
BB = Brown Bullhead (*Ictalurus nebulosus*)
BC = Black Crappie (*Pomoxis nigromaculatus*)
BK = Banded Killifish (*Fundulus diaphanus*)
BrT = Brook Trout (*Salvelinus fontinalis*)
BT = Brown Trout (*Salmo trutta*)
CP = Chain Pickerel (*Esox niger*)
GS = Golden Shiner (*Notemigonus crysoleucas*)
Ps = Pumpkinseed (*Lepomis gibbosus*)
RT = Rainbow Trout (*Salmo gairdneri*)
WP = White Perch (*Morone americana*)
LmB = Largemouth Bass (*Micropterus salmoides*)
Sf = Sunfish (*Lepomis spp.*)
SmB = Smallmouth Bass (*Micropterus dolomieui*)
YP = Yellow Perch (*Perca flavescens*)

[5] East Head Reservoir is owned by Davison Partners, a local cranberry grower.

Appendix H. Cultural Resource Policy

POLICY: The Department of Conservation and Recreation shall provide for the stewardship of all known and potential cultural resources on DCR property through sensitive resource management and planning, and compliance with local, state, and federal historic preservation regulations. DCR actions and activities shall promote and foster the preservation, protection, and appreciation of these resources.

APPLICABILITY: All DCR Divisions, Departments, Bureaus and Staff

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PROCEDURES:

I. Definitions

The following definitions explain terms used throughout this policy directive:

Cultural Resource—A district, site, building, structure, landscape, object or ethnographic resource that is at least fifty years old and has important historical, cultural, scientific, or technological associations. Cultural resources also include pre-historic or historic archaeological sites containing physical remains or indications of past human activity and/or any artifacts that have been constructed or manipulated by human influence and holding potential significance for understanding past, present, or future human behavior.

Cultural Resources Inventory (CRI)—A baseline inventory of cultural resources in the DCR system, consisting of location maps, related reports, and individual site inventory forms with background historical information.

National Register—The National Register of Historic Places is the official federal list of districts, sites, buildings, structures and objects significant in American history, architecture, archaeology, engineering and culture.

Project—Any action, activity, program, construction or land modification that is directly undertaken by DCR, receives any financial assistance from DCR, or requires the issuance of a license or permit by DCR.

Project Notification Form—The form that is completed by DCR or a private project proponent in order to notify the Massachusetts Historical Commission of a project requiring review under state or federal historic preservation regulations.

Secretary of the Interior's Standards for the Treatment of Historic Properties—General guidelines for the preservation, rehabilitation, restoration, and reconstruction of historic buildings, established by the National Park Service to encourage consistent preservation practices at the national, state, and local levels.

State Register—The State Register of Historic Places includes the following properties:

- All districts, sites, buildings, or objects listed in the National Register of Historic Places or formally determined eligible for listing in the National Register of Historic Places by the Keeper of the Register, United States Department of the Interior;
- All local historic districts or landmarks designated under local ordinances or by-laws;
- All structures and sites subject to preservation restrictions approved or held by the MHC;
- All historical or archaeological landmarks certified or listed pursuant to MGL Ch. 9, Sec. 26D+27.

Site—The location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archaeological value regardless of the value of any existing structure.

II. Mission Statement—Office of Cultural Resources

The Office of Cultural Resources (OCR) preserves the cultural heritage of Massachusetts through stewardship of DCR's historic buildings, structures, landscapes, archaeological sites, and archival resources; through training, public education, and advocacy; and through the development of innovative tools for protecting historic landscapes.

The OCR staff provides expertise, technical assistance, and project management skills in landscape preservation, historic preservation planning, archaeology, archival records management, and compliance with local, state and federal historic preservation laws. In addition to leading OCR initiatives and programs, OCR staff directly support activities undertaken by other bureaus and divisions within DCR.

III. Implementation

The Commissioner shall designate a staff person to coordinate agency implementation of this policy.

The Commissioner shall ensure that an archaeologist is on staff who meets the professional qualifications and standards for investigation and reporting as outlined in 950 CMR 70.00 and retains DCR's state permit for archaeological investigations on public lands or lands in which the Commonwealth has an interest.

The agency shall provide training on all aspects of this policy to DCR planning, engineering, project management and operations staff.

IV. Regulatory Compliance—Project Planning

During the project planning process DCR shall comply with historic preservation laws at the local, state, and federal levels, listed below. OCR serves as the Department's liaison with local historic district commissions and the Massachusetts Historical Commission (MHC) pertaining to project notifications and requests requiring assistance from and consultation with these commissions. All inquires from MHC shall be directed to OCR.

Appendix H. Cultural Resource Policy (Continued)

A. Local Landmarks and Historic Districts

Many municipalities within the Commonwealth have designated local historic landmarks and historic districts to protect the distinctive characteristics of important sites and districts and to encourage new structural designs that are compatible with their historic setting. Local Historic District Commissions review all applications for

exterior changes to landmarks or properties within local districts to ensure that changes to properties will not detract from their historic character. Review criteria are determined by each municipality.

MGL Ch. 40C http://www.mass.gov/legis/laws/mgl/gl-40c-toc.htm

B. State Register Review

DCR must notify MHC, through filing of a PNF or Environmental Notification Form (ENF), of any projects undertaken, funded, permitted, or licensed in whole or in part by the agency in order that MHC can make a Determination of Effect of the project on historic and archaeological resources listed in the State Register. DCR shall send copies of PNFs or ENFs to the local historical commissions in those communities that have received Certified Local Government status from MHC. It is the responsibility of the MHC to determine whether State Register properties exist within the project's area of potential impact. When MHC determines a proposed project will have an adverse effect on historic properties, DCR must consult with MHC and any interested parties to explore feasible and prudent alternatives that would eliminate, minimize, or mitigate the adverse effects and, following consultation, adopt such alternatives.

DCR may enter into a Programmatic Memorandum of Agreement (PMOA) with the MHC to streamline the state review process, including identifying possible activities that qualify as categorical exemptions. OCR is responsible for the coordination of any PMOA with the MHC and directly oversees implementation.

MGL Ch. 9, Sec. 26-27C http://www.mass.gov/legis/laws/mgl/9-27c.htm
950 CMR 71

C. Massachusetts Environmental Policy Act (MEPA)

Some DCR projects may require filing an ENF with MEPA in addition to the State Register Review. MHC reviews all ENFs and comments on those in which there are concerns that the project has the potential to affect significant historic or archaeological properties. MEPA regulations state that an ENF must be filed if a project involves: 1) demolition of all or any exterior part of any Historic Structure listed in or located in any Historic District listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; or 2) destruction of all or any part of any Archaeological Site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth unless the project is subject to a Determination of No Adverse Effect by MHC or is consistent with a Memorandum of Agreement with MHC that has been the subject of public notice and comment.

301 CMR 11.00 http://www.mass.gov/envir/mepa/thirdlevelpages/meparegulations/meparegulations.htm

D. Section 106 Review

DCR is required to comply with Section 106 of the National Historic Preservation Act when undertaking projects that require a permit, funding, license, or approval from a federal agency. The federal agency (or, in many cases, the recipient of federal assistance or permits) is required to notify MHC of such projects and take into account the effects of the project on historic properties that are listed or eligible for listing in the National Register of Historic Places. When the federal agency, in consultation with the MHC as the Office of the State Historic Preservation Officer, determines that a project will result in an adverse effect to those properties, the federal agency must take prudent and feasible measures to avoid, minimize, or mitigate those effects. Other interested parties such as local historical commissions or Indian Tribes are also consulted as part of the process.

16 USC 470 et seq http://www.cr.nps.gov/local-law/nhpa1966.htm
36 CFR 800 http://www.achp.gov/regs-rev04.pdf

V. Regulatory Compliance—Other ***(See also Emergency Scenarios/Procedures below)***

Other DCR activities require compliance with additional state historic preservation laws:

A. Massachusetts Unmarked Burial Law

When human skeletal remains are discovered or if human remains are disturbed through construction or agricultural activity, DCR staff must immediately notify the Office of the Chief Medical Examiner (617-267-6767, ext. 176). The Medical Examiner shall conduct an inquiry to determine whether the remains are suspected of being 100 years old or more, and, if so determined, shall immediately notify the State Archaeologist at MHC. The State Archaeologist conducts an investigation to determine if the skeletal remains are Native American. If the remains are deemed likely to be Native American, the State Archaeologist shall immediately notify the Massachusetts Commission on Indian Affairs, which shall cause a site evaluation to be made to determine if the place where the remains were found is a Native American burial site. Consultation occurs to develop a written agreement to preserve the burials in situ or, if no other feasible alternative exists, to excavate the burials.

MGL Ch. 38, Sec. 6 http://www.mass.gov/legis/laws/mgl/38-6.htm
MGL Ch. 9, Sec. 26A and 27C http://www.mass.gov/legis/laws/mgl/9-26a.htm
http://www.mass.gov/legis/laws/mgl/9-27a.htm
MGL Ch. 7, Sec. 38A http://www.mass.gov/legis/laws/mgl/7-38a.htm\

B. Preservation Restrictions

When DCR seeks to acquire a preservation restriction on a property, MHC must review and approve the language of the restriction before it is finalized. A preservation restriction means a right, whether or not stated in the form of a restriction, easement, covenant or condition, in any deed, will or other instrument executed by or on behalf of the owner of the land or in any order of taking, appropriate to preservation of a structure or site historically significant for its architecture, archaeology or associations, to forbid or limit any or all (a) alterations in exterior or interior features of the structure, (b) changes in appearance or condition of the site, (c) uses not historically appropriate, (d) archaeological field investigation without a permit, or (e) other acts or uses detrimental to appropriate preservation of the structure or site. Certain projects on properties with a preservation restriction require MHC approval.

MGL Ch. 184, Sec. 31-33 http://www.mass.gov/legis/laws/mgl/184-31.htm
http://www.mass.gov/legis/laws/mgl/184-32.htm
http://www.mass.gov/legis/laws/mgl/184-33.htm

C. Consultation with Massachusetts Native Americans

DCR must consult directly with Wampanoag (Gay Head and Mashpee) Tribal Councils and the Massachusetts Commission on Indian Affairs (MCIA) for management of the reservation in the Fall River-Freetown State Forest. DCR must consult with the Wampanoag and Nipmuc Tribal Councils on matters affecting each of those tribes. DCR must consult with the MCIA and with other tribal and intertribal councils on matters that affect all other tribes.

Executive Order 126 http://www.lawlib.state.ma.us/ExecOrders/eo126.txt

VI. Resource Management and Planning

A. OCR Program of Inventory and Evaluation

One of the primary objectives of OCR is to provide an ongoing program of inventory and evaluation of cultural resources on DCR property. This first and most critical step in cultural resource management entails identifying potentially significant cultural resources and discovering the significance or meaning of each resource within a local, statewide, and national context. To this end, OCR shall develop, maintain and oversee the use of its own statewide baseline inventory of cultural resources, known as the Cultural Resources Inventory (CRI). Information from the CRI shall be available for use by DCR staff, but it shall not be made available to the public without approval from the OCR Director, and particularly, the written approval of the State Archaeologist for requests of disclosure of archaeological site locations.

In order to recognize highly significant cultural resources, OCR shall identify those that appear to meet the criteria for the National Register of Historic Places and, in consultation with MHC, nominate them for listing on the National Register. OCR shall initiate and manage the nomination process in consultation with other DCR staff and the MHC.

OCR shall expand and update the CRI as necessary to supplement historical background and geographical information on currently inventoried cultural resources, add newly discovered cultural resources, and update baseline information on cultural resources on properties acquired or disposed by DCR, and provide information on newly inventoried cultural resources to the MHC to coordinate with MHC's Inventory of Historic and Archaeological Assets of the Commonwealth.

The CRI shall also be supplemented with other cultural resource-oriented data and publications, such as MHC inventory forms, historic structure reports, condition assessments, interpretive materials, maintenance/repair records, and archaeological impact studies.

OCR shall provide CRI information to district, regional and facility supervisors with the understanding that archaeological site locational information is confidential, not a "public record," and must be secured from inadvertent or unauthorized disclosure or from subsequent disclosure without written permission of the State Archaeologist (MGL Ch. 9, Sec 26A and 27C (950 CMR 70.13(7)). The CRI shall be used by DCR to enable informed preservation decisions as part of DCR's resource planning and management activities, including the prioritization of capital projects for stabilization, repair and adaptive reuse.

Appendix H. Cultural Resource Policy (Continued)

B. Procedures for Protecting Cultural Resources

1. Acquisition of Land and Conservation/Preservation Restrictions

OCR staff shall sit on the DCR Lands Committee and provide assistance and input into the protection of properties of significance to the state's cultural heritage through acquisition in fee, conservation restrictions, or preservation restrictions. Once an acquisition is complete, the OCR shall determine whether a baseline inventory should be undertaken on the property to identify cultural resources. Preservation restrictions must be reviewed and approved by MHC prior to DCR acquisition.

2. Resource Management Plan Development

OCR staff shall provide technical support toward the Resource Management Planning Program to insure that the protection of cultural resources is a core component of Resource Management Plans. Depending on the type of DCR facility and the scope of the RMP, this support may range from data collection and documentation to property analysis and treatment recommendations.

3. Project Planning

DCR shall make every effort to protect cultural resources on DCR property. For projects planned at any Department level, appropriate Department staff shall consult with OCR to consider potential project impacts on cultural resources. Consultation with OCR shall occur as early as possible in the planning process, but no later than the 25% design development phase. When a conflict between a project location and its impact on cultural resources is identified, cultural resource management strategies shall be brought into consideration to determine if the impact to the resource can be avoided, adverse impacts mitigated, or whether additional site investigation is necessary. OCR shall initiate and manage those activities that will minimize or mitigate adverse impacts to cultural resources.

When necessary, OCR shall conduct a coordinated program of basic and applied research to support planning for and management of cultural resources on DCR property. Repairs, rehabilitation, and other preservation activities shall follow the guidelines in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*. Adequate research to support planning and compliance with MHC Review will precede any final decisions about the treatment of cultural resources or operational activities which may impact cultural resources.

For each DCR project, a Project Notification Form (PNF), including a project description, a site plan, and photographs, shall be provided to OCR. OCR shall forward the PNF to MHC and, where required, local historic district commissions. If outside consultants are preparing the PNF, then OCR staff shall be given an opportunity to review the draft PNF before it is submitted. The submission of an Environmental Notification Form (ENF) under the Massachusetts Environmental Policy Act (MEPA) satisfies MHC notification, and no PNF is needed for project undergoing MEPA review. Copies of ENFs shall be provided to OCR.

MHC has a maximum of 30 days to make a Determination of Effect on historic resources or request supplemental information in order to make a Determination of Effect. In the event that the MHC makes a determination of "no effect" or "no adverse effect" on historic resources, the project may proceed. If MHC determines that the proposed project will have an "adverse effect" on historic resources, DCR shall consult with MHC to explore options to avoid, minimize, or mitigate the adverse effect. If, after consultation, no feasible or prudent alternative exists that would avoid the adverse effect, a Memorandum of Agreement between DCR, MHC and any other interested parties is required to resolve the adverse effect and complete the consultation process.

Appendix H. Cultural Resource Policy (Continued)

Local historic district commission review will vary by municipality. No physical work for projects shall occur until the review process has been completed with MHC and (if applicable) the local historic district commission.

4. Emergency Scenarios/Procedures

In the event an unanticipated site of archaeological or cultural significance is encountered during the project implementation stage, project work shall be halted and OCR shall be notified. OCR shall initiate the review process with MHC and make a recommendation to the Deputy Commissioner of Planning & Engineering whether or not to suspend all aspects of project implementation during consultation with MHC.

If human remains are discovered during project implementation, project work shall be halted, the area must be secured, the State Police must be notified, and the Medical Examiner (617-267-6767 ext, 176) and the DCR staff archaeologist must be contacted to determine if the remains are over 100 years old. No one should touch or remove the remains. If the remains are over 100 years old, the State Archaeologist at MHC must be notified and will consult with DCR (and the Massachusetts Commission on Indian Affairs if the remains are Native American) to avoid or mitigate impacts to the graves. In any such situation, DCR staff shall work with OCR to comply with the state's Unmarked Burial Law.

If DCR must take immediate action to avoid or eliminate an imminent threat to public health or safety or a serious and immediate threat to the environment, OCR shall be notified as soon as possible. OCR shall attempt to seek prior oral approval of the MHC for the project via telephone if written notice is not practicable, provide written notification of the emergency work within ten days, and commence full compliance with MHC review requirements within thirty days, under the terms of 950 CMR 71.10.

5. Day-to-Day Operations

Management of DCR's property shall be carried out with cultural resource protection in mind. Adverse impacts to cultural resources should be avoided and mitigated, where possible, with appropriate protection strategies. Cultural resources shall be adequately maintained, following recommended techniques where formal guidelines are in place. Cultural resource management decisions should be made with input from OCR.

Discovery of artifacts should be reported immediately to OCR, noting the exact location of the find. Be aware of sites that may be exposed or threatened by erosion or visitor impacts. Any vandalism, unauthorized digging, or removal of artifacts should be reported to the appropriate law enforcement personnel and OCR. Archaeological investigations on public lands require a permit from the State Archaeologist at MHC (MGL Ch. 9, Sec 26A and 27C (950 CMR 70)).

6. Lease/Permit Programs

The issuance of leases and permits by DCR for activities involving the physical alteration of a property must undergo MHC review with OCR and MHC, as outlined above.

The proposed issuance of DCR permits to investigate archaeological sites shall be reviewed by OCR. OCR shall coordinate the issuance of a special use permit with the State Archaeologist at MHC, who must also issue a concurrent State Archaeologist permit for any field investigations on DCR property (MGL Ch. 9, Sec 26A and 27C (950 CMR 70)).

Appendix H. Cultural Resource Policy (Continued)

7. Disposition of Real Property

The protection of cultural resources, including the preservation and continued use of significant historic buildings and structures, shall be accommodated as part of any disposition of DCR property. Under the State Register review regulations (950 CMR 71.05(e)), the transfer or sale of a State Register property without adequate conditions or restrictions regarding preservation, maintenance, or use will result in an ~~"a~~dverse effect" determination from MHC. DCR must consult with MHC and any interested parties to resolve the effect of the proposed transfer or sale of the State Register property.

Appendix I. DCR-Owned Buildings and Structures in MSSF

Use Area	Building or Structure Name	Year Built[a]	Building Condition[b]	Building Type[c]	Historic[d]	Use Status[e]
Charge Pond	North Beach Bathhouse	1972	Fair	WL	No	U
	North Beach Picnic Pavilion	1972	Good	WC	No	U
	Camping Area A Comfort Station	1972	Fair	WL	No	U
	Camping Area B - North Comfort Station	1972	Fair	WL	No	U
	Camping Area B - South Comfort Station	1972	Fair	WL	No	U
	Camping Area C Comfort Station	1972	Fair	WL	No	U
	Camping Area D Comfort Station	1972	Adequate	WL	No	V
	South Beach Bathhouse	1972	Fair	WL	No	V
	Camping Area E Comfort Station	1972	Adequate	WL	No	U
	Camping Area F Comfort Station	1972	Adequate	WL	No	U
Fearing Pond	Day Use Area CCC Bathhouse	1937	Poor	WC	Yes	V
	Day Use Area Concession Building	c. 1950	Fair	WL	No	V
	Camping Area H West Comfort Station	-	Adequate	WL	No	U
	Camping Area H East Comfort Station	-	Adequate	WL	No	U
	Camping Area I Comfort Station	-	Good	WL	No	U
Barrett Pond	Camping Area J Comfort Station #1	-	Good	WL	No	U
	Camping Area J Comfort Station #2	-	Adequate	WL	No	U
	Camping Area J Well House	-	Good	WL	No	U
College Pond	Day Use Area Bathhouse	1965	Adequate	WL	No	U
	Day Use Area Concession Building	-	Adequate	WL	No	U
Curlew Pond	Camping Area K Comfort Station #1	1965	Fail	WL	No	U
	Camping Area K Comfort Station #2	1965	Fail	WL	No	U
	Camping Area K Comfort Station #3	c. 2000	Good	UM	No	U
Fire Tower	Fire Observation Tower	1987	Good	ME	No	U
	Generator Shed	1987	Good	UM	No	U
Perry House	Single Family Dwelling	1960	Fair	WL	No	U
	Two Vehicle Garage	1962	Fair	WL	No	U
Headquarters	SE Regional and Park Headquarters (built in three phases c. 1950, 1965,1990)	1950-1990	Adequate	WL	Yes	U
	HQ Emergency Generator Shed	-	Adequate	WL	No	U
	Interpretive Center	1998	Good	UM	No	U
	Recycling Center	-	Good	PL	No	U
	Wood Storage Shed	-	Adequate	WL	No	U
	Storage Shed	-	Adequate	WL	No	U
	RV/Trailer Sanitation Dump Station	-	Adequate	CO	No	U
	Engineering Barn Offices and Storage	1945	Adequate	WC	Yes	U
Maintenance	Carpentry and Vehicle Repair Shops	1958	Adequate	WL	No	U
	Carpentry Storage	-	Adequate	WL	No	U
	Ten-Stall Vehicle Garage and Fire HQ	1958	Fair	WL	No	U
	MCI Tool Storage Shed	-	Good	WL	No	U
	Salt and Sand Storage Shed	-	Poor	WH	No	U
	Vehicle Fuel Pump Station and Tanks	-	Adequate	CO	No	U
	Vehicle Storage Pole Barn #1	-	Good	PB	No	U
	Vehicle Storage Pole Barn #2	-	Good	PB	No	U
	Fire Control Storage Garage	2010	Excellent	ME	No	U

[a] Year of construction, if known.

[b] Building System and Equipment Condition Code as used in the Massachusetts Capital Asset Management Information System (CAMIS); Excellent - Easily restorable to like new condition, minimal routine maintenance; Good - Routine maintenance required; Adequate - Some corrective and preventative maintenance required; Fair - Excessive corrective maintenance and repair required; Poor - Renovation needed; and Fail - Non-operational, replacement required.

[c] Building type refers to the construction materials. Possible materials include: CO - Concrete, poured at site; CP - Concrete, precast off-site; PL - Plastic (e.g., structures made from recycled plastic); PB - Pole barn without exterior walls; ME - Metal; UM - Unconsolidated masonry (i.e., brick, cement block or stone and mortar); WC - Wood, commercial and industrial; WL - wood, light duty.

[d] Entries in this column indicate if the building or structure is a historic resource.

[e] The status of buildings and structures are classified as C - Under construction; U - In use; or V = Vacant.

Appendix J. GIS Supplemental Information

METHODOLOGY

The following is a summary of the GIS methodology used by the Department of Conservation and Recreation (DCR) GIS Program to generate and present data within the Myles Standish Planning Unit Resource Management Plan (RMP).

Property Boundaries

The digital boundaries for each property within the Myles Standish Planning Unit can be described, based on the source data, one of three ways: highly accurate, reasonably accurate and less than accurate. Over half (59%) of the digital boundaries are based on highly accurate data, e.g. surveys and/or hydrographic or town boundaries. Approximately 22% of the digital boundaries are based on reasonably accurate data, e.g. draft parcel data, georeferenced plans and/or orthophotography. Finally, a small percentage of the digital boundaries (19%) are based on less than accurate data, e.g. a digital sketch or an undocumented source.

Demographics

The RMP's demographic information was generated using the following methodology within ArcGIS. First, the forest was buffered by 19, 26 and 42 miles using the buffer tool. Next, the Massachusetts and Rhode Island Census Block Group datalayers were analyzed to determine the characteristics of the population surrounding the forest. Each Census Block Group that intersected with either the 19, 26 or 42 buffer was selected using the select by location tool. The information for the selected Census Block Groups is summarized in Table K.1, below.

Table J.1. Summary of 2000 Census Block Groups within 19, 26 and 42 miles of Myles Standish State Forest.

	19mi	26mi		42mi	
		MA	RI	MA	RI
Sample Population	669,659	1,270,155	4,386	3,396,080	844,828
Households	248,968	482,468	1,664	1,327,488	332,322
Age[a]					
Male Children	87,957	161,243	559	390,107	102,612
Male Adults	197,896	375,224	1,360	1,055,448	251,728
Male Seniors	38,259	74,920	258	184,671	49,938
Female Children	82,231	150,388	524	366,435	95,765
Female Adults	207,674	396,780	1,368	1,117,407	267,446
Female Seniors	55,642	111,600	317	282,012	77,339
Total Children	*170,188*	*311,631*	*1,083*	*756,542*	*198,377*
Total Adults	*405,570*	*772,004*	*2,728*	*2,172,855*	*519,174*
Total Seniors	*93,901*	*186,520*	*575*	*466,683*	*127,277*
Race					
White	610,696	1,141,261	4,287	2,772,696	696,025
Black or African American	17,805	44,399	10	250,074	43,734
American Indian or Alaskan Native	2,303	3,705	0	9,731	3,907
Asian	4,578	17,710	21	148,632	21,506
Native Hawaiian or Other Pacific Islander	165	271	0	1,042	399
Some Other Race (Alone)	18,159	32,295	7	118,053	52,057
Two or More Races	15,953	30,514	61	95,852	27,200
Language					
English	206,977	395,696	1,388	1,024,072	248,367
Spanish	8,476	14,888	23	75,670	28,644
European	31,329	64,947	235	172,041	46,088
Asian	1,274	4,541	9	41,498	6,385
Other	912	2,396	9	14,207	2,838

Appendix J. GIS Supplemental Information (Continued)

Table J.1. Summary of 2000 Census Block Groups within 19, 26 and 42 miles of Myles Standish State Forest. (Continued)

	19mi	26mi		42mi	
		MA	RI	MA	RI
Income[b]					
Low	59,784	119,450	398	330,066	107,035
Medium	117,790	227,039	897	593,358	156,614
High	71,394	135,979	369	404,064	68,673
Education[c]					
Male Population >25	211,408	402,660	1,477	1,077,435	258,964
Male < H.S.	37,258	71,745	329	170,787	61,243
Male H.S.	63,885	119,030	470	276,665	68,011
Male < Bach.	54,665	101,216	391	235,805	59,057
Male Bach.	36,612	71,493	186	224,479	43,356
Male > Bach.	18,988	39,176	101	169,699	27,297
Female Population >25	239,921	461,268	1,574	1,229,844	300,944
Female < H.S.	38,395	76,545	321	190,155	72,264
Female H.S.	72,534	138,531	452	330,986	85,947
Female < Bach.	71,811	133,861	474	305,768	74,088
Female Bach.	38,502	75,714	177	241,487	42,644
Female > Bach.	18,679	36,617	150	161,448	26,001
Total >25	*451,329*	*863,928*	*3,051*	*2,307,279*	*559,908*
Total < H.S.	*75,653*	*148,290*	*650*	*360,942*	*133,507*
Total H.S.	*136,419*	*257,561*	*922*	*607,651*	*153,958*
Total < Bach.	*126,476*	*235,077*	*865*	*541,573*	*133,145*
Total Bach.	*75,114*	*147,207*	*363*	*465,966*	*86,000*
Total > Bach.	*37,667*	*75,793*	*251*	*331,147*	*53,298*
Households with Children[a]	86,560	159,097	573	387,619	101,090

a. Children = <18; Adults = 18-64; and Seniors = 65 and older.

b. Annual income, where Low = <$10K - $24,999; Medium = $25K - $74,999; and High = $75K - >$200K.

c. The highest level of education is identified by the following codes: <H.S. = no school, < 11th grade, or 12th grade no diploma; HS = high school diploma; < Bach. = < 1 year of college, > 1 of college without a diploma, or an Associate's Degree; Bach. = Bachelor's Degree; and > Bach. = a Master's Degree, professional school degree, or PhD.

It is important to note that by using the select by location tool, an acceptable amount of error was introduced into the demographic information presented in the RMP. Census Block Groups that extended beyond each buffer, similar to what is depicted below in Figure K.1, were included in the analysis. As a result, the demographic information for each buffer likely includes individuals who live farther away from the forest than indicated.

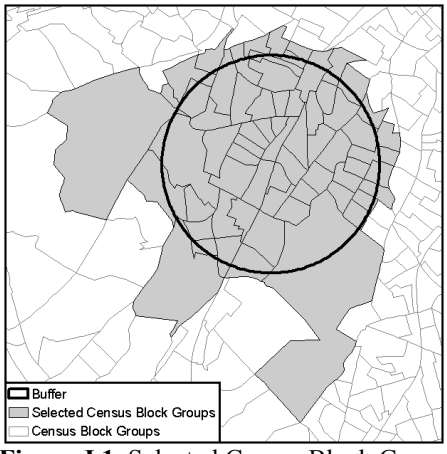


Figure J.1. Selected Census Block Groups.

Appendix J. GIS Supplemental Information (Continued)

2009 Visitor Data
The Massachusetts and Rhode Island Census Block Group datalayers were also used to create the 2009 Visitor Data map. First, the calculate geometry feature was used to determine the area, in acres, of each Census Block Group. The area was then divided into the population of each Census Block Group, using the field calculator feature, to obtain the number of individuals per acre (i.e. the population density) of each Census Block Group. This information is displayed in the background of the map, while the information related to camping reservations and known visitors is displayed as an overlay. It is important to note that the dot density feature was used to ensure that the camper and visitor points were displayed at random within each ZIP Code.

Infrastructure
The Building or Structure datalayer was digitized in ArcGIS by a DCR GIS Specialist. The 2008/2009 Color Orthophotography datalayer, Capital Asset Management Information System (CAMIS) database and field verified documentation of the buildings and structures were used as a reference.

The historic resource data were collected by the DCR Office of Cultural Resources over the course of several days in October, 2010 and January, 2011. A GPS application developed by the DCR GIS Program was used to inventory and standardize the data.

The trail and associated point data (e.g. gates, parking areas and picnic areas) were collected by consultants over the course of several weeks in the spring and summer of 2008. A GPS application was developed by the DCR GIS Program in an attempt to standardize the data. However, it is important to note that several of the trails attributes are qualitative and subjective, e.g. trail width and condition. It is assumed that the individual collecting the data used their best judgment when populating these attributes.

Land Stewardship Zoning
A DCR GIS Specialist digitized the Zone 1, Zone 2, Zone 3 and the Significant Feature Overlay datalayers in ArcGIS. The 2005 Land Use, Priority Natural Vegetation Communities, Hydrography and NHESP Pond Management Unit datalayers were used as a guide for defining Zone 1 within the Myles Standish Planning Unit. The 2008 Color Orthophotography and Trails datalayers were used to determine the existing developed areas and in turn, the planning unit's Zone 3. Every attempt was made to use ―on the ground features," such as trails or streams, as the boundary for each zone and/or significant feature overlay in an effort to make the areas easily identifiable for DCR field staff.

Zone 1

- For the non-contiguous parcel in the northwest corner of the forest, near Micajah Pond, Little West Pond and Big West Pond, the property boundaries serve as the Zone 1 boundary.
- For the contiguous parcels in the northwest corner of the forest, the property boundaries also serve as the Zone 1 boundary, less a 160 ft. gap at the southernmost end.
- A 325 ft. buffer serves as the Zone 1 boundary for South Sly Pond, Little Widgeon Pond and Pondlets, Blueberry Hill Pondlet, Federal Pond, Cherry Pond, Bumps Pond with exception of area occupied by MCI Plymouth, New Grassy Pond, Grassy Pond and Doctors Pond and Pondlets.
- In the area near Hoyts Pond and Gunners Exchange Pond, the existing roads and trails and the property boundaries serve as the Zone 1 boundary.
- In the central area of the forest, in between College Pond and East Head Reservoir, the existing roads and trails serve as the Zone 1 boundary. Snake Hill Road and Lower College Pond Road were buffered by 1,000 ft. in between Howland Road and Halfway Pond Road to serve as the western edge of the Zone 1 boundary.
- In the area east of College and Bumps ponds, the existing roads and trails and the utility line serve as the Zone 1 boundary.

Appendix J. GIS Supplemental Information (Continued)

Zone 2

- Note: a portion of the southern and western shoreline of New Long Pond is included in the Zone 2 due to a former campground in the area. This area is bounded by the utility line, existing roads and trails, the shoreline of New Long Pond and a 325 ft. buffer around a New Long Pondlet. The north-south running trail and a portion of the east-west running trail, leading to and around, in an easterly direction, the southern shoreline of New Long Pond is buffered by 100 ft.

Zone 3

- Existing roads and trails serve as the Zone 3 boundaries of Widgeon Pond, Curlew Pond, Rocky Pond, College Pond and Fearing Pond.
- A 325 ft. buffer serves as the Zone 3 boundary for Barrett Pond; the southern portion of the buffer is limited to Lower College Pond Road.
- Existing roads and trails also serve as the Zone 3 boundaries for the main portion of Charge Pond. The loop roads to and through the camping areas are buffered by 200 ft. and joined/smoothed to approximate the existing footprint of the camping areas. The parking area north of Charge Pond is included in this Zone 3.
- The existing footprints, as interpreted through the 2008/2009 Color Orthophotography datalayer, serve the Zone 3 boundaries for the parking areas at Three Cornered and Barrett ponds and the MCI Plymouth complex.
- In the headquarters and maintenance area, the existing roads and trails and the property boundaries serve as the Zone 3 boundary.

DATALAYERS

A summary of the GIS datalayers used by the DCR GIS Program to generate and display data within the Myles Standish Planning Unit RMP is presented in Table K.2.

Table J.2. Summary of datalayers used to create the Myles Standish State Forest RMP.

Datalayer Name	Source	Additional Information
19mi, 26mi and 42mi Buffer	DCR GIS	
100-Year Flood Zone	MassGIS	http://www.mass.gov/mgis/q3.htm
2000 Census Block Groups	MassGIS	http://www.mass.gov/mgis/census2000.htm; http://www.edc.uri.edu/rgis/data
2005 Land Use	MassGIS	http://www.mass.gov/mgis/lus2005.htm
2008/2009 Color Orthophotography	MassGIS	http://www.mass.gov/mgis/colororthos2008.htm
500-Year Flood Zone	MassGIS	http://www.mass.gov/mgis/q3.htm
Building or Structure	DCR GIS	
Camping Reservation (2009)	DCR GIS	
Community Groundwater Source	MassGIS	http://www.mass.gov/mgis/pws.htm
DCR District Boundary	DCR GIS	
DEP Approved Zone II	MassGIS	http://www.mass.gov/mgis/ziis.htm
Historic Resource	DCR GIS	
Hydrography	MassGIS	http://www.mass.gov/mgis/wetdep.htm; http://www.mass.gov/mgis/hd.htm; http://www.mass.gov/mgis/hd100_.htm
Infrastructure	DCR GIS	
Interim Wellhead Protection Area	MassGIS	http://www.mass.gov/mgis/ziis.htm
Known Visitor (2009)	DCR GIS	
MCI Plymouth	DCR GIS	
Myles Standish State Forest	MassGIS	http://www.mass.gov/mgis/osp.htm
NHESP BioMap Core Habitats	MassGIS	http://www.mass.gov/mgis/biocore.htm
NHESP BioMap Supporting Natural Landscapes	MassGIS	http://www.mass.gov/mgis/biosnl.htm
NHESP Certified Vernal Pool	MassGIS	http://www.mass.gov/mgis/cvp.htm

Appendix J. GIS Supplemental Information (Continued)

Table J.2. Summary of datalayers used to create the Myles Standish State Forest RMP. (Continued)

Datalayer Name	Source	Additional Information
NHESP Estimated Habitats of Rare Wildlife	MassGIS	http://www.mass.gov/mgis/esthab.htm
NHESP Living Waters Core Habitats	MassGIS	http://www.mass.gov/mgis/lwcore.htm
NHESP Living Waters Critical Supporting Watersheds	MassGIS	http://www.mass.gov/mgis/lwcsw.htm
NHESP Natural Communities	MassGIS	http://www.mass.gov/mgis/natcomm.htm
NHESP Pond Management Unit	DCR GIS	
NHESP Potential Vernal Pool	MassGIS	http://www.mass.gov/mgis/pvp.htm
NHESP Priority Habitats of Rare Species	MassGIS	http://www.mass.gov/mgis/prihab.htm
Non-Community Groundwater Source	MassGIS	http://www.mass.gov/mgis/pws.htm
Open Space	MassGIS	http://www.mass.gov/mgis/osp.htm
Outstanding Resource Waters	MassGIS	http://www.mass.gov/mgis/orw.htm
Priority Natural Vegetation Communities	MassGIS	http://www.mass.gov/mgis/natveg.htm
Roads	MassGIS	http://www.mass.gov/mgis/eotroads.htm
Significant Feature Overlay	DCR GIS	
Surface Water Intake	MassGIS	http://www.mass.gov/mgis/pws.htm
Trails	DCR GIS	
Town Boundary	MassGIS	http://www.mass.gov/mgis/townssurvey.htm
Utility Line	MassGIS	http://www.mass.gov/mgis/trnslns.htm
Watershed Boundary	MassGIS	http://www.mass.gov/mgis/watrshds.htm
Wildlife Management Area	DCR GIS	
Zone 1, 2 and 3 (Land Stewardship Zoning)	DCR GIS	

Appendix K. Land Stewardship Zoning Guidelines

Background

In July, 2003 state legislation established the Department of Conservation and Recreation (DCR), consisting of a Division of Urban Parks and Recreation, a Division of State Parks and Recreation, and a Division of Water Supply Protection. This legislation essentially merged the former Department of Environmental Management (DEM) and the Metropolitan District Commission (MDC). In addition, it required the preparation of management plans for state parks, forests and reservations under the management of the DCR (Chapter 21, Section 2F). This legislation states that management plans shall include guidelines for operation and land stewardship, provide for the protection and stewardship of natural and cultural resources, and shall ensure consistency between recreation, resource protection, and sustainable forest management.

As part of addressing this legislative requirement, land stewardship zoning guidelines will be incorporated into the development and implementation of DCR Resource Management Plans. These Land Stewardship Zoning Guidelines (Guidelines) represent a revision of the previous Land Stewardship Zoning system developed by Executive Office of Environmental Affairs (EOEA) agencies in the early 1990s, and which had been applied to the preparation of management plans for state parks, forests and reservations under the management of the former DEM.

These revised Guidelines provide a general land stewardship zoning framework for the development of Resource Management Plans for all state reservations, parks, and forests. They do not apply to Division of Water Supply Protection properties which have a separate legislative mandate and established planning procedures.

Overview of Guidelines

The Guidelines define three types of zones to address the legislative requirement to provide for the protection and stewardship of natural and cultural resources, and to ensure consistency between recreation, resource protection and sustainable forest management. The Guidelines are intended to provide a general land stewardship zoning framework that is flexible and that can guide the long-term management of a given DCR property or facility. The three zones may be supplemented with significant feature overlays that identify specific designated/recognized resource features (such as state-listed species habitat or areas subject to historic preservation restrictions). DCR parks, forests, and reservations are also subject to specific policy guidelines and/or performance standards (such as Executive Order No. 181 for Barrier Beaches), and applicable environmental laws and regulations of the Commonwealth.

Application of the three-zone system to a particular DCR park, forest or reservation is facilitated by the development and application of Geographic Information Systems (GIS) technology. GIS resource overlays provide a general screen whereby lands of special resource significance and sensitivity can be mapped and identified. General landscape features such as forested areas, wetlands, streams and ponds can also be mapped as part of this overlay approach. Further, additional data regarding recreational uses and developed sites can be added. This type of mapping and data collection, based on the best information currently available, provides the basis for subsequent analysis and ultimately the development and application of appropriate land stewardship zoning guidelines to a specific DCR facility.

Land Stewardship Zoning Guidelines provide a foundation for recommendations that will address resource stewardship and facility management objectives, and are intended to cover both existing DCR property or facility conditions, and desired future conditions for that property or facility. Proposals for changing applied Land Stewardship Zones in a previously approved Resource Management Plan should be submitted to the DCR Stewardship Council for review and adoption.

Appendix K. Land Stewardship Zoning Guidelines (Continued)

Land Stewardship Zones

Zone 1

General Description

This zone includes unique, exemplary and highly sensitive resources that require special management approaches to preserve the special features identified in the specific Resource Management Plan. Examples of these resources include rare species habitat identified by the Massachusetts Natural Heritage & Endangered Species Program (NHESP) as being highly sensitive to human activities, fragile archaeological or cultural sites, and unique or exemplary natural communities. Management objectives emphasize protecting these areas from potentially adverse disturbances and impacts.

General Management Guidelines

- Only dispersed, low-impact, non-motorized, sustainable recreation will be allowed provided that the activities do not threaten or impact unique and highly sensitive resources.
- Existing trails and roads will be evaluated to ensure compatibility with identified resource features and landscape, and will be discontinued if there are suitable sustainable alternatives. New trails may be constructed only after a strict evaluation of need and avoidance of any potential adverse impacts on identified resources. New roads may only be constructed to meet public health and safety needs or requirements; however, the project design and siting process must avoid any potential adverse impacts on identified resources and demonstrate that there are no other suitable alternatives.
- Vegetation or forest management will be utilized only to preserve and enhance identified resource features and landscapes.

Zone 2

General Description

This zone includes areas containing typical yet important natural and cultural resources on which common forestry practices and dispersed recreational activities can be practiced at sustainable levels that do not degrade these resources, and that hold potential for improving their ecological health, productivity and/or protection through active management. Examples include terrestrial and aquatic ecosystems characterized by a diversity of wildlife and plant habitats, rare species habitat that is compatible with sustainable forestry and dispersed recreation, agricultural resources, and resilient cultural sites and landscapes. Zone 2 areas may be actively managed provided that the management activities are consistent with the approved Resource Management Plan for the property.

General Management Guidelines

- Management approaches and actions may include a wide range of potential recreational opportunities and settings that are consistent and compatible with natural resource conservation and management goals.
- Utilize Best Management Practices for forestry and other resource management activities to encourage native biodiversity, protect rare species habitats, unique landforms and cultural resources.
- Protect and maintain water quality by providing for healthy functioning terrestrial and aquatic ecosystems.
- Provide a safe, efficient transportation network with minimal impact on natural and cultural resources while serving public safety needs and allowing visitors to experience a variety of outdoor activities.
- New trails may be allowed dependent upon existing area trail densities, purpose and need, physical suitability of the site, and specific guidelines for protection of rare species habitat and archaeological resources.
- Sustainable forest management activities may be undertaken following guidelines established through ecoregion-based assessments, district level forestry plans, current best forestry management practices, and providing for consistency with resource protection goals.
- Roads may be constructed if access for resource management or public access is needed and construction can be accomplished in an environmentally protective manner. Existing roads will be maintained in accordance with the DCR road classification system and maintenance policy.

- Additional site-specific inventory and analysis may be needed prior to any of the management activities described above to ensure that no adverse impacts occur to previously un-documented unique and sensitive resources and landscape features.

Zone 3

General Description

This zone includes constructed or developed administrative, maintenance and recreation sites, structures and resilient landscapes which accommodate concentrated use by recreational visitors and require intensive maintenance by DCR staff. Examples include areas developed and deemed appropriate for park headquarters and maintenance areas, parking lots, swimming pools and skating rinks, paved bikeways, swimming beaches, campgrounds, playgrounds and athletic fields, parkways, golf courses, picnic areas and pavilions, concessions, and areas assessed to be suitable for those uses.

General Management Guidelines

- The management approach and actions will emphasize public safety conditions and provide for an overall network of accessible facilities that meets the needs of DCR visitors and staff.
- Maintenance of these facilities and associated natural and cultural resources, and new construction or development, will meet state public health code, state building code and environmental regulations.
- Shorelines and surface waters may be used for recreation within constraints of maintaining public safety and water quality.
- Historic restoration, rehabilitation or reconstruction for interpretation or adaptive reuse of historic structures will be undertaken only in conjunction with a historic restoration plan.
- To the greatest extent possible, construction will include the use of ―green design" for structures, such as use of low-flow water fixtures and other water conservation systems or techniques, solar and other renewable energy sources, and the implementation of Best Management Practices to protect the soil and water resources at all facilities.

Significant Feature Overlays

General Description

The three land stewardship zones may be supplemented with significant feature overlays that identify specific designated/recognized resource features. These significant features are generally identified through an inventory process or research, and are formally designated. The purpose of these overlays is to provide more precise management guidance for identified resources and to recognize, maintain, protect or preserve unique and significant resources, regardless of the zone in which they occur. Examples of significant feature overlays include state-listed species habitat, areas subject to public drinking water regulations, or areas subject to historic preservation restrictions.

General Management Guidelines

Specific management guidelines for significant features overlays are provided by resource specialists or by the federal, state, regional or local agency that has recognized and listed the resource or site.

Appendix L. Select Regulations Applicable to MSSF[a]

CMR	Title	Comments
105 CMR 410.000	Minimum Standards of Fitness for Human Habitation (State Sanitary Code, Chapter II)	Addresses many aspects of human habitation; section 410.152 prohibits the continued use of privies unless approved in writing by the local Board of Health.
105 CMR 440.000	Minimum Standards for Developed Family Type Campgrounds (State Sanitary Code, Chapter VI)	Regulates campgrounds where three or more families or groups stay overnight or for longer periods.
105 CMR 445.000	Minimum Standards for Bathing Beaches (State Sanitary Code, Chapter VII)	Specifies water quality monitoring and closure posting requirements at bathing beaches (e.g., swim areas at Houghton's and Ponkapoag Ponds).
301 CMR 11.00	Massachusetts Environmental Policy Act (MEPA)	Requires that state agencies study the environmental consequences of their actions, including permitting and financial assistance, and take all feasible measures to avoid, minimize and mitigate damage to the environment. The purpose of MEPA review is to ensure that major projects will avoid or minimize adverse impacts to the natural and cultural resources of an area. Projects that qualify as routine maintenance projects are not required to undergo MEPA review. These projects are defined as any maintenance work or activity carried out on a regular or periodic basis in a manner that has no potential for damage to the environment, or for which performance standards have been developed that avoid, minimize, or mitigate potential environmental impacts to the maximum extent practicable.
302 CMR 10.00	Dam Safety	Includes information on the size and hazard classification of dams, as well as dam inspection, repair, alteration, and removal.
304 CMR 7.00	Management Plans	MGL Chapter 21: Section 2F, requires management plans be prepared and adopted for all reservations, parks, and forests under the control of the Department of Conservation and Recreation.
310 CMR 9.00	Waterways	These regulations define Great Ponds, and assign their control to the DEP. Chapter 91 permits or licenses are required for the construction, alteration, or removal of both temporary and permanent structures, and the placement of fill. Licenses are also required for beach nourishment, dredging, disposal of unconsolidated material below the low water mark, burning rubbish upon the water, and lowering the water level.
310 CMR 10.00	Wetlands Protection Act	Regulates many activities within 100-feet of wetlands and certified vernal pools, and within 200-feet of perennial rivers.
310 CMR 22.00	Drinking Water	Includes regulations for Transient Non-community Water Systems, which provide water to 25 or more persons at least 60 days/year.
314 CMR 4.00	Massachusetts Surface Water Standards	These standards "secure to the Commonwealth the benefits of the Clean Water Act." They designate the most sensitive uses for which the waters of the Commonwealth shall be enhanced, maintained and protected; prescribe minimum water quality criteria; and contain regulations necessary to achieve designated uses and maintain water quality. These standards include the identification and regulation of Outstanding Resource Waters.
321 CMR 2.00	Division of Fisheries and Wildlife	Addresses a variety of fish and wildlife issues, including scientific collecting permits and the importation, liberation, and transportation of fish, amphibians, reptiles, birds and mammals.
321 CMR 3.00	Hunting	Regulates hunting and trapping in Massachusetts.
321 CMR 4.00	Fishing	Regulates the taking of freshwater fish in Massachusetts.

Appendix L. Select Regulations Applicable to MSSF[a] (Continued)

321 CMR 10.00	Massachusetts Endangered Species Act (MESA)	MESA protects rare species and their habitats by prohibiting the ~~"T~~take" of any plant or animal species listed as Endangered, Threatened or Special Concern. Activities that may alter rare species habitat (e.g., trail maintenance, vista pruning, digging archaeological test pits) are subject to regulatory review. On state-owned land, ~~"a~~ll practicable means and measures shall be taken to resolve conflicts between the protection, conservation, and restoration of state-listed species…and other uses of such lands in favor of the listed species."
333 CMR 10.00	Certification and Licensing of Pesticide Applicators	Requires that anyone applying herbicides, insecticides, or other pesticides on non-residential property (i.e., all DCR properties) must be certified and licensed.
521 CMR 19.00	Architectural Access Board	Accessibility standards for rinks, pools, beaches, playgrounds, picnic areas, campsites, and other indoor and outdoor facilities. Requires that 5% of picnic facilities be accessible. Specifies dimensional, pavement marking and sign requirements for accessible parking spaces and passenger loading zones.
950 CMR 71.00	Massachusetts Historical Commission	Requires Massachusetts Historical Commission notification of projects on or near sites or buildings of historic or archaeological significance undertaken, funded or licensed by a state body.

[a] A variety of state regulations apply to both the operation of state parks and the behavior of visitors to these parks. This table includes only those regulations directly related to topics addressed in the main body of this RMP.

Appendix M. Friends of MSSF Workshop Minutes

Friends of Myles Standish State Forest (MSSF)
Resource Management Plan Workshop
Pinelands, Plantations and Wildlife
November 10, 2010

Agenda

7:00 p.m. Welcome – Sharl Heller, Friends of MSSF /Self-Introductions
7:10 Introduction to the RMP process – Jim Baecker, Mass. Department of Conservation and Recreation (DCR) Office of Regional Planning
7:20 Pre-Colonial Climax Forest and DCR Forest Reserve Designation – Andy Backman, Director of Regional Planning DCR
7:30 MSSF Vegetation Mapping and Forest Health – Paul Gregory, DCR Management Forester
7:40 Pitch Pine-Scrub Oak Forest Habitat Management Recommendations – Bob Bale, The Nature Conservancy
7:50 Important Bird Area Project – Wayne Petersen, Mass Audubon Society
8:00 Managing the Forest for Native Birds – Kathleen Anderson, Founding Director, Manomet Center for Conservation Sciences
8:10 Pine Barrens Bird Survey – Glenn d'Entremont, Friends of MSSF, FMSSF Birding Chair
8:20 FMSSF Native Bird Support Group – Melissa Guimont, FMSSF Native Bird Support Group Chair
8:30 Native Wildlife Management – John Crane, Environmental Consultant
8:40 Rare Plant and Frost Pocket Protection, Invasive Plant Control – Irina Kadis, FMSSF Native Plant Propagation Project Chair,
8:50 Open Discussion

Friends of Myles Standish State Forest (MSSF)
Resource Management Plan Workshop
Pinelands, Plantations and Wildlife
November 10, 2010

Meeting Minutes

DCR Staff in Attendance: Andy Backman, Jim Baecker, Brian Shanahan, Paul Gregory, Amy Wilmot, Heather Warchalowski

Discussion Leaders in Attendance: Andy Backman, Jim Baecker, Paul Gregory, Irina Kadis, Kathleen Anderson, Wayne Petersen, John Crane, Melissa Guimont, Glenn d'Entremont, Sharl Heller

Public Attendees: Richard Thorne, David Dimmick, Jim Nelson, Rolland Cloutier, Trevor Lloyd-Evans, Dan Fortier, Laureen Regan, Colleen Preston, Bill Vickstrom, Preston Woodburn, Paula Cheverie, Mack Phinney, Rose Mellino, Connor Crane

Sharl Heller, President Friends of MSSF opened meeting at 7 p.m. Welcome and self-introductions.

Andy Backman, Director of Regional Planning DCR – Pre-Colonial Climax Forest and DCR Forest Reserve Designation
- 1984 study of vegetation and fire history of MSSF. Sediment cores reveal area was covered in white pine and oak in 17th century.
- Increased fire in 1800's allowed pitch pine component of area to dominate, leading to ecosystem today.
- MSSF designated as a Forest Reserve in 2006 managed for biological diversity.
- Requires active management in the form of prescribed burning to maintain the rare pine barrens ecosystem.
- Under new FFVP designation, MSSF won't change it's status as a Reserve.
- Handout: See Myles Standish State Forest – "From the Ice Age to the Present" (http://www.umass.edu/nebarrensfuels/publications/pdfs/Miles_Standish_paleo.pdf)

Paul Gregory, DCR Management Forester – MSSF Vegetation Mapping and Forest Health
- Displayed MSSF map of vegetative regions - pitch pine, plantations and "experimental" plantings done at various times that have had no apparent follow up.
- DCR Forest Health Supervisor has given MSSF a good report; Gypsy moth and Winter moth apparent but not out of control.
- Red pine in plantations being taken out by Diplodia Blight.
- Harvard Forest information on core sampling.
- Bill Vickstrom asked if DCR plans to remove plantations. Paul replied that any removal of plantation trees would happen only after the Forest Future Visioning Process is completed.
- Irina Kadis said that Scotch pine in MSSF is full of holes and must be targeted by an organism. Suggested that DCR investigate what is happening to Scotch pine.

Bob Bale, The Nature Conservancy – Pitch Pine-Scrub Oak Forest Habitat Management Recommendations
- Pitch pines are amazing trees, lots of character, very hardy, much variety in form and adaptable.
- MSSF should be managed for maximum biodiversity. Harvest out plantations and protect frost bottoms.
- Plymouth pinelands is 3rd largest area in the world. New Jersey and Long Island are larger in area but neither has a forest management program to maintain the pine barrens. Great opportunity for progressive management to maintain biodiversity.
- Global climate change predictions - more intense fire season, winters warmer, increase in precipitation but more intense droughts. Growing season will expand.
- Severe wildfire endanger the public. Management of pine barrens is important for public safety, yet the same management compliments and enhances biodiversity.

- MSSF is different from most reserves where no management is desireable. Pine barrens need more and frequent disturbance either through mechanical means or by use of fire.
- Forest is hazardous, understory growth is very high at present. A fire now would be uncontrollable and high intensity. Need to reduce fuel and thin out canopy near developments to reduce crown fire potential.
- Scrub oak should be mowed every five to seven years.
- Use mechanical means to make prescribed fires safer.
- Overtime and with consistency there is a significant cost reduction in the management of fire-prone areas.
- See TNC "Fire Starter - Why We Burn in North America" (http://www.nature.org/wherewework/northamerica/states/massachusetts/science/art31890.html)

Wayne Petersen, Mass Audubon Society – Important Bird Area (IBA) Project in MSSF
- Speaking about science regarding landscape level habitat with priorities and criteria for birds only.
- MSSF is one of 79 IBA in MA, containing State or Federally listed species protected by the The Natural Heritage and Endangered Species Program (NHESP) under the MA Endangered Species Act.
- Cited: "State of the Birds in the United States 2009" (http://www.stateofthebirds.org/2009/) – 67 species of birds are endangered, 184 listed as concerned, indicate health of the environment; State Wildlife Plan (http://www.wildlifeactionplans.org/massachusetts.html); Trevor Lloyd-Evans' Manomet Center for Conservation Science bird survey from 1972. All contain valuable information on birds for MSSF.
- 30-year-old plantations in MSSF are not prolific. Burned areas enrich bird life if not too extensive.
- Hand out: IBA brochure (http://www.massaudubon.org/PDF/IBA/MAS_IBAtrifold07_finallo.pdf).

Kathleen Anderson, Founding Director, Manomet Center for Conservation Sciences – Managing the Forest for Native Birds
- What improves the forest for one species may be detrimental to another!
- For some species, periodic burning is essential.
- 5-acre burns are not large enough. Within a few years fuel loads are hot enough to kill even pitch pines.
- Prairie warbler populations in MSSF are more dense than anywhere else in the world.
- If the goal is to Manage for uncommon birds then burn ¼ of the forest every 30 years, ¼ growing, and ¼ mature and ready to burn, ¼ managed for safe camping, recreation and staff buildings.
- Hand out: Bird Habitat Recommendations for MSSF, Kathleen S. Anderson, 11/10/10.

Glenn d'Entremont, South Shore Bird Club, Friends of MSSF – Pine Barrens Bird Survey
- Conducted bird surveys in MSSF for 25 to 30 years. Nominated MSSF as an IBA. Observing a decrease in many species of birds.
- 20% of MA Whippoorwills are in MSSF.
- No Bobwhite anymore, possibly due to coyotes or that the forest is growing up.
- Pine warblers are replacing Prairie Warblers.
- Need research on Barn owls, which are state listed, to see if they will take to big bird boxes.
- Recommendation: manage forest to increase the numbers of state listed birds.
- Handouts: MSSF bird survey maps from 1991-2 and a handwritten copy of bird sightings from 1991-95, 2002-3 and 2008-9.

Melissa Guimont – FMSSF Native Bird Support Group
- Educate the public about native birds in MSSF through signs and outreach programs. Post signs alerting the public at IBAs.
- Educate DCR Staff of locations of IBAs and nesting areas.
- Increase numbers of bird boxes for various species. Use volunteers to monitor bird boxes.
- Establish nesting platforms for osprey at Fearing Pond.
- Conserve sites with priority species such as whippoorwills, prairie warblers, American kestrels and bluebirds.
- Maintain IBA such as grasslands and frost pockets by restricting recreational use dependent on seasons. Conduct an invasive plant elimination program.
- Collaborate with MassWildlife for proper maintenance of Cutter's Field, especially regarding the removal of invasive plants.

- Educate landowners about habitat enhancement through participation in native plant and bird enrichment programs.
- Promote native plant propagation and reintroduction within MSSF for the benefit of native birds.
- Allow controlled burns during times of non-breeding for birds of concern.
- Educate others about the results of planting invasive flora that will damage natural habitat that birds require.
- Educate other of natural landscaping and pest control to prevent decreased bird populations due to chemical poisoning.
- Handouts: Resource Management Plan Focus Group - Native Birds and Native Bird Events 2010 at MSSF

John Crane, Environmental Consultant – Native Wildlife Management
- Spent 39 years in forest observing wildlife.
- Whippoorwills probably displaced by coyotes that are newly arrived in the area since the 1970s.
- Get rid of plantations - "chip and ship".
- Fire breaks create habitat for grassland birds, milk snakes and frogs.
- Keep white pine for bird habitat.
- Letting nutrients build up on forest floor and leaving it alone is setting up up disaster. Manage for fire in the NE corner and along Mast Road.

Irina Kadis, Arnold Arboretum – Rare Plant and Frost Pocket Protection, Invasive Plant Control
- Categorize and prioritize invasive plants in MSSF.
- Offering an "Invasive Plant Data Collector" on the internet where volunteers can log invasive plant sightings in MSSF using GPS coordinates.
- Key to controlling invasive plants is early detection, requires education and reporting. Create large photographs of invasive plants on a watch list and post them for DCR staff and the public so they know what to look for.
- Three categories of invasive plants:
  Invasive plants not in MSSF—for which we need to watch.
  Recent invaders—ones we can deal with now while it is possible—bittersweet, Noway maple (little grove that will soon spread), glossy buckthorn (upland and wetland, collect information and map while in low quantities as they are growing with rare plants at the northern side of Easthead Reservoir), garlic mustard.
  Invasive plants well established—Autumn olive (source of infestation is Barrett's pond, Mass Wildlife fields and abutters). Powerlines are vectors for invasive plants, Japanese ?, so far only found in disturbed habitat, Norway spruce, not state-listed by should go on list (potential to destroy frost pockets). Begin program to cut Norway spruce for Christmas trees.
- Make blazing star the signature plant of MSSF as MSSF contains the only population outside of Cape Cod. Very rare but it is being mowed too early. Arrange mowing schedule to promote blazing star. Mow at the end of November.

Comments from the public
- Grouse need native grasses, clear area for fire safety but save the timber.
- Boy Scout properties, Camp Cachalot and Camp Squanto have conservation plans, mechanical control, bird boxes and whippoorwills. Camp Cachalot is 700 acres. DCR should coordinate the MSSF RMP with the Scout conservation plans.
- Mowing creates duff accumulation, taking the soils further from the mineral soil characteristic of pine barrens. It is important to burn at different times of the year. Use mechanical means to set up safe burns. Fire is essential to pitch pine.
- A good source for information on biodiversity is BioMap2 put out by MassWildlife (http://www.mass.gov/dfwele/dfw/nhesp/land_protection/biomap/biomap_home.htm)

Submitted by Sharl Heller, Friends of Myles Standish State Forest

Friends of MSSF 11/10/10 - Pinelands, Plantations and Wildlife Management

Plymouth / Carver Region Pre-Colonial Forest

In 1984 the Massachusetts Dept of Environmental Management (now DCR) and the DFW Natural Heritage & Endangered Species Program contracted with the UMass Department of Forestry & Wildlife Management to study the fire and vegetation history of Myles Standish State Forest (MSSF). The research strategy was to obtain sediment cores from the deepest part of two ponds and analyze the fossil pollen and charcoal in the sediment. Sediment cores were taken from Charge Pond and Widgeon Pond in order to compare and contrast the natural history of ponds located respectively in the glacial outwash plain in the southern part of MSSF and the moraine topography of northeastern MSSF. The sediments were processed to concentrate the pollen and charcoal that had been gradually deposited over centuries in the sediment at the bottom of the ponds. The ponds were chosen because of their size (fairly small ponds that reflect local conditions) and the fact that they are kettle holes with no inlet or outlet. The pollen that is incorporated in the mud at the bottom of the pond reflects the vegetation that existed around the pond, and the charcoal provides a record of the number and intensity of forest fires.

Local land use records and dating of the sediment cores placed the outset land clearing activities in the late-1700s for Charge Pond and approximately 1800 or very early-1800s for Widgeon Pond. Pollen analyses of pre-colonial sediment shows a forest comprised of white pine and oak species around both ponds, with hemlock and beech occurring near Widgeon Pond, and with hickory, chestnut and pitch pine as components of the 'climax forest' in the sandier soils near Charge Pond. The amount of charcoal in the sediment from Charge Pond indicates that the occurrence of fire increased dramatically during the late-1700s and 1800s. This is not surprising, because the forests were being cut to provide fuel for bog iron furnaces and other aspects of the wood product industries. This land use activity left abundant slash and there was a lack of fire suppression capabilities. The land use activities and associated wildfires allowed the pitch pine component of the pre-colonial forest to thrive and expand, leading to the pine barrens ecosystem that exists in a significant portion of MSSF today. The Nature Conservancy has preserved an example of the pre-colonial forest. The vegetation on Halfway Pond Island, which was protected from the devastating wildfires, is a relict of the pre-colonial forest.

DCR Forest Reserve Designation

MSSF was designated by DCR / EOEEA in 2006 as a Forest Reserve along with 8 other state forest areas under DCR management, totaling approximately 50,000 acres. Forest Reserves are primarily managed for biological diversity based on natural processes and the protection of large contiguous blocks of high-value ecosystems. Related to vegetation management, traditional forestry operations are not permitted.

The MSSF Forest Reserve will have to be more flexible than other Forest Reserves that have been or will be designated in Massachusetts. There are many homes surrounding MSSF that are embedded in the 'fuels' of this fire prone cover type, so prescribed burning and other vegetation management strategies will have to be used to protect lives and property. Also, the important pine barrens ecosystem might gradually change to a more arboreal forest type over the coming decades through natural succession, necessitating active management to maintain this vegetation type.

DCR will be holding a series of public meetings to discuss the criteria for designating DCR lands as Parklands, Woodlands or Reserves. This will not affect the prior designation of MSSF as a Reserve. The meetings will also provide a forum for discussing general management guidelines for each of the three landscape zones. One of the meetings is scheduled for November 30, 6:30 – 8:30 p.m. at the Bristol County Agricultural HS. Additional information about the Forest Futures process can be found on the DCR website: www.mass.gov/dcr/news/publicmeetings/forestryfvp.htm

Resource Management Plan Focus Group - Native Birds

Myles Standish State Forest

November 10, 2010

Prepared by Melissa Guimont

Suggestions for Native Bird Management

- Educate the general public of the Myles Standish native bird populations and the measures taken to promote their survival with signs, outreach programs and pamphlets. Posting signs at Important Bird Areas for the general public is also requested.
- Educate the DCR staff of locations of important bird areas and nesting areas within the forest.
- Increase the number of bird boxes within the forest for various species such as Eastern bluebirds mainly along an open, mowed area such as Fearing Pond Road and the east entrance to the forest. Mowed areas are sites where bluebirds forage for insects. These boxes will be monitored on a weekly basis by volunteers during the breeding season.
- Establish designated nesting platforms for osprey occupation along Fearing Pond.
- Monitor and conserve sites with priority species such as Whip-Poor-wills, Prairie Warblers, American Kestrels and Bluebirds.
- Maintain important bird areas such as grasslands and frost pockets by restricting recreational use dependent on seasons. Maintenance may include eradicating invasive plant species such as Spotted Knapweed (*Centaurea maculosa*) along Cutter Field and restricting access to areas unless it's hunting season.
- Collaborate on overlay areas controlled by DCR and MA Wildlife for proper maintenance of these areas. Cutter Field is an example that has a heavy concentration of invasive plants that should be removed to allow the native plants to thrive and the birds that rely on them to thrive.
- Educate landowners about habitat enhancement techniques through participation in native plant and bird enrichment programs.
- Promote native plant propagation and reintroduction within the forest for the benefit of native birds for food and shelter.
- Allow controlled burns during times of non-breeding for birds of concern such as Whip-Poor-wills or American Woodcocks.
- Educate others of the results of planting of invasive flora that will damage natural habitat the birds require.
- Educate others of natural landscaping techniques and pest control to prevent decreased bird populations due to chemical poisoning.

The Great Horned Owl, one of the many feathered residents of

Native bird species of special concern in Myles Standish State Forest:

- **Barn Owl**
- **~~Barred Owl~~** Eastern Towhee
- **Northern Saw-Whet Owl**
- **Eastern Bluebird**
- **Prairie Warbler**
- **Whip-Poor-Will**
- **Osprey**

Eastern Bluebird

Native Bird Events 2010 at Myles Standish State Forest

Earlier this year, The Friends of Myles Standish State Forest Native Bird Support Group participated in preserving the future of the Eastern Bluebird. The bluebird population is in decline throughout the region. Their population has decreased by 90% over the past 50 years. Causes of such major decline include competition with non-native birds such as House Sparrows for nest sites, loss of habitat, and pesticide poisoning. Bluebirds feed on insects that may be chemically contaminated from lawn care pesticides.

To help these birds, we held a nest box building workshop on April 10th to encourage people to build boxes for the forest and for their own backyard. Al Drollette and Joey Mason supplied pre-cut wood kits for over 10 volunteers to assemble. We sold some of these kits to the public for their own yards and made $80.00 from those sales. Al, Joey and John Roberts were then able to install 28 boxes to Cutter Field on April 25th, just past the time these birds have migrated back to this area. We have 30 boxes total in the forest with 2 pre-existing boxes near Smokey the Bear.

In addition to building and installing these boxes in the field, we needed to monitor these boxes once a week for bird activity. The nest boxes needed to be opened and checked for activity which includes nest identification, egg counting, and insect/invasive control. We needed to make sure bluebirds and native birds were the occupants of these houses and they were not being taken over by bugs or house sparrows which is an introduced species. Each week from April 30-July 31st, 3 people: Al Drollette, Melissa Guimont and Laureen Regan checked these boxes and recorded their findings.

With the late start to the nesting season, our outlook was bleak for a good bluebird count. We were pleasantly surprised with our totals. We had 8 Bluebird, 75 Tree Swallows, and 7 House Wrens successfully fledge. The fact that Bluebirds and Tree Swallows co-exist in close proximity without problems is great in helping deter other unwanted dangers such as house sparrows or flying squirrels from destroying a nest. We are pleased with the Tree Swallow count as well, since they only produce eggs once a year, unlike other birds that can raise many more broods.

Our annual meeting in May included a guest speaker, Joey Mason ~~Joey~~ whom monitors and maintains numerous American kestrel, Tree Swallow, and Eastern Bluebird nest boxes. Joey shared her extensive research with American Kestrels in southeastern MA during the past 20 years. She presented evidence about why these raptors prefer to nest in cranberry bog habitats. These small falcons are in a rapid population decline, and Joey will provide insight on why this may be happening.

Myles Standish also participated in the Important Bird Area training with MA Audubon's John Galluzzo and 7 volunteers to help with the Breeding Bird Atlas II (BBA II) program. This took place in June. We learned how to identify bird calls and recognize bird behaviors. This identification program will enable us to count birds. The data collected was used to track bird population changes since 1979, when the BBA1 was completed.

-Melissa Guimont, November 8, 2010

Bird Habitat Recommendations for MSSF
Kathleen S. Anderson 11/10/10

I want to begin by mentioning the ancient Chinese symbol for the Ying and the Yang which is interpreted as meaning ―Foɛvery action there is an equal and opposite RE-action". And in terms of habitat recommendations, this means that what improves habitat for one species may decrease habitat for another.

I will give you two examples of the complexities involved with two groups of species:

1) Two related, and uncommon, species requiring open woodlands for their ground nests: Common Nighthawk and Whip-poor-will. The Whip-poor-will has been decreasing as a breeding bird in much of Massachusetts for many years and MSSF has perhaps the largest population in Eastern MA. Presumably because of lack of appropriate habitat, the Nighthawk began nesting on flat-topped gravel roofs in cities like Boston and Worcester early in the 1900's. The MSSF is one of the few places where they are still found as ground nesters. BUT, they are only found on recently burned areas where their sooty black eggs, speckled with white, are perfectly camouflaged on burned ground.

   And so, to manage for these two relatively rare species, there needs to be some recently burned area of significant acreage….5 acres wouldn't be enough. And these areas begin to sprout scrub oak and other plants within a couple years of a burn, so there must be regular burns, hot enough to kill the pitch pines and make it an open forest.

2) The second groups of species that require a specific period of regrowth of the Pine Barrens after fire would be two warblers and the Eastern Towhee, a large ground-nesting sparrow. They require the thick brushland that develops as the scrub- oaks sprout from their roots after fire and can sometimes become an almost impenetrable thicket. Here the Common Yellowthroats and Prairie Warblers find perfect conditions. In fact the Prairie Warbler populations in scrub-oak thickets on the MSSF have been shown to be some of the most dense populations in North America.

   And if the fire which burned the forest was hot enough to kill mature trees, the 10-30 years after a fire are also the period when woodpeckers peck out nests in the dead trees, providing nest sites in subsequent years for bluebirds, tree swallows, crested flycatchers, nuthatches and wrens.

   And so, from the point of view of all of these species, periodic fires are essential.

In recent years White Pines appear to be increasing in our forests, and with their appearance, the Pine Warbler is becoming a more common bird. If the White Pines grow to tall mature trees, they in turn will provide increased habitat for Great Horned Owls, Red-tailed Hawks and other birds requiring a forest type unlike the typical Pitch Pines and Scruboaks of the Pine Barrens. In fact, perhaps 45 or 50 years ago when I was with a groupof Girl Scout leaders staying in a scout camp somewhere in the forest, I was amazed one early morning to see a Pileated Woodpecker fly over, a bird I think of as usually limited to areas of mature White Pines, large enough to accommodate the big rectangular cavities they hollow out for nests. Unless this bird was a transient, there must have been big white pines in the vicinity.

To sum up my recommendations, foresters may not like this but, if the goal is to manage for uncommon birds with specific habitat requirements in the pine barrens, we should think in terms of about 1/4 of the forest burned every 30 years, 1/4 growing up, and 1/4 fully mature and ready to burn, and the final quarter being the forest surrounding headquarters and the ponds with campsites. I am quite aware many of you won't like this at all, but I was asked to make recommendations based on what birds need, not humans.

TO MSSF RMP MEETING ONE—ON PLANTS OF DRY HABITATS Irina Kadis, Alexey Zinovjev

1. SUGGESTIONS FOR INVASIVE PLANT MANAGEMENT

a. General suggestions

- Inform DCR staff and visitors about invasive species. Produce a display of photo materials for each invasive species occurring in MSSF
- Since early detection is a key approach, promote knowledge about well-known offenders in the area that are **not found in MSSF**. These are, for example, *Ailanthus altissima* (tree-of-heaven), *Euonymus alata* (burning bush), *Polygonum cuspidatum* (Japanese knotweed), *Polygonum perfoliatum* (mile-a-minute), *Lonicera japonica* (Japanese honeysuckle), *Euphorbia cyparissias* (cypress spurge). Reporting and removing them when they are first spotted can help avoid significant problems later on
- Differentiate between invasive species that are common in the park and thus difficult to manage and those that have only **appeared recently and thus can be controlled**, such as *Acer platanoides* (Norway maple), *Celastrus orbiculata* (Oriental bittersweet), *Rhamnus frangula* (glossy buckthorn), *Alliaria petiolata* (garlic mustard)
- Target **specific areas** where invasive plants directly affect rare species or valuable species-rich habitats
- **Collaborate** with Mass Wildlife, NSTAR, and other parties, including the Friends of MSSF, as needed, on invasive plant eradication projects. Establish partnerships with Mass Wildlife particularly on those problematic species that were deliberately introduced to the Forest by Mass Wildlife as forage plants for fowl: autumn olive, Japanese lespedeza. Monitor advancement of Japanese lespedeza along roads and power lines from year to year.
- Collaborate with the Friends of MSSF and Mass Wildlife, as a stakeholder at Cutter Field, the most heavily spotted-knapweed infested area of MSSF, on developing and implementing **a program for spotted knapweed control**
- Collect information on **distribution and dynamics** of invasive species within MSSF. See MSSF Invasive Plant Data Collector at http://www.fmssf.salicicola.com/invasive/entry/, http://www.fmssf.salicicola.com/invasive
- Survey gas and electric power lines and other disturbed sites as potential vectors of infestation. Establish a partnership with NSTAR

b. Plants on the MA Invasive Plant List present in MSSF

Rhamnus frangula—glossy buckthorn

Occurring both in relatively dry and wet habitats ; not yet widespread and thus can be dealt with, especially at the stage of small seedlings.

—Map and work on extermination at critical spots (one already known area)

Acer platanoides—Norway maple

A new invader. The only one known small group of a few saplings is at Barrett Pond.

—Location has been reported to DCR staff

Robinia pseudoacacia—black locust

A rather large infestation: groves of seedlings from old trees, which were probably once planted in the fields.

—Old fruiting trees to be mapped and taken down; progeny brush in the fields can be mowed

Elaeagnus umbellata—autumn olive

Once deliberately introduced MSSF, this plant has expanded its range since. Extensive plantings still exist in Cutter Field.

—Collaborate with Mass Wildlife on dealing with the plantings

—Map and take down large solitary bushes elsewhere in the Forest, such as those at Barrett Pond

Lonicera morrowii—Morrow‘s honeysuckle

Occurs across the Forest, particularly in open fields.

Centaurea maculosa—spotted knapweed
A large infestation at Cutter Field and small satellite patches across the Forest. The Friends have initiated monitoring/control project in collaboration with the DCR. Currently known mapped locations are available at
http://www.fmssf.salicicola.com/projects/invasive/images/MSSF_Centaurea_CutterField_201009.jpg
http://www.fmssf.salicicola.com/projects/invasive/images/MSSF_Centaurea_201009.jpg
Biomethod appears to be the only feasible method for control of spotted knapweed at Cutter Field.
—Biomethod for spotted knapweed (using weevils) has been applied in MA at an airforce base (Westover AFB)
—Consult Chris Buelow, Assistant Restoration Ecologist, NHESP (508)389-6350
chris.buelow@state.ma.us , who has experience with spotted knapweed in Falmouth
—MassWildlife needs to step in for Cutter Field

Phalaris arundinacea—reed canarygrass
A large infestation at Cutter Field and small satellite patches across the Forest.
Appears to be introduced to pristine open habitats (frost pockets) on the wheels of illegal off-road vehicles. See photos:
http://www.salicicola.com/servlet/PlantsPhotoManager?style=imgview.xsl&mode=public&image=5064:/photos/201009/20100919$olymp024cs.jpg
and
http://www.salicicola.com/servlet/PlantsPhotoManager?&loc=&town=&mode=public&mon=&image=5064:/photos/201009/20100919$olymp025cs.jpg

Cynanchum louiseae —black swallowwort
Occurs in open fields.

Berberis thunbergii—Japanese barberry
—To be checked

c. Plants not yet deemed invasive in MA, though officially invasive in other states
Picea abies—Norway spruce **(invasive in NC and other Appalachian states)**
Expanding from abundant plantings and plantations, especially into frost pockets.
With invasive conifers, all it takes is one-time action: it won't grow back, once taken down.
See notes at http://www.salicicola.com/notes/frost/
and http://www.salicicola.com/plants/invasive/notes/20101024picea.html
—Take down newly emerged groves of young spruces in open habitat on both sides of Kamesit Way; do it in December and distribute/sell as Christmas trees or let volunteers harvest their own Christmas trees and thus eliminate the necessity of using heavy machinery at vulnerable habitat.
—Collect info and build the case for deeming officially invasive

Robinia hispida—bristly locust **(invasive in MI, NJ, OH, PA, and WA). Dominating some disturbed habitats.**
— Map and produce reports to build the case

Jasione montana—sheep's bit
This annual has been recently advancing massively through mowed areas along highways 495, 24, and 128; found in towns south and west of Boston; present in MSSF along roads and in fields. See note at http://www.salicicola.com/plants/invasive/notes/20090809jasione.html
— Collect evidence to build a case

Malus floribunda—Japanese flowering crabapple

Malus baccata—Siberian crabapple

d. A problematic plant specific to MSSF

Lespedeza thunbergii ssp. *formosa*—Japanese lespedeza

This suffruticose plant appears to have been deliberately introduced to MSSF by Mass Wildlife as a forage plant for fowl.

23 images from MSSF with comments are available at
http://www.salicicola.com/servlet/PlantsPhotoManager?style=imgview.xsl&mode=public&image=11970:/photos/200609/20060930$fujif135s.jpg

Report to NHESP (2007) is posted at
http://www.salicicola.com/plants/invasive/reports/Lespedeza/page1.html

—To be monitored: collect GPS info on dynamics along power lines and roads from year to year and report any presence in undisturbed habitats in order to build the case

2. ALIEN PINES INTRODUCED TO MSSF

Pinus sylvestris—Scotch pine

Present in small quantities both as planted and naturalized across the Forest. Everywhere where it occurs it currently experiences an insect (borer) problem, possibly in conjunction with some other disease. Dead scotch pines have become prominent all across MSSF. What the agent is, why it now affects specifically Scotch pine, and whether Scotch pine can become a vector of spreading the insect/disease to the two native pines is yet to be investigated.

—Contact UMass Extension specialists for the insect ID

3. SUGGESTIONS FOR RARE PLANT MANAGEMENT

a. General suggestions

- Establish cooperative partnerships with other stakeholders and property owners within/around MSSF in order to account for and protect populations of rare plants: MassWildlife, Makepeace Co., other private owners, and abutters
- Accomplish targeted invasive-plant management in the areas of plants of concern (delegate assignments to the Friends group)
- Work with NHESP on developing guidelines for presenting the need for rare-plant HABITAT PRESERVATION to the public. Educate general public (specifically addressing each of the users' groups, such as campers, fishermen, hunters, equestrians, and hikers) as regards CARE/CONCERN FOR HABITATS of rare-plant populations. Develop warning signs designating habitats of importance.
- Some listed plants could be encouraged/reintroduced to the Forest through PBCI project: collect seed from the Forest, propagate, and re-introduce (example: New England blazing star)

b. State-listed species of dry habitats

Corema conradii—broom crowberry **(Special Concern)**

The population at the southern MSSF border is unique, as it appears to be the only one in MA outside Cape Cod. It is currently in decline due to multiple causes: lack of fire for many years; OHV routes decimating the clone; climate changes during recent years, which may be detrimental for this early-blooming plant (normally it starts flowering in March). Warm weather spills in February provoke precocious flowering, and then the flowers are killed with the return of frost. Thus climate changes may effectively prevent the population from setting seed.

—Map and consider jurisdiction for the different parts of population: MSSF, propbably Wareham Fire District Land, and Makepeace property. Are Makepeace's plans for this territory known?

—Block with wood debris multiple illegal OHV routes devastating the population or consider fencing

—Propose to NHESP to burn a **small** area within MSSF and make observations of vegetation recovery

—Carry out annual phenological observations (of flowering/fruiting)

Liatris scariosa var. *novae-angliae*—New England blazing star **(Special Concern)**
Known to grow along two paved roads in MSSF, blazing star benefits, but at the same time suffers from roadside mowing; two invasive species have been found in close proximity . This showy plant has potential to become a signature plant of MSSF. It has been already propagated with a permit from NHESP and re-introduced to the East Entrance Garden and the headquarters. (Maps /report for known subpopulations in MSSF available.)
—Control spotted knapweed and Japanese lespedeza
— Postpone mowing roadside until late November in order to allow for seed dispersal
—Further promote blazing star through PBCI project: propagate and re-introduce

Spiranthes tuberosa—little ladies' tresses **(Watch-Listed Orchid)**
A rather large population of this tiny orchid (more than 200 flowering plants observed in 2010) is scattered within an extensive area.
—Collaborate with Mass Wildlife and Friends of MSSF to manage spotted knapweed in close proximity
—Check with Heritage if this is a known location; produce a report if needed

Pyptochaetium avenaceum—black oatgrass **(Watch-Listed)**
Found only in a pristine frost-pocket habitat. No physical action needed.
—Check with Heritage if this is a known location; produce a report if needed

Polygalla nuttallii—Nuttall's milkwort **(Watch-Listed)**

Polygala verticillata—whorled milkwort **(Watch-Listed)**
Both milkworts found along/on small unpaved roads. They are tiny annuals that don't suffer from mowing.
—Check with Heritage if this is a known location; produce a report if needed

c. Locally rare in eastern counties, without official status
Salix tristis, syn. *Salix occidentalis*—dwarf upland willow
MSSF harbors a rather large population distributed between at least two frost pockets and along some paved and unpaved roads (Alden Rd., Three-Cornered Pond Rd. East, and a paved bike trail). Roadside subpopulations successfully cope and benefit from roadside mowing. Seed dispersal occurs early in the season, and thus mowing does not interfere with it. The clone along Alden Rd. is recovering from road paving of 2009, during which a part of it was destroyed.
—The clone along the bike trail is the smallest and most vulnerable. Its decline is most probably explained by lack of light, so it might benefit from a small opening
— DCR staff has to be aware of the presence of this dwarf willow, which only grows to 1-2 ft tall

Prunus pumila var. susquehanae—creeping cherry
Within MSSF it is relatively common—much more than dwarf willow, though distributed in the same open habitats: in frost pockets and along roads. Since it gets mowed long after it disperses fruit, there is no immediate concern. We don't have any data as to how widespread this cherry is outside MSSF.
—To be promoted for gardening as an excellent groundcover for relatively dry open lots through the PBCI Program

Gaylussacia dumosa —dwarf huckleberry
One known location on northeastern shore EastHead Reservoir. Invasive glossy buckthorn is present at this location, a valuable, species-rich habitat. The source of glossy buckthorn seedlings is unknown.
-- Control glossy buckthorn and locate old glossy buckthorn plant(s), the source of infestation

Platanthera blephariglottis—white fringed orchid
One of the most exquisite of Massachusetts' orchids. The only known spot in MSSF has been largely overtaken by both native and alien shrubs, which have caused a considerable decline. It hardly bloomed in 2010, while back in 2007 it had produced more than 50 flowering plants at the same location.
—Clean glossy buckthorn (same spot as with *Gaylussacia dumosa*), Japanese lespedeza; cut back red maple and some common native shrubs. This small project needs to be carefully implemented during the winter, so the orchid is not damaged; to be repeated every 3-4 years.

Spiranthes cernua—nodding ladies' tresses (orchid)
Sharing habitat/problems with *Platanthera blephariglottis*; **plus another habitat at the waterfront (see wet habitats, intended for Meeting Two)**

Goodyera tesselata—checkered rattlesnake plantain (orchid)
A tiny orchid of pine forest, which mostly occurs in MSSF in old white pine stands. No immediate concern.

Lilium philadelphicum—wood lily
The deer population may be responsible for the rarity of the lily in the open habitats.
—Run a fencing experiment
—Propagate and promote within the Forest through PBCI program

Tephrosia virgininana—goat's rue

Pycnanthemum muticum —short-toothed mountain mint

Pycnanthemum tenuifolium —slender-leaved mountain mint

d. Rare within MSSF, even though there is appropriate habitat; common outside MSSF
Prunus maritima—beach plum (a single known clone)
Kalmia latifolia—mountain laurel (a single known location)
Ilex opaca—American holly (two known locations, a solitary plant in both cases)
Betula papyrifera —paper birch (a few trees scattered along eastern/northern shore of EastHead Reservoir)
Populus tremuloides —trembling aspen (very uncommon, as opposed to big-tooth aspen)
Juniperus communis —common juniper, pasture juniper
Juniperus virginiana —eastern red cedar
Asclepias amplexicaulis —clasping milkweed

Friends of Myles Standish State Forest (MSSF)
Resource Management Plan Workshop
Ponds and Vernal Pools
November 17, 2010

Agenda

7:00 p.m.	Welcome – Don Matinzi, MA Department of Conservation and Recreation (DCR) Sharl Heller, FMSSF/ Self-Introductions
7:10	Introduction to the RMP process – Jim Baecker, DCR Office of Regional Planning
7:15	DCR Lakes and Ponds Program – Jim Baecker, DCR
7:30	Water-Based Recreation – Don Matinzi, DCR Cape Cod District Manager
7:45	Vernal Pool Management – Heather Warchalowski, DCR Ecologist
8:00	The Wetlands Protection Act and MSSF – Evelyn Strawn, Plymouth Conservation Commission
8:15	Northern Red-Bellied Cooter Re-introduction Program – John Crane, Environmental Consultant
8:30	MSSF Vernal Pool Inventory Program – Jessica Thomas, Volunteer
8:45	Aquatic Invasive Plants in MSSF – Irina Kadis, Arnold Arboretum

Additional Workshops

Interpretive Services and Cultural Resources – December 2, 2010
Recreational Resources – January 6, 2011
Infrastructure – January 6, 2011

Friends of Myles Standish State Forest (MSSF)
Resource Management Plan Workshop
Vernal Pools & Ponds
November 17, 2010

Meeting Minutes

Department of Conservation and Recreation Staff in Attendance: Brian Shanahan, Regional Director Southeast Massachusetts Division of State Parks & Recreation; Cape Cod District Manager Don Matinzi; Jim Baecker, Office of Regional Planning; Ecologist, Bureau of Planning and Resource Protection Heather Warchalowski; Assistant Management Forester Paul Gregory

Discussion Leaders: Jim Baecker, Don Matinzi, Heather Warchalowski, Evelyn Strawn, John Crane, Jessica Thomas, Irina Kadis

Public Attendees: Connor Crane, Roland Coultier, Bill Vickstrom, Laura Troll, Jim Nelson, Thom Gifford, Claude Hart, Debbie Hart, Pam Crowell, Dianne Cosman, Rose Melino, Jim Morrissey, John Neider, Helga Stottmeier, Dan Fortier, Amanda DeLima, Claire Smedile, John Welsh, Casey Shetterly, Sharl Heller

Sharl Heller, President Friends of MSSF – Opened the meeting at 7 p.m. *Welcome and self-introductions*

Jim Baecker – *Ponds of Myles Standish State Forest*
- The 59 MSSF kettle hole ponds in MSSF are fed directly by the groundwater aquifer. Water quality in the aquifer is high. Water levels in the ponds fluctuate directly with the water table from year to year and during the season. Coastal pond shore communities contain animals and insects that have adapted to these fluctuations and only exist in coastal plain ponds. Nineteen state-listed rare insect and plant species have been documented in the coastal plain pond shore communities at MSSF. Concern about exceeding the sanitary code for bacteria levels. Last year in August, six tests at College Pond and three at Curlew Pond exceeded allowable levels.
- DCR Ponds and Lakes Program restored Banks at Fearing Pond in 2009. Last state conducted water quality survey was in 2004. The 2004 tests found low nutrient and high dissolved oxygen levels in Charge, Fearing and College Ponds. Camp owners also periodically conduct the tests of wells at Fearing, College, Rocky, Curlew and Widgeon Ponds.

Don Matinzi – *Water-Based Recreation*
- People have been swimming here for 400 years. MSSF was created in 1916. Beginning in 1919, private camps were leased to individuals at Curlew, Widgeon, College, Rocky and Fearing ponds. Population is doubling every ten years and recreational use of the forest has increased as open space diminishes. There has been a 7-fold increase in people coming to the forest. 2010 saw the highest attendance ever recorded, with the majority of visitors coming from Brockton, Fall River, Taunton. many ponds are inaccessible. Camping is driven by water-based recreation. Community buildout is expected at 700,000. The RMP is very important to sustaining the forest given the heavy recreational demand.
- Thom Gifford - Widgeon Pond has no public access and 3-Cornered Pond is only 5 feet deep.
- Jim Nelson - Picnic areas at Widgeon and Fearing are closed
- Claude - Hunting and fishing here is good. The forest is gorgeous but some use it as a dump.

Heather Warchalowski – *Vernal Pool Management*
- New aerial maps show potential vernal pools. Vernal pools are nurseries for many organisms. The best management is to leave it alone, unless the area is being impacted by human activity. MA has the strongest regulations in the country for protecting vernal pools. 1987 was the first vernal pool protection. There are 8 criteria for certifying vernal pools: 1) water contained for 2 months for most years ; 2) springtime through

summer; 3) fishless system; 4) contains obligate species; 5) depression in land; 6) associated with ponds; 7) saturated with ground water; 8) wildlife habitat.
- Regulations protecting vernal pools (http://www.vernalpool.org/pdf/3protection-s.pdf): Title 5 regulations protect vernal pools. Mass. Surface Water Quality standards provide a 50 ft. setback priority for vernal pools in areas of development. US Army Corps of Engineers regulations were recently changed to include activities within 750 ft. of a certified vernal pool. Used to provide 750 ft. buffer zone. Northern portion of East coast has ½ the world's population of salamanders. Anything we can do to save them is very important. Some communities help with road crossings on "Big Night", in early spring, when warm rain triggers salamander's night migration. Consider the educational opportunities on Big Night. Up to 92 potential vernal pools in MSSF. Certifying them can trigger protections under Forest Cutting Practices Act regulations. Volunteers record data and send it to Division of Fisheries and Wildlife's Natural Heritage & Endangered Species Program and to DCR. There are fees for certification. Provided handout on certifying vernal pools.

Evelyn Strawn – *The Wetlands Protection Act and MSSF*
Complex layers emerge as we try to develop a RMP for MSSF. What happens in MSSF happens in the larger context of state and local laws. Under the Wetlands Protection Act of 1978, wetlands matter. Coastal ponds are important but man-made wetlands matter too, even if man-made, they are still considered wetlands. Power lines do not have to abide by the regulations and working farms are exempted. Wetlands come under state law but the towns enforce. Each town has a conservation commission. In Plymouth there are 7 members who volunteer. Municipalities each have their own bylaws and regulations. Inland ponds and vernal pools are the most important wetlands in MSSF. Vernal pools in Plymouth don't have to be certified to be protected. DCR must contact the Conservation Commission if doing any work within 35 feet of a vernal pool. Nothing can happen in that zone. Between 35 to 50 feet, no building is allowed, but some landscaping may be allowed. New access to water resource, new trails, major alterations to existing trails, fall under Conservation Commission review. Well marked trails would limit damage and would be acceptable, however all abutters must be notified.

John Crane – *Northern Red-Bellied Cooter Re-introduction Program*
Red-bellied cooters area a distinct population, removed from the core population from New jersey to South Carolina. In the 1970s only about 250 adult turtles remained in the Carver-Plymouth area with no young turtles counted. Cooters live to 100 years old. The largest on record is 16 ¼" from shell edge front to back. Identified by notching the shell, then recapture in 10 years to re-notch the shell. 300 cooters left. Program designed to support cooters by finding the nests and protecting the eggs from predators. Samples collected to test for genetic diversity. Archaeological evidence of charred carapaces of cooters, indicates they were an important protein source for Native Americans. Turtle eggs are dependent on temperature. Warmer temperatures select for males. In late May turtles look for places to drop eggs. May create 8 nests in a day. Nest attempts make them vulnerable. 90% of nests destroyed by fisher cats, mink, skunk, and raccoons. Reintroduced 13 5 young turtles per year in the Head Start Program. Cooters are Federally endangered state-listed, which provides protection for the area and the animal. Finding areas for nesting is difficult, as they do not like activity on ponds. Huge amount of predation, only 1-3 out of 1,000 survive. They need open areas with light. They nest in organic materials or sand.

Jessica Thomas – *MSSF Vernal Pool Inventory Program*
Enthusiastic lover of vernal pools. Organisms in vernal pools are in a race against time to complete their life cycles before the pools dry up. Would like to work with DCR and the Conservation Commission to train people to identify and certify vernal pools. Transect the forest in the spring with volunteers to record GPS coordinates of possible vernal pools. It is important to identify them because you can't tell where they are when they are dry and they might be backfilled or trampled. Some organisms are only found in vernal pools, such as fairy shrimp. Salamanders only breed in the natal pond. Use vernal pools as an educational tool for children and adults. Once they learn they will want to protect them. Do the Big Night. Teach all visitors to the forest about vernal pools through posters. Highlight how mysterious they are.

Irina Kadis – *Aquatic Invasive Plants in MSSF*

- The East Head Reservoir is infested with invasive plant Carolina fanwort, native to North Carolina. The plant clogs ponds. Cook's Pond and some other ponds in Plymouth already have it. The plant blooms in August. A survey in August 2010, found Carolina fanwort flowering all across the East Head Reservoir. Fanwort actually covers more than what was indicated by the survey, because in deeper areas it does not manifest itself by flowering. Why worry about invasive plants? When invasive plants come in, biodiversity decreases. The boat launch area is the most infested, indicating that the plants were brought in on boats. To deal with this is a real challenge. Chemicals are not an option due to the presence of rare animal species and usage of the reservoir as water source for cranberry bogs. Usually there are poor results with mechanical removal. Recommend surveying all ponds for Carolina fanwort. Try to find out how fast it is spreading. Place signs to prevent further spreading. Take water samples to see how water quality is affected.
- Some bladderworts, giant bladderwort, Utricularia inflate, can be invasive. This species was first found in Federal Pond in 1980. Now it was found in the northeastern end of the East Head Reservoir. They are in many ponds. They can fill a pond.
- The NHESP has a policy of keeping rare plants a secret. But how will people know that they are trampling rare plants if the public doesn't know to protect them? Rules need to be developed for fishing on beaches where there are vulnerable plant communities. Access to beaches must be limited or all pond shores will be empty.
- Curlew Pond has Plymouth Gentian, a rare plant. This is the only place in the forest where it occurs. DCR should put up signs with a general advising message (don't have to name specific plants), the way they do it in Canada.
- There is an invasive willow (rusty willow, Salix atrocinerea) around every pond, which is taking up valuable habitat. All the native willows are gone. One invasive species can take the place of many native species.
- Casey Shetterly - Population growth is having an effect on the water table. Certain species require fluctuations in the water table. Population drawing water will alter the environment.

Meeting adjourned at 9:15 p.m.
Submitted by Sharl Heller, Friends of Myles Standish State Forest

Ponds of Myles Standish State Forest

Fifty-nine (59) kettle hole ponds ranging in size from approximately 1 - 86 acres are located within MSSF. Twenty two (22) of these ponds are named and identified in the attached table. The remaining 37 ponds are unnamed and relatively small in size (typically <3 acres). The ponds of MSSF are generally distributed in two clusters, one in the center of the forest and a second in the northwest corner. There are also a few significant ponds in the southern part of the property, but relatively few ponds in the western and northeastern parts of the forest.

East Head Reservoir is an important in-holding within MSSF. This large, impounded water body is privately owned by local cranberry growers. According to historical records, East Head Reservoir was a trout farm in the late 1800s. Historic records from the year 1912 describe it as a cranberry bog reservoir.

The sandy geological composition of MSSF produces groundwater-dominated hydrology rather than one influenced by surface water. The kettle hole ponds in MSSF formed when blocks of ice from the retreating glacier were buried in outwash sediments and then later melted, causing the surrounding sediments to collapse into a round depression. These depressions remain today and many are filled with groundwater with no inlet or outlet.

The ponds within MSSF are influenced by seasonal and year-to-year fluctuations in the groundwater table. The fluctuating water levels of the ponds has led to the development of a unique plant community known as the Coastal Plain Pondshore. The plants of this community have adapted to the changing water levels of the ponds. Most of the kettle hole ponds of MSSF support rare plant species that are components of the Coastal Plain Pondshore community.

The ease with which water moves through the sand or sandy glacial till substrates of the coastal plain ponds causes the water levels of the ponds to fluctuate directly with the water table, partially or completely exposing the pond shorelines during late summer and early fall. These fluctuating water levels create a habitat along the pond shorelines in the Forest for the federally endangered Northern Red-bellied Cooter, seven species of state-listed insects and twelve species of state-listed plants (NHESP, 2007).

The coastal pond shore communities consist largely of plant species adapted to the special shoreline environment. These species are able to thrive in the nutrient-poor, acidic conditions and out-compete more common plant species in the area. The synchronization of the life cycles of coastal plain pond shore plant species further increases the ability of these plants to out-compete other species (Swain and Kearsely, 2000). Some species‘ seeds germinate early in the growing season when the shore is still covered with water, and other seeds germinate as water levels drop and the shores dry. The periodic inundation of the shores prevents upland species and shrub establishment, while decreases in water levels inhibit aquatic plant establishment along the shores.

Public swimming beaches are located at five of the Forests‘ ponds: Charge, Fearing, Barrett, College and Curlew. Bacteria monitoring is conducted at these ponds in accordance with the minimum standards for bathing beaches contained in the State Sanitary Code (105 CMR 445.000). This code requires that water samples be obtained and analyzed at least once per week throughout the swimming season. During the swimming season DCR monitors Enteroccoci bacteria at the Forest‘s public beaches. When counts of these organisms exceed state standards, the swimming area is posted for elevated bacteria and swimming is discouraged. The area is still open for public use for sunbathing and picnicking.

Table 1: Named Ponds Located within Myles Standish State Forest

Pond Name	Size (acres)	Location in MSSF	Recreational Uses		
			Swimming	Fishing	Boating
Barrett	16	Southwest	✓	✓	✓
Bumps	20	East	no access – prison area	no access – prison area	no access – prison area
Charge	23	South	✓	✓	✓
Cherry	2	North-central	NFA	NFA	NFA
College	53	Central	✓	✓	✓
Curlew	43	Northwest	✓	✓	✓
Doctors	2	Southeast	NFA	NFA	NFA
East Head Reservoir **	86	Southwest	NFA	✓ (surface fishing only)	✓
Fearing	24	South-central	✓	✓	✓
Grassy	3	Southeast	NFA	NFA	NFA
Hooper	3	North-central	NFA	NFA	NFA
Little College	3	North-central	NFA	NFA	NFA
Little Widgeon	7	Northwest	NFA	NFA	NFA
Manters Hole	2	Northwest	NFA	NFA	NFA
New Grassy	6	Southeast	NFA	✓	NFA
New Long	23	Central	NFA	✓	✓
Rocky	20	Northwest	NFA	✓	✓
Round	10	Central	NFA	NFA	NFA
Sawpit	2	East	NFA	NFA	NFA
Three Cornered	14	Central	NFA	NFA	NFA
Torrey	3	Central	NFA	NFA	NFA
Widgeon	24	Northwest	NFA	✓	✓

Table Notes:
** East Head Reservoir is owned by the Davison Partners. The property line is located six rods (99 feet) above the high water mark around the Reservoir.
✓ = *FORMAL ACCESS available for recreational activity.*
NFA = Recreational activity is permitted but NO FORMAL ACCESS is available.

Historically, bacteria levels at MSSF have been low. However, in 2009 one sample exceeded state standards at Barrett Pond. During the 2010 swimming season, six samples at Fearing, three at Curlew, and one each at College and Barrett Ponds exceeded state standards. Most of the failures occurred after rain events. In 2010, there were long spans between rain events so there was a build-up of bacteria on the roadways draining towards the ponds, which resulted in higher counts.

Eroded areas along pond shores, especially at College, Barrett and Fearing Ponds can serve as pathways for sediments to enter ponds. Nutrient enrichment from these sources can accelerate aquatic plant growth and degrade water qualitly. In 2009, the DCR Lakes and Ponds program completed a bank stabilization and access project adjacent to Camping Area II to reduce soil erosion and surface run off into Fearing Pond.

In 2004, the DCR Lakes and Ponds Program surveyed water quality at Charge, Fearing and College Ponds. As indicated in the table below, nutrient levels were low in all three ponds with Charge Pond having the lowest Phosphorus and Nitrogen levels. Low nutrient levels indicate healthy ponds that are not likely to support prolific aquatic plant or algae growths. High dissolved oxygen levels support native fish populations. A 2008 invasive weed survey found Fanwort in Barrett Pond, and Fanwort and Variable Milfoil in East Head Reservoir. No invasive plants were found in New Long, Curlew, College, Fearing, Charge, Rocky, Widgeon, Three Cornered or Bumps Ponds.

Table 2: 2004 Water Quality Survey Results

Pond Name	Total Phosphorus (mg/L)	Ammonia Nitrogen (mg/L)	Nitrate Nitrogen (mg/L)	Nitrite Nitrogen (mg/L)	Percent Dissolved Oxygen	pH	Secchi Disc (M)
Charge	0.006	BDL	BDL	BDL	95.7*	6.11*	3.50
Fearing	0.014*	0.11*	BDL	BDL	87.2*	6.54*	5.00
College	0.011*	0.17*	BDL	BDL	82.4*	6.08*	4.75

Table Notes:
BDL = Below Detection Limits.
* Average of samples taken at different depths.

Friends of Myles Standish State Forest (MSSF)
Resource Management Plan Workshop
Interpretive Services and Cultural Resources
December 2, 2010

Meeting Minutes

Department of Conservation and Recreation Staff in Attendance: Brian Shanahan, Regional Director Southeast Massachusetts Division of State Parks & Recreation; Jim Baecker, Office of Regional Planning; Paul Gregory, Assistant Management Forester; Ellen Berkland, Archaeologist and Amy Wilmont, Regional Interpretive Coordinator

Discussion Leaders: DCR Archaeologist Ellen Berkland; Dr. Curtiss Hoffman, Professor of Archaeology and Anthropology Bridgewater State University, Mass Archaeological Society; DCR Regional Interpretive Coordinator Amy Wilmot; and Rose Mellino, Community Planner; Peter McLaughlin, FMSSF Board; Jim Nelson, FMSSF and the Fearing Pond Camp Association

Public Attendees: Pam Crowell, Laura Troll, David DeMello, Mack Phinney, Curtiss Hoffman, Jessica Layden, Evelyn Strawn, Adrian Edwards, Peter Meissner, Melissa Guimont, Laureen Regan, Lorraine Ramsey, Bill Vickstrom, Linda Grubb, Ken Leonard, David Dimmick, Lorraine Ramsey, Peter McLaughlin, John Welsh

Sharl Heller, President Friends of MSSF – opened the meeting at 7 p.m.
Brian Shanahan - Welcome
Jim Baecker - Introduction to the RMP Process
Self-introductions

Ellen Berkland - Local Native American Activity
- The environment has everything to do with peopling. Glaciers created the topography. Archaeologists are story tellers. They study artifacts in context and interpret. You are here because someone nurtured you to appreciate the past. 18,000 to 14, 000 years ago, people came to this territory. They were here close to 12,000 years ago. Native Americans nurture the care of the environment and create new stewards of the land. Approximately 600,000 people come through MSSF each year. If we could teach them about the Forest, they would become stewards of the land. Develop a history of MSSF.
- The history of MSSF starts with the retreat of the glacier. Paleo-Indian sites in the Plymouth and Carver area date to 10,0000 years ago. There are no Paleo sites in MSSF. Environmental change—How the climate changed vegetation. The tundra retreated North. New resources meant people had to adapt, learn to use new tools. Woodland period – The shoreline stabilized. Marine resources became available. Six known prehistoric sites in MSSF. Locational information only. No other Native American sites on Cultural Resources Inventory list. No systematic surveys have been conducted in MSSF. This is one place to start. The DCR Cultural Resource Inventory staff will be talking to people and looking at collections. FLY Data? Preservation Landscape Initiative – locating known sites and putting them on a database will help us maintain control. See http://www.mass.gov/dcr/stewardship/histland/histland.htm
- Contact Period 1500-1620, archaeological sites located near waterways. After 1620 timber becomes important.
- Inventory and Collaboration: Make a plan to inventory information. Engage in education and public outreach to protect sensitive sites. Raise awareness of the destruction of archaeologically sensitive areas due to erosion and ATVs, wind, rain.
- Hand out: *Myles Standish State Forest Archaeological Resources*
- Land Use HIstory - Map sensitive zones. Identify sites based on geography. Predictive Model. Create timeline.
- History of Cranberries - Governor Patrick created a cranberry heritage area. Bring history together for tourism. MSSF could tie into that.

Dr. Curtiss Hoffman - Protection of Native Sites in MSSF

- Introduced Adrian Edwards, GIS Town of Easton; Dave Dimello, Archaeologist; Ken Leonard, Native American Sacred Sites; Linda Grubs; and Dave Dimmick
- William Whitney collection came to Massachusetts Archeological Society (MAS) last year. It contains 10,000 artifacts, of which 5,000 have been inventoried. The artifacts come from 120 sites in Plymouth and Kingston, some from the MSSF. We can use the collection to fill in gaps. Two months ago we received the Robert Bilsky collection, which contains artifacts from other collectors. It contains a couple of thousand artifacts and distribution information.
- Aim efforts towards the 2020 Celebration. Suppose you were living 1000 years from now and wanted to find sites of 21st Century people—where would you go? Earlier people used the whole landscape. Collectors looked for obvious sites, but those sites won't tell us everything. In a plan you get a sense of how all of the forest resources were used over time. The whole area would have been part of Native American utilization; sacred places, hunting, small task groups looking for a particular resource, such as fish, berries, etc.
- GIS is a tool used to create probability models. Bring in Bridgewater State University Resources - Field school /Test Pits.
- Brian Shanahan - How far apart are test pits?
- Hoffman - 10 -meter intervals, transects. Used to sample different types of environments.
- Recommends public Interpretation programs in cooperation with DCR. Select an obvious site, such as the CCC camp.
- Amy suggested contacting archaeologist Craig Chartier, the Plymouth Archaeology Rediscovery Project. Use mock artifacts to demonstrate an archeological site.

Amy Wilmot - Existing Interpretive Programs & Interpretation of Pine Barren and Pond Shore Stewardship

- Handouts: Definition of Interpretation and DCR MSSF July Interpretive Programs
- The DCR's Interpretive Program is seasonal, 10 weeks, from mid June through August. The focus is family activities, nature and natural history. Young people are loosing a connection to nature. Seasonal interpreters develop programs. DCR contracts with vendors for live animal programs and celebratory events. For example, the Coyote Program provided by Jonathan Way has been well attended. We are able to do year round programs now.
- Interpretive Program challenges: The camping season is short and the location of the Interpretive Center is far removed from campgrounds. There is a high turnover rate of interpreters because of their seasonal employment. There is a learning curve for interpreters but many trained interpreters move on.
- In MSSF we have a self-guided trail at the Headquarters, interpretive panels at the cranberry bog and the East Head Reservoir (headquarters); one panel for the cranberry bog, the others at headquarters and the camping areas are general panels.. The Nature Conservancy received a grant to produce a Pine Barrens interpretive panel which will be produced by the Plymouth County Correctional Facility print shop.
- RMP - DCR needs a plan for interpretation in the MSSF and other parks. Great Brook Farm has a new building. Themes: Natural world, cranberry bog industry, pine barrens, astronomy (one of the few places left dark enough to observe the Milky Way). Interpreters don't have a vehicle.
- Q: Universal access needs to be addressed. What about providing a _hiking' wheel chair for visitors?
- Q: MSSF needs display cases and kiosks for information

Rose Mellino, Friends MSSF - Perry House Visitor Center Concept

- Note: The Perry House in MSSF was the former residency of MSSF supervisors under the Department of Environmental Management. The building is currently vacant and rapidly deteriorating.
- The Perry House has historic significance to the MSSF. It could be refurbished as a visitors center, museum, camp store. It has open lawns which would be fantastic for functions, fundraising events, art shows, as a _Firewise_ or native plant landscaping demonstration house. The area around the house could be set up with interactive interpretive panels. For example, set up panels with embossed images that visitors can use rubbing tools to transfer onto paper, for educational activity that is also artistic.

- Q: The house was occupied by the Forest supervisor in the 1960‘s. It would be good to have a presence in the Forest again.

Peter McLaughlin, Friends MSSF - Recent Discoveries in MSSF

- Recent exploration of MSSF have led to the discovery of charcoal manufacturing areas. Believes the charcoal produced in MSSF was used to produce the cannon balls fired from the US Constitution. Cisterns containing artifacts from former residents. Private property is shown on an map dating from 1890. It would be an interesting project to contact the Registry of Deeds to uncover the history. A charcoal pit was found to be 60 feet around. There were two Civilian Conservation Corps Camps in MSSF. Jim Baecker provided the FMSSF with a copy of the blueprint of the the ccc sites. The MCI (prison) is a former CCC camp. It is five years from the MSSF centennial, 2016. Friends should work with DCR to come up with ideas for celebrating this big event. As of now, their is no joint effort.
- Q: History draws support. Save and preserve it! Plymouth is about to celebrate the Quadracentennial. Is there anything that connects MSF with the landing of the Pilgrims? MSSF is retained land that contained sacred sites. Indications are the sacred sites were located on lands south of the Hathaway Pond division.

Jim Nelson, Fearing Pond Camp Association, Friends MSSF - History of the MSSF Private Camp Program

See attached hand out for remarks

Date: **January 18, 2010**

To: **Friends of Myles Standish State Forest**

From: **Ellen Berkland, Archaeologist, Massachusetts Department of Conservation and Recreation, Ellen.Berkland@state.ma.us**

Re: **Discussion Summary - Myles Standish State Forest Resource Management Planning Workshop – *Interpretive Services and Cultural Resources*, December 2, 2010**

MYLES STANDISH STATE FOREST: ARCHAEOLOGICAL RESOURCES

- The Massachusetts Historical Commission's files reveal a high density of prehistoric archaeological sites in the Plymouth/Carver region, and indicate that this area was more or less continuously inhabited by Native Americans for over 10,000 years.
- The lower density of documented sites within MSSF as compared with the surrounding landscape does not indicate a lesser degree of occupation. To the contrary, the environmental setting and resources within the corporate boundaries of MSSF are virtually identical to those that exist around it. Native Americans knew no such boundaries, so there is every reason to speculate that similar site densities exist within the Forest as outside.
- The existing archaeological record suggests that in the Forest, protected from development and disturbances, the archaeological resources that exist there are likely to have survived intact below ground. Despite the many sites that are recorded regionally, precious little is really known about these sites, i.e. how large they were, when and how they were used, or what their significance was. Most of the sites were uncovered by avocational archaeologists and collected from disturbed contexts in an uncontrolled manner. Potentially undisturbed sites in MSSF would add immeasurably to our understanding of Native American adaptation, social organization and land-use of this important inland habitat.
- Inland sites in this area are concentrated around mid to large size ponds, but important sites are also found in other locations depending on the proximity to fresh water, degree of slope, and presence of well-drained soils.
- The current evaluation would place much of the land within MSSF in areas that are considered ***highly sensitive for prehistoric resources***.

Paleo 12,000-9,500 Period, subsistence strategies reflected the high species diversity and unstable post-glacial ecosystem. **Early Archaic Period 9,500-8,000**, mixed pine, patchy forest, wide variety of habitats, diagnostic bifurcate base points found scattered across landscape suggest settlement patterns based on many locations to exploit many different types of food. **Middle Archaic Period 8,000-6,000** Many more sites than before. Wide range of habitats, bogs, swamps, rivers, lakes and pond. Seasonal scheduling of subsistence well established by now. Anadramous fish re-established intensifying use of estuaries and streams connecting with interior spawning ponds. **Late Archaic Period 6,000-3,000** Found in widest range of habitats; long lasting dry periods reduced available open water, forcing intensive use of larger ponds (like Assowompsett as a base camp). Elaborate burials and rich ceremonial activity occurred in these core areas. **Early, Middle, Late Woodland Period 3,000-450** Sea-level and climate stabilize. Maritime/coastal resources explode; people settle the land and begin horticulture and making pottery. Live inland winter, coastal summer.

HISTORY OF THE MYLES STANDISH STATE FOREST PRIVATE RECREATIONAL CAMP PROGRAM

Presented to the MSSF Resource Management Plan
December, 2010

by James A. Nelson

I am the owner of one of the 142 private recreational camps in the Myles Standish State Forest. These camps make up the five camp communities in the forest which are located at Fearing, College, Curlew, Rocky, and Widgeon Ponds. My camp is at Fearing Pond which is the forest's only non-electric camp community. Since we never had electricity brought in, our camps are still primitive with kerosene lights, hand pumped water, ice boxes or propane refrigerators, and privies or composting toilets. Since each summer is spent living in 19th century conditions, many of us at Fearing Pond have learned to appreciate history. And it is this appreciation of history that has made me realize just how special, unique and historic the DCR's private recreational camp program is.

In conversations about this forest, I am always surprised at how little people know about this program. Because of this, I welcome the opportunity to tell you about its history and about how it benefits both the forest and the Commonwealth. Having spent almost every summer of my 62 years in this forest I feel qualified to tell you about its history. As a child I sat around evening camp fires and heard the stories, legends, and tales told by the old timers who started this program. I was a member of the MSSF Citizens Advisory Council. I am presently the Fearing Pond Representative and the Treasurer of the Friends of MSSF Camp Owners Association, the current President of the Fearing Pond Camp Association, and a director on the board of the Friends of MSSF. I am presently writing a book on the history of the forest, since my kids tell me that I now qualify as one of the old timers, and that I should record this history before it is lost forever.

Since the Resource Management Plan will include the historical and cultural resources of this forest, then the Private Recreational Camp Program must be included. It has had more of an impact on this forest, over a longer period of time, than any other forest program.

The Myles Standish State Forest is now 94 years old, and the Private Recreational Camp Program has existed for 91 of those years. Some family camps are in their 4th generation. Some camp owners can trace their families back to the early mining, coaling, and sporting camps that existed within this forest in the 18th and 19th centuries. Our member's roots go deep. But even more important than that, our member's love for this forest goes even deeper.

The history of the Private Recreational Camp Program at the Myles Standish State Forest began in 1919, when the State Forest Commission, which was the DCR back in those days, decided that the most economical way to watch over and monitor their new state forest was by the use of <u>private</u> investment and <u>private</u> volunteer help. At that time public imput into this decision felt that hiring state employees to perform this function would be a waste of taxpayer's money, when private citizens would do it for free. This decision to use private investment for facilities within a <u>public</u> forest, and private volunteers to watch over <u>public</u> land, was as inovative back in 1919, as the DCR's introduction of their new Office of Partnerships was in 2003, for the encouragement of new friends groups.

Both the early Forest Commission and the present DCR have used the same concept of volunteering by private citizens, to assist in the stewardship of public lands under their control. Back in 1919, by allowing private citizens to invest time and money into a public forest, the early Forest Commission succeeded in creating a group of friends of this forest, in the same way that the present Office of Partnerships is now establishing friends groups, such as our own Friends of MSSF.

Today, the Office of Partnerships allows private citizens, like Sharl,

who are passionate about their forests and parks, to establish volunteer friends groups, to help foster that love in others, and to help develop community involvement, volunteer support, and financial funding, within the forest and park system.

In the same manner, and for the same reasons, back in 1919, the early Forest Commission established neighborhood camp communities of concerned, reliable, and conscientious citizens, who would provide financial funding, and would return each year with a love for this forest, that would allow them to adequately watch over and monitor their camp communities, as its host campers, to create the safe, secure, and friendly camping environment that was needed in a large wilderness forest the size of Myles Standish.

In 1919, the Forest Commision laid out 250 camp sites in the forest and offered them to any citizen who would agree to clear a lot, build a cabin, and become a resident camper. In 1919 70 families signed on. 56 at College, 7 at Fearing, and 7 at Widgeon Ponds. To encourage greater participation, in 1920, a Boston newspaper advertised this program and stated that 1000 lots would be available. Enrollment was slow and it was not until 1939 that the program reached its peak participation level of about 250 camps. Since then, losses by fires, sales back to the state, and abandonment, due to financial inability to remain in the program, have reduced the number to 142 camps.

Members of this program operate under a permit issued by the DCR and send their annual permit fee check directly to the DCR. The total permit fees collected from the 142 camps is almost half a million dollars each year. Investment was required to join the program. The original permitees were required to invest the cost of building their camps. Later permitees invested the cost of purchasing existing camps. The permit requires the camp and its lot to be maintained to DCR standards at the permitees expense. Permitees are required to pay all of their own utilities, liability insurance, real estate taxes, repairs, and manditory well water testing. This cost to maintain a private recreational camp is substantial and every cent is paid by the camp owner. This program costs the taxpayers of Massachusetts absolutely nothing, except for the

clerical cost of mailing out the permits each year.

Despite these high costs, which have increased in recent years,

with fee increases, water testing, septic testing and additional insurance, the remaining 142 camp program families are still providing benefitial volunteer services to the forest and to its users. They are still the eyes and ears of the forest staff, 24 hours a day, during the entire busy summer season. With their camps spread throughout the forest, they watch over the recreational areas and report any conditions, situations, accidents, or behavior that needs attention. Their knowledge of the forest, as resident campers, allows them to be unofficial host campers and give directions and assistance to those new visitors who are unfamiliar with the area. In this way they act as welcome wagon members who meet the newcomers to the forest and introduce them to the forest neighborhood. Thier presence within the forest allows them to respond quickly to accidents, fires, rescues, searches for lost children, and all those situations that require prompt action to protect both the environment and the safety of all recreational users.

Today, 91 years after its conception, the Private Recréational Camp Program is still performing this function.

Most of its members believe that this assistance is even more valuable today, since there are more recreational users in the forest today, and a larger percentage of these users are urban visitors who need assistance and guidance to properly use the forest.

When this program began most of its assistance was to the forest itself. As recreational use increased over the years, the benefits provided changed to those that now protect the public's safety. Today this program's most valuable benefits are:

A <u>neighborhood watch</u> to provide safe and secure recreatioal use at the ponds.

A <u>forest fire watch</u> for the early detection of fires within the forest.

A <u>lifeguard watch</u> at the ponds with the necessary equipment to prevent and respond to water emergencies.

<u>Search and Rescue</u> by resident campers who have an intimate knowledge of the forest to quickly respond to searches for lost children.

Camp Communities of Host Campers who give directions, information, guidance, and assistance to new visitors and provide a friendly camp environment.

and Litter Patrols to regularly police their areas to remove dangerous and unsightly litter to protect all users from injury and improve the forest's appearance.

Throughout its long life the Private Camp Program has provided much needed stewardship to the forest.

During the 1920's, its members maintained the forest roads, planted new seedlings, fought forest fires, cleaned up storm damage, and did whatever was necessary under guidance of the forest staff, to convert this wasteland back into the forest that it is today.

During the 1930's, while the CCC's developed new recreational facilities within the forest, this program's camp communities provided the security and user friendly environment to welcome the many new visitors that these facilities attracted.

During the 1940's, when our nation was involved with World War II, and the need for military personel reduced forest staff, camp program members continued their role as host campers within the forest and their presence provided the monitoring that the forest needed to watch over recreational users at their safe and secure camp communities.

During the 1950's, with its growth, prosperity and baby boom, came large numbers of picnicers, tent campers and recreational users. As the number of visitors to the forest increased, it was the private camp program that provided not only the monitoring that was necessary for security, but also the friendly social camp environment that welcomed these new visitors and improved the camping experiance for everyone.

During the 1960's, the Division of Fish and Game began stocking fish into the ponds and pheasant and quail into the woods. New fisherman's landings improved access to the ponds and the forest roads were paved. With the paving of the roads came tremendous numbers of daily visitors and sight-seers, and also an increase in

the number of roadside forest fires. Many new visitors just didn't realize how dangerous it was to throw burning cigarettes out of their car windows. In 1964 one of these fires swept through the southern part of the forest and destroyed most of the camp community at Charge Pond. These camps were not allowed to rebuild and the Charge Pond private recreational camp community was eliminated from this area of the forest. What occured as a result of this decision should serve as a reminder to the DCR of just how important their private recreational camp program is to this forest.

In the early 1970's, in preparation for a large influx of campers, expected to come to Massachusetts for the 1976 bi-centenial celebration, the Dept. of Natural Resources built the large campground that is now at Charge Pond. But they ignored the need for it to be watched over and monitored. They made no plans for on-site monitoring by their own staff, and with the removal of the Private Camp Program they eliminated the one group who had traditionally performed this function for the previous 57 years. This area quickly became the trouble spot of the forest, with thefts, fights, user disputes, out of control camp fires, alcohol and drug abuse, and a reputation that eliminated any family with children from ever considering it as a potential vacation area. The Charge Pond area is a perfect example of just what will happen when both the eyes and ears, and the safe and secure neighborhood camp communities of the private recreational camp program are no longer in place to provide their beneficial services.

During the last 40 years, from the 1970's to the present, the Camp Program has continued its tradition of watching over the recreational ponds and protecting the safety of the public. Although these benefits are appriciated by the forest staff, the DCR management in Boston has not only ignored our services, but has attempted to eliminate them. This has been done indirectly by not acknowledging what this program does, and directly by inserting clauses in our permit that now

forbids us to act as host campers and provide public safety assistance. A recent moratorium on the transfer of our camps to new families, who want to join this program and its proud tradition of volunteer service, is now eliminating the new blood that a program like this needs, to continue its beneficial services. DCR management claims that we are no longer needed since their employees can now provide this assistance. We members of this program beg to differ, since we have witnessed that the present level of DCR forest staffing cannot provide the level of stewardship that we have traditionaly maintained in this forest.

According to the DCR's recent presentation at the last Resource Management Plan workshop, the population of southeastern Massachusetts is increasing, and the forest is experiancing increased attendance. We all understand the need to watch over any area where large groups of people gather. The common conception that the Myles Standish State Forest is a wilderness forest with few recreational visitors, may be true in the off-season, but in the summer its population at its

recreational pond communities, swell to that of a small city. Any social planner will tell you that it is in the unmonitored areas of a city, where there are no neighborhood communities, that the most unlawful behavior takes place. History proves that this is also true in the Myles Standish State Forest. Recreational areas watched over by the private camp communities have had few problems. Recreational areas where there are no private camp communities have had many problems. History, past experiance, forest incident report records, and what happened at Charge Pond, all confirm this statement.

Since DCR data shows that attendance is increasing at the forest, then they should be making plans to increase the monitoring that will be necessary to watch over all of these new visitors. But we have heard of no plans to increase the forest staff. On the contrary, we have been hearing about how this staff will probably be reduced due to the current economic conditions, and may have to remain at reduced levels due to the concern of taxpayers over excessive government spending.

Because of this, camp program members feel that the benefits that their program has provided over the past 91 years, will be extremely important in future years. We understand that our program is unique, and that its volunteer assistance is not the type of stewardship that the DCR wants for its forest and park system. State public land managers have have always used the National Park Service as a guide of how public land should be managed. The National Park Service does not use private volunteer help within its National park system, because they are financialy capable of providing all necessary stewardship with employees. Massachusetts has been trying to follow their lead. But from what we have seen, Massachusetts cannot afford to do this. The DCR's pockets are just not as deep as the National government's pockets.

Because of this, in recent years, the DCR has reverted back to the use of volunteer help by its introduction of partnerships and friends groups. And this appears to be just what the taxpayers want, as a way to reduce government spending.

As this trend towards economical volunteer help continues, programs such as the Private Recreational Camp Program, should be recognized for the economical stewardship that they provide, and plans should be made for their continuation.

We understand the DCR's concern over issues that apply to volunteer programs, such as Article 97, public access, adequate insurance, safe well water, septic waste disposal, and stand by our efforts in recent years to find adequate solutions to these issues.

But we believe that the DCR's past goal of providing adequate stewardship within its forest and park system, without the use of free volunteer help is just an unattainable dream. The reality of the situation is that what the early forest planners came up with, 91 years ago, is exactly what this forest needs today to continue to provide an adequate level of stewardship, at a minimum cost, that will be acceptable to todays taxpayers.

The Private Recreational Camp Program has lived up to its early designers expectations of providing needed stewardship to a public forest at absolutely no cost to the Commonwealth or to its taxpayers. The early planners succeeded in finding the most economical way to adequately watch over and monitor this forest without burdening the taxpayers with the large, expensive, beaurocratic, state operated monitoring departments that most other public lands now have. By letting private citizens pay for the cost of developing and maintaining this network of camps, to be the forest's eyes and ears, they have saved the taxpayers of the Commonwealth a tremendous amount of money. They succeeded in creating a true partnership, whose 91 year record has proven that the Private Recreational Camp Program can be successful in providing needed volunteer help and financial funding, when the burden of additional taxes is not acceptable to the state's taxpayers. Today, during our current economic crisis, when state budgets and staffing are being drastically reduced, programs such as this one, that require no state funding, should be recognized and appriciated.

Recent communications between the DCR and members of the Camp Program indicate that the future of this program is uncertian and decisions will eventually have to be made on whether or not it will be continued. We realize that no decision can be made without a thorough and complete understanding of this program and its history. Hopefully this information, now being provided, will become a part of the Myles Standish State Forest Resource Management Plan and will help to provide that information to those planners who will have to make that decision.

We hope, for the sake of the Myles Standish State Forest, and for all the wonderful visitors who we enjoy meeting and helping each summer, that the DCR will find a way to continue this program so that the forest and all of its users can continue to benefit from our presence within it.

We also want the Resource Management Plan to remind the DCR that their practice of physicaly removing each camp from the forest, as its ownership reverts back to the DCR, through either sale or abandonment, is subject to DCR policies for historic resources. All forest facilities older than 50 years old, fall under the DCR's Office of Historic Resources. Since all camps in the forest are between 71 and 91 years old, they all fall under historic resource protection. Before these properties can be demolished they must be reviewed by both the Office of Historic Resources, and the Massachusetts Historical Commission, to make a determination of "No Adverse Effect" on their Historical and cultural impact on the forest. Since this Camp Program has dramaticaly effected both its historical and cultural development, for 91 of the 94 years that the forest has existed, we think that this practice of tearing down these camps, as quickly as possible, is in violation of State policies for historic property protection and is eliminating features of this forest that are historicalY and culturaly significant.

We also feel that the elimination of these camps, prior to a determination of whether or not this program will be continued, is an unnecessary elimination of valuable resources within this forest, that may be necessary in future years to provide stewardship to this forest.

We want the Resource Management Planning team and the readers of this plan to know that we members of the Private Recreational Camp Program are extremely proud of our role within the forest, and hope that our 91 years of service in making this forest a better and safer place for family camping will be recognized and appriciated. And we hope, that the DCR will realize that what this program has done for the past 91 years, it could easily do for the next 91 years, to continue to keep the Myles Standish State Forest a friendly and safe place for family camping, and do it at no cost to the taxpayers.

James A. Nelson
384 East Street
Wrentham, MA. 02093
508-384-2448

President-Fearing Pond Camp Assoc.
Treasurer- Friends of MSSF Camp Owners Asso

Myles Standish State Forest
Resource Management Plan Workshop
Recreational Resources
January 6, 2011

7:00 p.m.	Welcome Sharl Heller, President, Friends of Myles Standish State Forest Don Matinzi, Cape Cod District Manager, DCR Division of State Parks & Recreation (DCR) Jim Baecker, DCR Office of Regional Planning Self-Introductions
7:10	Don Matinzi, Cape Cod District Manager, DCR Division of State Parks & Recreation (DCR) – Recreational Demand
7:20	Andy Backman, Director of Regional Planning DCR – 2006 Forest Reserve Designation
7:30	Gary Briere, Recreation Bureau Chief, DCR – Off Highway Vehicles – Historic Review
7:40	Bill Boles, New England Mountain Biking Association (NEMBA) – Mountain Biking and Hiking in MSSF
7:50	Ellen Williams, Bay State Trail Riders Association (BSTRA) member, Equestrian Interests
8:00	Richard Wall Jr., Sportsmen‘s Interests
8:10	Dr. Malcolm MacGregor, Past Planning Board member, Plymouth – Regional Trail System
8:20	Peter McLaughlin, Trails Chair, Friends of Myles Standish State Forest – Trails Enhancement Program
8:30	Open Discussion

Myles Standish State Forest
Resource Management Plan Workshop
Recreational Resources
January 6, 2011

Meeting Minutes

Discussion Leaders: Don Matinzi, Cape Cod District Manager, DCR Division of State Parks & Recreation; Andy Backman, Director of Regional Planning DCR; Gary Briere, Recreation Bureau Chief, DCR; Bill Boles, New England Mountain Biking Association (NEMBA); Ellen Williams, Bay State Trail Riders Association (BSTRA) member; Richard Wall Jr., sportsmen's interests; Dr. Malcolm MacGregor, former Planning Board member, Plymouth; Peter McLaughlin, Trails Chair, Friends of Myles Standish State Forest.

Attendees: John Welsh, Laura Troll, Chris Burton, Bill Vickstrom, Trudy Sena, Susan Fugazzi, Sumner Meredith, Nancy Kitchen, Roland Cloutier, Al Amaral, Wendy Amaral, Mack Phinney, Karrie Dumais, DCR Forest Manager Paul Gregory, Brett Meridith

Welcome: Sharl Heller, President, Friends of Myles Standish State Forest, Don Matinzi, Cape Cod District Manager, Massachusetts Division of Parks & Recreation (DCR), Jim Baecker, DCR Office of Regional Planning

Self-Introductions

Don Matinzi, Cape Cod District Manager, DCR Division of State Parks & Recreation – *Recreational Demand*
Thanked Friends of MSSF for being advocates of the Forest and for being ―a voice for campers." DCR contracts Reserve America for campsite reservations. There is a great demand for camping. Camping is the ―natural habitat" for 18-year-olds from New Bedford. Campers bring their culture; impose their culture on the Forest. DCR tries to balance different recreational uses, and has focus groups trying to effect a balance with demand; balance use with infrastructure, with recreational use and expectations, and balance rules and regulations with cultural changes, what worked years ago, doesn't work now. Now we are facing environmental changes. Demand is increasing. As open space is getting smaller, recreational demand will get larger. When Massasoit closed, that created more demand here and at Wompatuck State Park. At MSSF, 75% campers at the five campgrounds come from within a 42 miles radius of MSSF, the ―inner circle"; at Nickerson, 75% come from the outer circle. [Refer to 2009 Visitor Dot Map]

Andy Backman, Director of Regional Planning DCR – *2006 Forest Reserve Designation*
Green Certification (FSC) is a non-profit international company, which reviews forests to see if forest practices are sustainable. An FSC requirement caused a significant portion of MA state lands to be set-aside in reserve. MSSF and the Freetown Bio Reserve were set-aside in SE MA. Most of the Reserves are in the Western part of the State. There are nine forest reserves that met the criteria for ecological diversity. There are some implications for recreation. The Forest Future Visioning Process will refine categories of parklands, woodlands, and reserves. The reserves will allow normal ecological processes to take place with minimum management. The reserve status of MSSF probably won't change, though areas such as campgrounds and day-use areas may change to parklands.

> COMMENT: Why does DCR issue logging contracts in MSSF if it is a reserve?
>
> Andy: MSSF is different. It is highly flammable and surrounded by communities. For fire management and to retain pine barrens cover type.
>
> Paul: Silva practices at Three-cornered Pond were ecological to preserve endangered species. It was a commercial harvest but very little money was involved.

Gary Briere, Recreation Bureau Chief, DCR – *Off Highway Vehicles, A Historic Review*
We are seeing a rise in conflicts as space becomes limited. There is a steady increase in intolerance among recreational users. As their opportunities are limited public lands become more important for users. Off-highway vehicles (OHV) recreation is a big issue—where to offer and where to close. DCR determined priority landscape and habitats are inappropriate for OHV use. DCR identified MSSF was inappropriate. DCR had located nine properties. Ten years later they were reevaluated. MA has about 90,000 households owning OHVs but there are very few places to participate. Riders are upset because they pay money for registrations but there are limited opportunities to ride. DCR is looking at how to better manage OHV use and enforce regulations. DCR created legislation in 2008, which was passed and signed by the Governor last summer. The law provides stiffer penalties and creates a fund where registration fees go into a fund that requires 25% to be spent for trails. There is an OHV Advisory Committee. I see Chris Burden is here tonight. He and other organizations helped pass the legislation. DCR has an OHV Siting Policy, criteria developed by OHV clubs and the AMC with input from many users. We have new plans in place to help manage OHV use, but there has to be better opportunities for riding.

COMMENT: Damage done is much worse in MSSF since 1995 when riding was legal. Agree that it is good to provide riding opportunities but not in MSSF. The Forest would not pass the Course Filter criteria.

COMMENT: Provide riding opportunities but enforce the regulations. If you can't find an area for riding in all this land, it is not open to the public.

Bill Boles, New England Mountain Biking Association (NEMBA) – *Mountain Biking and Hiking in MSSF*
Trails are the heart of a park system, the lifeblood; the nexus between conservation and recreation. Refer to the *DCR Trails Guidelines and Best Practices Manual* for trail maintenance and management.

COMMENT: MSSF needs more and better-marked trails, with real signs.

COMMENT: There is a need for more marked trails. The campgrounds need to be linked. Working on it. Man more potential trails. Many people get lost. Marking trails well is critical.

COMMENT: There is an issue with parking. Charge Pond is closed in winter. No parking for x-country skiers.

COMMENT: The paved trails are hazardous. Many accidents discourage users.

COMMENT: People can hike on service roads, which are marked on the map.

COMMENT: There are enough trails in MSSF. Do not fragment the Forest.

COMMENT: We should utilize what is already here for trails, but do it selectively, with care for erosion, etc. Don't create new trails.

COMMENT: Link areas.

Ellen Williams, Bay State Trail Riders Association (BSTRA) member, *Equestrian Interests*
Our thanks go to Thom Gifford for his work on trails. Knocking down the moll hills created by illegal off-road vehicles has benefited equestrians. The Forest is widely used by clubs who do fundraising for local charities. We ask DCR to let horse camping continue. Many states have horse camping. We hope MSSF will fill the bill for Massachusetts. We need more water spigots at the campground, one for every other campsite.

Our 30 miles of trails are marked well. Trail marking is important, as the forest looks the same. The Club would like improvements in parking in winter. We would like to park at the headquarters in winter, when other areas are closed.

COMMENT: DCR might consider education programs regarding the Forest and riding.

COMMENT: We do have a program for safety and what the park has to offer. We ask riders to stay on trails and talk about the sensitive nature of pine barrens. We don't want to duplicate other parks. Keep it

natural. We will try to provide ramps for people who need assistance and kids. We do need spigots. We have two areas where horses walk in water.

COMMENT: What about interpretive trail rides?

COMMENT: We do interpretive trail rides. We take our 15 people at a time. There are marked trails, but more like 300 miles of trails, when you take a deer trail and follow it. We see great wildlife. No need for watering troughs unless we are restricted from ponds. We don't have as many marked trails as we could have. We don't know what DCR uses as markers. There is one main trail leading from the camping area. We've ridden up to 70 miles in a day.

Richard Wall Jr. –*Sportsmen's Interests*

I've been a hunter my whole life. We lost the right to drive on the dirt roads. We used to drive older guys and chase deer towards them so they could hunt. Now they've had to stop hunting. One warden allowed him to drive people in. This year we were asked to leave, but as we were leaving we were passed by several off-roaders. We'd like permission to drive on fire roads for the 2 weeks during shotgun season. Where we can drive, by the fire tower, is too close to trails. If we could drive down the road, we'd be further away from the public, which would lessen the likelihood of an accident. Parking is a problem. A brush hog clears the sides of the roads but we can't park our vehicles there. I'd be interested in joining the FMSSF board and help resolve these problems. We'd like to drive further in and begin hunting inside the Forest. It used to be that trails were closed on Saturdays and holidays, but that has changed, trails are open.

COMMENT: The trails have to remain open. It's the law.

Dr. Malcolm MacGregor, former Planning Board member, Plymouth – *Regional Trail System*

In 1990 the Plymouth Planning Board adopted subdivision regulations that allowed for identifying pieces of land in each with an eye to connecting trails. We also adopted the CPA (Community Preservation Act), which allows the committee to purchase land, with the goal of developing trails. We have trails for dog walking, trails you can walk in one hour, morning walks, and daylong walks. But for a regional trail system, we need the Forest. You can't get out of Plymouth without going through MSSF. We'd like to see trails into the forest that go into other towns. We need MSSF as a hub. The Eel River project produced a trail onto National Wildlife land.

Exhibit: Map shows main trail from the nuclear power plant land. Need an easement from NSTAR. Ship Pond Road to Ellisville.

COMMENT: How long before you'll have the trails system?

Malcolm: We've done pretty well. Conservation easements are being negotiated, developing "Perpetual Easement" paperwork. The Open Space Committee talks to people. The Community Preservation Committee buys it. We spend two million a year.

Peter McLaughlin, Trails Chair, Friends of Myles Standish State Forest – *Trails Enhancement Program*

Friends of MSSF Trails Mission: encourage people to use them. The Group began 1st Sunday Hikes in January 2008. People find the hikes and events through Meetup.com. Laura Troll helps lead hikes and we encourage input in hikes and trail maintenance. Thom Gifford received the Volunteer of the Year Award for his work on trails.

The more I know about the Forest, the more I don't know. It's wonderful to have this much wilderness close to home. There are 15 miles of paved bike trails. I have no idea what it would cost if it were built today. The trails have lasted 40 years with no maintenance. We've applied for a grant for $10,000, which can do significant repairs for smoother ride and to bring up to date. Friends do routine trimming. DCR enlarged the parking lot at the East Entrance. We developed the Friends Trail, which has nice views but no water view. We encourage people to enjoy the recreational opportunities and maintain what we have.

COMMENT: Suggest that DCR provided notification about hunting season. People come here from long distances to hike but don't know about hunting. Keep the trails open but you need to warn people.

Don: Hunting season is posted on the kiosks.

Open Discussion

COMMENT: Allow hunters deeper access. Between the existing trails and roads there is no need to make more but the trails we need signage.

COMMENT: The main road system is also recreational. Lots of events use the main roads.

COMMENT: Road bikes routinely use the Forest; the signs are left up. I suggest you don't ride bike trails if you want to go fast.

Don: DCR closed off Lower College Pond Road because of high water. Planning should consider how does the environment affect use.

COMMENT: Try to understand the people who come into the Forest. They come in two categories, Users and Guests. Users demand. They want to use according to their own rules. Guests come to enjoy nature. They obey the rules. Educate the public. Find the balance between ecological and human demand.

Don: Education outreach for MSSF is needed. Access is an issue. Here you have access from many areas. Other parks have one entrance, which enables park staff to reach the mass of users. It is hard to create educational outreach in a vast area.

COMMENT: Users may not want to be educated. They want to do what they want.

COMMENT: Volunteers hands can't be tied or we'll go someplace else. It is critical that we use power tools for efficiency and timesavings. There is a real need to balance the volunteer policy.

Gary Briere: There are requirements in the policy to allow volunteers to continue to use power tools. We've heard from many groups on this. We recognize and celebrate volunteer hours and work. We encourage volunteer work.

Bill Boles: Suggest MSSF adopt a program like the Blue Hills Trail Watch Program. Program volunteers: educate mountain bikers how to get along with everybody else; are the eyes-and-ears of park staff, report problems, and do trail maintenance. We are constantly finding people who are lost. You need identifying clothing to make people feel safe and assured. Because of Blue Hills Trail Watch they know they'll be observed. Get Park Watch going. It will be much better for everybody.

COMMENT: Trail Watch works great. Volunteers file reports.

Don: Malcolm, what kind of trails will be in the regional trails system?

Malcolm: Different trails, both well developed and woodlands.

Don: One of our goals is to connect through trails to all camping modules; Curlew to Charge to College. The hub probably exists but we need to identify and coordinate.

COMMENT: Connect trails in Carver with Curlew Pond.

Malcolm: You could go from Carver to the power plant in Plymouth now.

COMMENT: Most people respect signs. Find space for an off-road course and a small arms range.

COMMENT: In the Wareham Land Trust we closed the parking lot, but gave out special permits to hunters to use the parking lots. Responsible hunters could have permits.

Don: Fishermen need parking. Different users may require attention.

COMMENT: In the early 90's, when the park was open to OHVs, the trails were better marked.

Don: We are looking to develop a statewide trail system for marking trails. Here it is very confusing.

COMMENT: Birdshot is really attracted to signs. Blazes are far better than signs.

COMMENT: In the past few years trail marking is better.

Don: Yes. Thanks to volunteers.

Respectfully submitted by Sharl Heller

Friends of MSSF 1/6/11 – Recreational Resources

2006 Forest Reserve Designation for MSSF

The process of identifying and designating Forest Reserves in Massachusetts originated with the Green Certification initiative for EOEEA's forest land managing agencies (DCR and DFG).

What is Green / Forest Certification? The Forest Stewardship Council, an independent non-profit organization, promotes responsible forest management by certifying environmentally appropriate, socially beneficial, and economically viable forest management.

One of the requirements for Green Certification that had to be met by the Massachusetts environmental agencies was to identify and designate a significant portion (at least 20%) of the public forested land as high conservation value Forest Reserves. The Reserves are intended to be set aside from traditional forestry operations so that ecosystem processes can proceed relatively free of human interference. Management activities in Forest Reserves should maintain or enhance the ecological attributes which define such forests.

EOEEA established a working group that included input from environmental [Were forestry or recreational user groups included?] nonprofit stakeholders. The process they used to identify potential Forest Reserves is as follows.

1) The process of identifying Forest Reserves takes into account landscape features, past land use, ownership patterns, and social costs and benefits. The EOEEA working group that recommend Reserve candidates worked under the following assumptions when determining potential large-scale reserve locations:

    a. Large-scale Forest Reserves are designed to:

        i. Represent late successional habitat and baseline control data and information for each ecoregion

        ii. Withstand and recover from large-scale disturbance processes

        iii. Provide viable and adequate breeding habitat for characteristic and area-sensitive species

        iv. Although anchored in large state-owned lands, Forest Reserves can be supplemented by federal, municipal, non-profit, and private holdings

    b. Twenty-one (21) relatively unfragmented "forest blocks" were identified through a statewide Forest Reserve planning process. These forest blocks represent some of the best opportunities for conserving a large-scale Forest Reserve systems in the Commonwealth. These areas are the least fragmented by roads and have the largest patches and greatest percentage of interior forest, key components of successful Forest Reserves.

    c. Representation of Massachusetts' forest types is best achieved by stratifying large Forest Reserves by ecoregion.

    d. Approximately 20% of EOEEA system lands in total may be in a large (approximately 10%) or small (approximately 10%) scale reserve status (result of analysis and public involvement).

2) Beginning with these assumptions, the working group developed nine criteria with which to evaluate the original 21 forest blocks. EOEEA then convened a stakeholder workshop to evaluate, revise and weight these criteria. The resulting 11 criteria were weighted according to the relative importance assigned by the stakeholders.

Forest block evaluation criteria and assigned weight
Acreage of Old Growth 0.268
Acreage of Valley Bottom Land 0.188
% Protected land in surrounding area 0.115
% forest cover in 1830 0.114
Number of viable rare communities 0.108

% forest cover in surrounding area 0.051
% BioMap Ambystomid habitat 0.047
% riparian and wetland forest 0.035
Acreage of largest interior forest 0.02510
% forest interior 0.025
% Living Waters CSW 0.023

3) Following this analysis, feasibility criteria (e.g., road density, ORV use, infrastructure density, adjacent land use, utility use, past land use) were used to evaluate potential Forest Reserves. All recommended Forest Reserves received a field review. Following both biodiversity evaluation and feasibility review, a statewide forest reserve system was created.

MSSF was designated by DCR / EOEEA in 2006 as a Forest Reserve along with 8 other state forest areas (Chalet, East Branch, Otis, Mohawk/Monroe/Savoy, Middlefield/Peru, Mt. Greylock and Mt. Washington) under DCR management, totaling approximately 50,000 acres. Forest Reserves are primarily managed for biological diversity based on natural processes and the protection of large contiguous blocks of high-value ecosystems. Related to vegetation management, traditional forestry operations are not permitted.

The MSSF Forest Reserve will have to be more flexible than other Forest Reserves that have been or will be designated in Massachusetts. There are many homes surrounding MSSF that are embedded in the _fuels' of this fire prone cover type, so prescribed burning and other vegetation management strategies will have to be used to protect lives and property. Also, the important pine barrens ecosystem might gradually change to a more arboreal forest type over the coming decades through natural succession, necessitating active management to maintain this vegetation type.

DCR held a series of public meetings to discuss the criteria for designating all DCR-managed land as Parklands, Woodlands or Reserves. MSSF will retain the Forest Reserve designation, but portions of the state forest such as the administration area and campgrounds may be classified as Parklands within the Reserve. Additional information about the Forest Futures process can be found on the DCR website: www.mass.gov/dcr/news/publicmeetings/forestryfvp.htm

Myles Standish State Forest
Resource Management Plan Workshop
Infrastructure and Operations
Saturday, February 12, 2011

Agenda

1:00 p.m.	Facility Tour – Regional Director Brian Shanahan, S.E. Massachusetts Division of State Parks & Recreation
2:00	Workshop – Welcome Sharl Heller, President MSSF Jim Baecker, Massachusetts Department of CR Office of Regional Planning –*The RMP Process* Self-Introductions
2:10	Interview of MSSF Staff – *A Day in the Life of Myles Standish State Forest Staff* Supervisor John C. Roberts, Administrative Assistant Ellen Walsh
2:20	Deputy Chief Ranger Chris Williams, DCR Bureau of Ranger Services – *DCR Rangers in MSSF*
2:30	Trooper Jeffrey Diotte, Massachusetts State Police – *The Role of State Police in MSSF*
2:40	Plymouth Police Chief Michael E. Botieri – *The Role of Plymouth Police in MSSF*
2:50	Lt. Dean Belanger and Sgt. James Cullen, Massachusetts Environmental Police, South Coastal Division – *The Role of MEP in MSSF*
	Break
3:10	Peggy Baker, Director Emerita Pilgrim Society – *Plymouth 400th Committee* and *MSSF – Historic Interpretation and Planning for Tourism*
3:20	Randy Parker, President, Simes House Foundation – *Renovating and Restoring Historic Buildings for Public Use*
3:30	Evelyn Strawn, Vice President, Friends of MSSF – *Friends' Priorities*
3:40	Melissa Guimont – Chair, Native Bird Support Group, Friends of MSSF – *Greening The Forest Facilities: Recycling, Renewable Resources*
3:50	Sharl Heller, President, Friends of MSSF – *Infrastructure for Sustainable Operations*
4:00	Open Discussion

Myles Standish State Forest
Resource Management Plan Workshop
Infrastructure and Operations
February 12, 2011

Presenters: Jim Baecker, Massachusetts Department of Conservation and Recreation (DCR) Regional Planner; Ellen Walsh, DCR Administrative Assistant, MSSF; John C. Roberts, DCR Supervisor, MSSF; Mike Botieri, Plymouth Police Chief; Lt. Dean Belanger, Massachusetts Environmental Police (MEP); Stg. James Cullen, MEP; Chris Williams, DCR Deputy Chief Ranger; Trooper Jeffrey Diotte, Massachusetts State Police; Peg Baker, Plymouth 400th Committee; Randy Parker, Simes House Foundation; Evelyn Strawn, Vice President, Friends of MSSF; Melissa Guimont, Board Member, Friends of MSSF; and Sharl Heller, President, Friends of MSSF

DCR Staff in Attendance: State Parks and Recreation Director/Assistant Commissioner Priscilla Geigis; Southeast Massachusetts Regional Director Brian Shanahan; Cape Cod District Director Don Matinzi; Regional Planner Stephen Brown; Regional Ranger Jeffrey Dumais; Stephen Cabral and Construction Foreman Paul Ferreira

Public Attendees: Thom Gifford, Laura Troll, Pam Crowell, M. Margaret Portier, Helga Stottmeier, Dianne Cosman, Rose Melino, Carolyn Gould, Bill Vickstrom, John Joseph, James W. Baker, Ted Bubbins, Lorraine Ramsey and Laureen Reagan

Operations Facility Tour
Southeast Regional Director Brian Shanahan, DCR Division of State Parks & Recreation

Workshop

Welcome
Sharl Heller, President, Friends of MSSF
Jim Baecker, DCR Office of Regional Planning–*The RMP Process*

Self-Introductions

MSSF Supervisor John C. Roberts and MSSF Administrative Assistant Ellen Walsh Interview of MSSF Staff – *A Day in the Life of Myles Standish State Forest Staff* (see attached Questions for DCR Staff)
During the summer season, DCR staff is on duty 24 hours a day. The midnight to 8:00 a.m. night shift consists of two persons who patrol the campground area, man the headquarters desk and respond to emergencies. At 7:30 a.m. the day supervisors, clerk and laborers arrive to prepare for camp registrations, clean the comfort stations and pick-up trash. The seasonal park ranger and summer workers arrive at 8:00 to staff the park office, sell fire wood and maintain the grounds. The Lifeguards arrive at 8:30 a.m. to open the day use area at College Pond, pick up litter on the beach and perform lifeguard duties. From 8:00 p.m. until midnight two staff members close the College Pond day use area, check the comfort stations, man the park office desk and monitor the campgrounds.

Hiking trails are not monitored on a daily basis. Campfires not allowed during periods of fire danger. Fires are allowed in the fireboxes for cooking, breakfast to midnight. Cook fires are defined as being inside the fire pit. Wood cannot be brought into the Forest. Campers must purchase wood from park staff. Wood costs $10 for 3 bundles or $5/one bundle. We need extra staff just to handle the firewood. DCR sold $13,000 in firewood last year. Must restrict wood from coming into the Forest because of the Asian long horned beetle.

There are 400 campsites in MSSF, with an additional 140 privately owned camps. There are private cottages on Fearing, Widgeon, Curlew, Rocky and College ponds. Private camp owners have a permit to come back every

year, provided they pay their permit fees. Camp owners are self-sufficient; not much interaction between them and staff.

The primary law enforcement agencies in the Forest are the Massachusetts Environmental Police (MEP), State Police, Plymouth Police and the Carver Police. Support plan for all agencies to work together. In emergency call 911 and the appropriate agency will be notified.

Main focus of DCR staff, where we spend most of our time, is day use and maintenance. DCR has plans for more interpretive programs, especially camper based programs.

The College Pond day use area is open from 8:30 a.m. to 7:00 p.m. Approximately sixty percent of revenues from day use facilities are retained by DCR.

Fire control station is on site at MSSF. Two year-round staff and 6 to 8 seasonal staff man the fire towers.

Deputy Chief Ranger Chris Williams, DCR Bureau of Ranger Services – *DCR Rangers in MSSF*
Rangers have been in parks since 1998. Under the former Department of Environmental Management, there were five rangers, one for each District. Our authority is under Mass Law 304 CMR 12. Ranger duties include public safety, 1st Aid, search and rescue, visitor services and coordinating the Park Watch Program.

DCR policy enforcement focus is on education. 99% of the time, education does the trick. We go step by step to make sure visitors have information on regulations and how to comply. Rangers use encounters as "educational moments". Through fielding calls, Rangers circumvent frivolous calls and take care of the little stuff freeing other law enforcement agencies for the big stuff. Ranger activities include coordinating joint exercises for off-road vehicle enforcement. We are the DCR's enforcement folks and liaison with other law enforcement agencies. Rangers are involved in the "Three E's" to handle park problems: education, enforcement, and engineering.

> C: The park office number should be posted in more locations. Signs should say, "Call Park Watch, Call 911 in emergency."

Trooper Jeffrey Diotte, Massachusetts State Police – *The Role of State Police in MSSF*
State Police react to calls from the Forest Supervisor. We respond to intoxication, evictions, car crashes, search and rescue, and domestic violence. The midnight shift has two officers and covers a large area. It may take 40 minutes for us to respond. The Bourn office covers both Canal bridges and both sides to Exit 5 in Plymouth, over to 495 to Middleboro. The other agencies handle more of the problems. State Troopers do not patrol in the forest.

> C: The Massachusetts Correctional Facility is in the Forest. Is there any risk to people?
>
> Trooper Diotte: No. All calls to the Correctional Facility have been internal disturbances.

Plymouth Police Chief Michael Botieri – *The Role of Plymouth Police in MSSF*
In an emergency we [the Plymouth police] respond to anything ongoing; notifying other agencies with jurisdiction. Call 911 in emergencies. Calling Police Headquarters is the most direct non-emergency contact: 508-746-1212. People can call the Headquarters for first aid and law enforcement, and the dispatcher will contact the appropriate authority in the network. There are no response issues. State police and Plymouth police are in regular contact. Plymouth Police do not patrol the State Forest, but will respond to calls in the Forest, as will the Carver Police. The Plymouth Police will respond in Carver if Carver Police request it.

> C: How do you find people in the Forest if the trails are not marked? There are only two marked trails and miles of hikeable areas.
>
> A: Supervisor John Roberts: MSSF is in the process of getting new signs.
>
> A: Trooper Diotte: We can ping the call from cell phones. The gates are numbered. There are no maps in the middle of the Forest.

C: The Forest is well marked at the intersections. If any one is lost they should keep going until they come to an intersection.

C: People think they are coming to an urban park, but in MSSF they are coming into an undeveloped area. It is incumbent on people to know how to function in a wilderness setting. Urbanites assume it will be signed, like in a small city. Having access to maps will help.

C: You can go by the Headquarters if you come in from the Carver side, but from Plymouth it is a long way before there is an official presence. DCR should plan for contact at the Plymouth entrance.

MSSF Supervisor John Roberts: There are more signs going up, but we want to maintain a balance of safety and maintaining the sense that people ~~–~~went to the woods".

Lt. Dean Belanger and Sgt. James Cullen, Massachusetts Environmental Police (MEP), South Coastal Division – *The Role of MEP in MSSF*

Introduced Sgt. James Cullen. Sgt. Cullen is the MEP liaison. I'm sad to say many people don't know who MEPs are. As a group we are dedicated, and educated with degrees from the municipal Academy. EOEEA Natural Resource Law Enforcement. Enforce all Mass General Laws and Motor Vehicle Laws. MEPs are deputized by the USFWS and NMFS (federal agencies) for Federal Law enforcement of hunting, fishing, fresh water, boating, nuisance animals, off-highway vehicles, bear encounters, search and rescue, hunting and boating safety. Before we had 124 officers. We are now down to approximately 70 officers in the field. There are 7 officers (including myself) in my Region, which is Plymouth to RI border. In New Bedford there is a dedicated officer to fisheries enforcement. Plymouth also has a dedicated officer (EPO Costello).

MEPs are the primary police enforcement agency for DCR parks, but manpower requires we rely on the State police and local police. We are lucky to have, and want to publicly thank, the cooperation of all police—State Police, and Carver and Plymouth police, who assist in covering MSSF, Freetown-Fall River, Horseneck Beach and Ellisville State Park. How the Friends can help: Call when there is a problem. What doesn't get reported doesn't help anyone. You call the MEP 24 hours, 7 days a week at: 1-800-632-8075. In an emergency call 911. You can help by advocating for us. Budget issues have cut back MEP.

C: I've seen people hunting in the park. Is hunting allowed and what about illegal dumping?

A: Lt. Belanger: Hunting is allowed during hunting season. MSSF is stocked with quail and pheasant. Unauthorized dumping is prosecuted by MEP.

C: What about the new OHV legislation.

A: Lt. Belanger: We try to address the illegal OHV use through education. The issue is of concern everywhere. We receive multiple calls daily. They are hard to catch, and we don't want to chase them. Most are young adults. We show up to calls, but to be honest, we need to be proactive not reactive. More teeth in the recently enacted OHV laws should help.

C: People get scared when they see off-roaders tearing up vast tracks of land. There are five to eight miles of new trails each year where nobody should be going. It's terrible. Can't DCR's rangers be deputized to stop them?

A: Lt. Belanger: Five or six DCR Rangers have been deputized. These are frustrating issues. We cite someone, they go to court and everything gets dismissed. The courts don't take illegal OHV riding seriously.

BREAK

Peggy Baker, Director Emerita Pilgrim Society – *Plymouth 400th Committee* and *MSSF Historic Interpretation and Planning for Tourism*

The Plymouth 400 committee is planning major special events and youth educational programs to commemorate the 400th anniversary of the Pilgrim landing from November 2019 through November 2020.

In 2020 the Plymouth's Quadricentennial Celebration will cause the area to be inundated with tourists. Plymouth must do a lot of planning. Plymouth has a parking problem. The Committee is working with GATRA to develop a regional transportation plan to overcome the parking shortage in downtown Plymouth. 2020 starts now with specific plans and laying the groundwork. Committees already formed include education, marketing, fund raising, and marketing. The "Education Plan" starts with the third graders now who will graduate in 2020. Schools will add a program to the curriculum every year focusing on 2020 to incorporate younger people.

The 400 Committee is promoting the sale of a license plate to raise visibility and aid fundraising. One thousand people must sign up for the license plate. The celebration will be a year long, taking advantage of the Thanksgiving holiday to kick off the events, beginning in November 2019 and ending November 2020. The Sunday before Thanksgiving 2019, the day's events will acknowledge why the Pilgrims came to Plymouth, and highlight the importance of religion. On August 1, 2020 there will be a celebration for the Embarkation of the Pilgrims. The Committee will contact the British Consul and ask to have the Plymouth events placed the Palace Calendar. We are contacting the both the Dutch and British Royal Households. On the weekend before Thanksgiving 2020, the final event will commemorate the 400th anniversary of the signing of the Mayflower Compact. The Committee is making plans for an event that will link Provincetown and Plymouth and engage the communities on Cape Cod.

We hope DCR will become involved early, as the MSSF provides inexpensive camping accommodations for event participants and visitors. We hope to have activities scheduled in the Forest and we want to encourage people to stay in the area. MSSF could be an important part of broadening experiences of visitors.

Randy Parker, President Simes House Foundation – *Renovating and Restoring Historic Buildings for Public Use (see Fearing Pond Log Bathhouse handout)*

Preserving a historically significant structure requires an evaluation of the property. What we know about the Fearing Pond Bathhouse indicates it is worth doing. We keep tearing things down, if it's the last of it's kind, you've got to save it.

The log bathhouse located at Fearing Pond was constructed by the Civilian Conservation Corps (CCC) and is eligible for listing on the National Register of Historic Places. This makes renovation of the bathhouse eligible for Community Preservation funding. DCR needs to stabilize this last remaining CCC building until it can be renovated. The Bathhouse is unique, rare, historical, and has a practical function. Let's do what we can to sustain it until we can restore and rehabilitate it. Suggested forming a sub committee for restoring the Bathhouse and reusing the Pond again. [Contact Randy. Randy has an engineering and surveying company and offered to work with DCR and the Friends to establish a vision for reuse the CCC log bathhouse. He offered to survey the land and identify wetlands.]

Evelyn Strawn, Vice President, Friends of MSSF – *Friends' Priorities (see FMSSF Priorities handout)*

The Friends of MSSF includes people of diverse interests and backgrounds, but people have put aside their interests for the good of the Forest. The Friends of MSSF is organized to include representatives from all Forest user groups. We have a good partnership with DCR and work together on our priorities. The Friends are currently working on creation of a demonstration native plant garden in the Headquarters area, constructing a green house for propagation of native Pine Barrens plants, and organizing for Park Serve Day, continued trail maintenance, the annual fishing derby and the annual photo contest.

The Friends of MSSF Board of Directors met earlier in the month to generate the attached list of priorities for future Friends projects. The projects are listed in priority order.

C: Randy Parker offered to help design a new trails map.

C: The Fearing Pond Road crossing over the East Head Reservoir dam is a dangerous route for horse trailers.

Melissa Guimont, Board Member, Friends of MSSF- *Greening The Forest Facilities: Recycling and Renewable Resources* (see attached *Suggestions for Infrastructure Management*)
MSSF has been my second home for over 30 years. The Forest is a remarkable resource and needs to evolve. Evolution of the Forest provides good opportunities to "green up" the Forest.. Given DCR's mission, operation of MSSF should be environmentally sustainable. Solar panels should be considered where feasible. The recycling program should be re-established at the day use and campground areas located in the Forest. It may be possible to compost food waste for use in the proposed green house. The CCC log bathhouse and Perry House should be reused.

C: Maintenance of Lower College Pond Road should be a priority.

C: The Host Camper Program should be expanded.

Sharl Heller, President, Friends of MSSF- *Infrastructure for Sustainable Operations* (see attached list of Infrastructure and Operations Issues and Recommendations)

- The Park Watch Program should be promoted to involve more volunteers in monitoring and reporting OHV use in the Forest.
- Remote camper check-in facilities should be developed to facilitate camper greeting, check-in and orientation. The greeters should explain camping rules.
- The camping season should be extended to accommodate hunters and equestrian users.
- A yurts village should be created to accommodate a more urban population. Businesses could be asked to donate yurts.
- When cottages revert to DCR, they should be rented through the Reserve America system.
- Cottage area beaches should be signed to inform visitors that they are for use by the public.
- An ADA accessible trail should be developed with suitable wheel chairs available at the park headquarters.
- The ponds have a recreational limit. Recreational uses should be limited to the capacity of each pond. For example, the parking capacity at College Pond exceeds the capacity of the day use area. The Fearing Pond day use area should be re-opened to reduce pressure on College Pond.
- Water quality should be monitored at Ponds with heavy recreational use and at MCI Plymouth to determine any impact on the sole source aquifer.
- DCR should work with NHESP to fence off sensitive coastal plain pond shore habitat areas.
- The Fearing Pond CCC log bathhouse needs to be stabilized and reused.
- The road crossing over the East Head Reservoir dam needs to be repaired. Ask A. D. Makepeace to cooperate with this effort.
- MSSF deserves to receive more capital funding from the state.
- A real Visitors Center with display areas, a separate large multi-purpose meeting room and MSSF park offices is needed. The Regional Offices should be housed in a separate facility.
- The Perry House should be considered for use as an MEP facility to provide greater police presence in MSSF.

C. The Friends could do more to support the Environmental Police. Interested parties could show up in court and argue for stiffer penalties.

C. DCR should set up contact stations with a large map of the Forest and information at the East Entrance.

Submitted by Sharl Heller.

Friends of Myles Standish State Forest Resource Management Plan Workshop
Infrastructure and Management
February 12, 2011

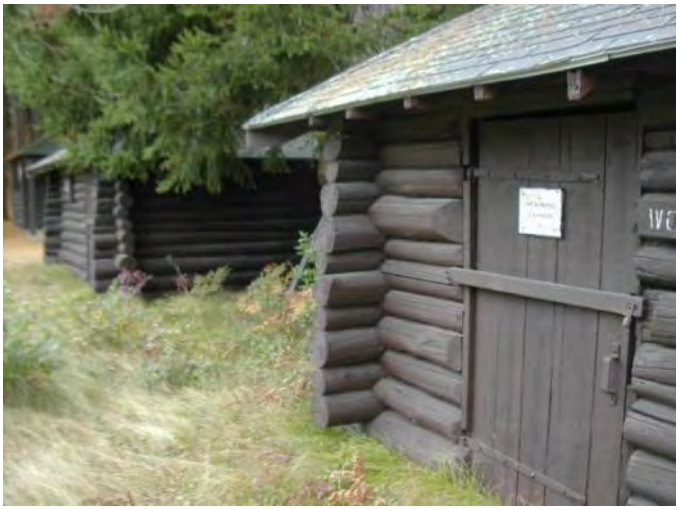
Questions for DCR Staff
(Questions provided to attendees in advance of Workshop to facilitate question and answer session for Myles Standish State Forest staff. Answers contained within the Workshop minutes.)

1. It's midnight 7/15/ - what‘s going on in the forest?
2. How many staff are on the night shift from midnight - 8 am?
3. What happens on the night shift?
4. What time does the day shift start?
5. How many staff are on the day shift?

6. Is College Pond a separate facility within MSSF?
7. Describe the revenue management system at College Pond.
8. How many staff work in the office during the day, what do they do?
9. What is a typical customer question?
10. What is a typical customer complaint?

11. How many campsites are there @ MSSF?
12. Explain how Reserve America works, or doesn't?
13. Who cleans the nine comfort stations?
14. How often are they cleaned?
15. How many Lifeguards are there at College Pond?

Fearing Pond Area with Log Bathhouse (1933-7)
REGION 1 - CCC RESOURCE SUMMARY CHART
RESOURCE DESCRIPTION - REGION 1 - SOUTHEASTERN MASSACHUSETTS
By Shary Page Berg, 1999



Fearing Pond, a natural kettle pond in the southern portion of the forest, was developed by the Civilian Conservation Corps (CCC) as a swimming and day use area. The pond still serves this function but on a limited basis because there are no longer any sanitary facilities. There are two extant buildings at the public swimming area at the southeast end of the pond: a CCC-built log bathhouse and a circa 1960s concession building. Neither building is currently used. There is a large partially paved parking lot between the road and the pond, originally built by the CCC but no longer retaining distinctive features. There are also a number of private cabins scattered around the pond, which pre-date the CCC. The area is generally wooded with mature pines with a small sandy beach at the public use area. Picnic sites are scattered in the woods nearby. The primary CCC resource in this area is a cedar log bathhouse located between the beach and the parking lot. This was one of several similar bathhouses built at Myles Standish and is the only one remaining. The log building consists of a large open-air rectangle containing men's and women's locker rooms. At the two southern corners are enclosed changing areas covered by a hipped roof. There is a small addition on the front (north side) which houses the well. This structure is of a distinctive character due largely to its heavy log construction but is currently unused and subject to vandalism, due in part to the open arcade which makes the building difficult to secure. Remnants of ornamental shrub plantings are located around the building. Several original CCC stone fire pits can be found in the picnic area near the bathhouse. These come in two sizes: small for family-sized groups and large for bigger gatherings. All that remains are clusters of stone; the iron grills are no longer extant.

Fearing Pond Bathhouse is listed under —Significant Resources" in the recommendations section of this report.

- *Unique or outstanding examples of CCC design and construction*
- *High concentration of CCC resources*

Overview of The Fearing Pond Bathhouse at Myles Standish State Forest

By John Welsh, 2008

In the 1930s the Civilian Conservation Corps was actively involved in opening up Plymouth's Myles Standish State Forest for public recreation. At Fearing Pond, members of the Corps cleared out the areas that would become the pond's two camping areas, built three log cabins around the pond for summer rental, and developed the area that would become the pond's public beach. On this public beach site, the Corps constructed a bathhouse, which today is the only remaining CCC structure in all of Myles Standish.

From the time of its construction until the late 1980s, the public beach at Fearing was a popular destination site for picnickers and swimmers. The area was open throughout the summer season and staffed with park rangers and lifeguards. By the early 1990s, however, public interest in this form of recreation had diminished. This, along with budget cuts in the Department of Environmental Management, which at that time operated the property, had an impact on Fearing's public beach. The beach was opened only on weekends in July and August,

frequently without lifeguard services. The bathhouse on the site was neglected and, by the mid-1990s, was closed to public use. Shortly after the new millennium, the public beach was closed completely and has remained unavailable to the public to the present.

Over the past twenty years, then, the CCC bathhouse on the public beach has deteriorated. The most obvious problem is the roof of the structure; there are several holes in the roof and many of the shingles have been displaced. Repairing the roof is a necessary first step in preserving the bathhouse. Structural engineers who have surveyed the property concur that roof repairs are a priority.

Several of these engineers have also been impressed with the overall integrity of the structure, despite its many years of neglect. This integrity is obviously a tribute to the craftsmanship of the CCC workers of so many years ago. Restoring and maintaining the building will be a further tribute to the efforts of the CCC at Myles Standish.

Why we need to preserve the Fearing Pond Bathhouse

By Sharl Heller 2011

The Fearing Pond Bathhouse is the last of its kind! According to Berg's report, besides the bathhouse at Fearing Pond, only one other CCC bathhouse remains in Massachusetts. That bathhouse is in the Savoy Mountain State Forest at the North Pond Recreation Area. Unlike the bathhouse at Savoy Mountain, which is rough-cut lumber, the bathhouse at Fearing Pond is cedar log construction, very rare and quite sturdy. Further investigation may prove that the cedar logs used to build the bathhouse were taken from last cedar trees growing in the forest—trees that may have been sacred to the Native American upland dwelling communities.

Berg's report names the Fearing Pond Bathhouse in her recommendations section:

> In portions of forests that lack utilities (Fearing Pond at Myles Standish) deteriorate more rapidly without ongoing care and present the greatest challenge to DEM managers. Since it is hard to justify expenditures when facilities are not used, identifying creative uses may be one of the best ways to preserve CCC buildings and structures. The former administration building at Pittsfield, which is now an interpretive center, is one recent example of finding a successful new use for a building that seemed beyond hope. —

The bathhouse is a tribute to the workmanship and skill of the CCC. It was built to provide recreational opportunities, mostly for local families. Such facilities are needed even more today. The bathhouse reminds people of a time when families swam and picnicked together in rustic settings. Restoring the bathhouse and reopening the pond to the public will bring that joy to hundreds of families again. How many children today are growing up never having experienced a swim in a natural pond?

Please support the renovation and reuse of the Fearing Pond Bathhouse. Consider incorporating energy saving, environmentally friendly systems, such as solar cells and composting toilets in the renovation. Renovating the historic bathhouse using environmentally compatible systems would combine the workmanship of the past with the technology of the present and become a model of good stewardship and cultural enhancement of public resources.

Friends of Myles Standish State Forest
Priorities 2/9/11

1. Preservation of natural habitat/endangered species
   - Protection of pond shores
   - Protection of frost pockets
   - Planting of native plants
   - Elimination of invasive plants
   - Pine Barrens Community Initiative
   - Expanding sources of funding

2. Enhancement of trails
   - Clean up and maintenance
   - Expansion of trail system
   - Improve signage
   - Develop better map

3. Enforcement of laws regarding illegal use of Off Highway Vehicles
   - Increased ranger and other law enforcement activity
   - Park Watch program/increased reporting

4. Enhance equestrian experience
   - Improved camping
   - Extend camping season
   - Improve communication between DCR staff and equestrian community

5. Enhance educational programs that increase awareness/interaction with nature
   - Good DCR programming
   - Partnering on Take Me Fishin‘
   - FMSSF annual meeting
   - Bird program and support activities
   - Expand interpretive center/consider unused house

Resource Management Plan
February 12, 2011

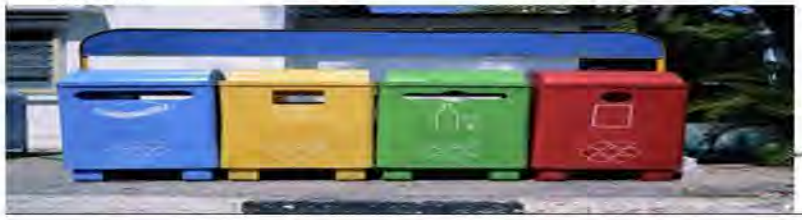
Myles Standish State Forest

February 12, 2011

Prepared by Melissa Guimont

Suggestions for Infrastructure Management

- Set up a contract with a Recycling Service Center (like the one used by DCR Urban Parks) and begin using the Recycling center at the headquarters. In 2007 there was a contract (#FAC33) that was a statewide contract for solid waste and recycling services. We man initiate this by working with the DCR's Stewardship Council to include this on their park management plan.
- Set up recycling receptacles at the camping/beach areas with signs indicating acceptable items.
- Develop a composting area within the forest for use in the forest greenhouse and mulching areas. This may also benefit the Pine Barrens Community Initiative Program that exists currently.
- Add a composting toilet to Fearing's Pond Beach area in the existing, historic outhouse.
- Utilize the Perry House for functions, fundraisers, meetings and/or a small store for supplies pertaining to forest use such as wood, bait and fishing supplies, books and local interest items.
- Add renewable energy resources to our structures such as solar panels to the roofs of the forest headquarters, interpretive center and the campers rest-rooms. This will lower the energy bill for the DCR and also visibly alert the public of our responsibility to the planet. (See attached sheets)
- Maintain roads in need of repair such as Lower College Pond Rd.
- Suggest using mitigation money from NSTAR's transmission line project to cover the costs of some of these improvements such as the solar panel installation and the Perry House reconstruction.
- Reestablish a camp host partnership within each camping area that will enable host families (from a cabin or campsite) to take care of the area's cleanliness and comfort stations. The DCR staff would still provide the necessary tasks of restocking and sanitation, but the host families would do more of the cleaning and "housekeep" of said areas. An example of this would be making sure the garbage bins/recycle bins aren't overflowing, making sure the areas are clean of trash, and alerting the headquarters of problems/ concerns.



Infrastructure and Operations Workshop 2/12/2011
Comments submitted by Sharl Heller, President, Friends of Myles Standish State Forest

1. Issue: MSSF is at the heart of the 2nd largest unbroken tract of pitch pine/scrub oak forest remaining in the world. Enforcement of laws and regulations in MSSF and the areas conservation lands must become the State's #1 priority if we are to preserve the pine barrens.
    a. Install technology to help control illegal activities
    b. Initiate a cooperative effort with all agencies for a targeted approach to enforcement
    c. Involve volunteers in reporting illegal or suspicious activity. Support Park Watch and Trail Watch programs
2. Issue: MSSF contains 400. Campers and camp visitors are required to check-in at the tiny headquarters office, where only one person at a time is allowed in the office. Huge cues occur during camping season with families wasting precious vacation time in the parking lot, which is sub standard service.
    a. Consider camping check-in stations at each campground. Check-in stations require computer with Internet hook up and phone service. Place near comfort station or add additional restroom facility.
    b. Greeters at check-in stations should be providing information on what to do where, trail etiquette and "good camper behavior".
3. Issue: Hunters, equestrians and hearty outdoors campers desire year-round camping at MSSF
    a. Expand the camping season all year at select locations
4. Issue: Many families are denied camping experiences because they lack camping knowledge, worry about being vulnerable in an insecure setting such as a tent or sleeping outdoors, can't afford the investment in camping equipment, or their physical condition prevents the effort camping requires.
    a. Consider expanding the number of yurts in the Forest. Create a "yurt village".
    b. Allow year round camping at yurt villages
    c. Expand the Host Camper program
    d. Add security gates to camp ground entrances
    e. Partner with business to sponsor yurts
5. Issue: Preferential camping. Permanent camps are leased by DCR only to specific families. I question the legality of allowing preferential camping on public lands, but understand that the camps are under a sunset clause and that the State is trying to be fair to the leaseholders.
    a. As "camps" become available, consider replacing them with yurts or leasing them to the public
    b. Place signs at ponds where permanent camps are located notifying the public that all beach areas are open to the public
6. Issue: The Forest is inaccessible to many
    a. Create at least one accessible trail in MSSF
    b. Provide a few trail-able wheel chairs and buggy rentals for families with accessibility problems but want to enjoy the Forest.
7. Issue: Ponds and natural systems have limits to how much recreational use they can sustain.
    a. Study the Forest for sustainability. Does infrastructure match sustainability?
        i. Do the sizes of parking lots coincide to the limit of users allowed at a site?
        ii. Is the water quality changing due to overuse? What consequences could a decline in water quality have for the Plymouth Carver Aquifer?
        iii. What impact is the Correctional Facility having on MSSF and on the water table?
        iv. Would opening up other areas, such as Fearing Pond, take the pressure of heavily used areas like College Pond?
    b. Mark or sign areas where endangered plants and animals reside to avoid inadvertent destruction by visitors

c. Map entire Forest showing sensitive areas where higher fines may be applied for destroying habitat. Distribute the maps to park staff and all enforcement agencies.
d. Inventory trail system to assure compliance with environmental regulations and that trails are maintained to avoid degradation of the environment

8. Issue: The Fearing Pond bathhouse, beach and picnic area are closed to the public. Generations before have enjoyed family picnicking and swimming at a lovely sandy beach and pristine pond, the experience of which is lost to the current generation. This is a shame.
    a. Reopen the beach with temporary portalettes, if necessary, until permanent comfort stations can be built. Partner with private groups or let out as a concession, if possible
    b. Renovate Fearing Pond Bathhouse incorporating modern comfort stations
    c. Provide life guards for public safety
    d. Save historic Civilian Conservation Corps building, the last CCC build log bathhouse in the State

9. Issue: For goodness sakes fix the bridge!
    a. DCR must work harder with the owners of the East Head Reservoir to repair the bridge. It is unacceptable that for many years the park staff, campers and visitors must spend extra time and gasoline to go around the entire East Head Reservoir, miles out of the way, to reach the southern camping areas because the bridge is out.

10. Issue: Instead of a ~~"p~~ine barrens" formerly thought of as junk land, ~~"b~~arren" in importance to agriculture, MSSF is now known to be central to preserving the globally rare pitch pine scrub oak ecosystem. As lands for recreation have declined, visitors to the Forest have increased. Once surrounded by privately held forested and agricultural lands, MSSF is now nearly surrounded by housing developments. While DCR has done much to support the Friends of MSSF's Pine Barrens Community Initiative, DCR must do more to inform visitors of the critical nature of MSSF and the pine barrens. The largest Forest Reserve in southeastern Massachusetts, the MSSF should become a showcase park.
    a. MSSF is the 2nd largest public land in Massachusetts but its infrastructure is at the bottom of important DCR properties.
        i. Evaluate the MSSF Headquarters building built in the 1950's. Replace with a modern building with efficient offices and room for staff, appropriate check in desk for visitors and campers, historic and cultural display areas and information center for users
        ii. Build a visitor's center with a large central areas for displays educating the public about the importance of the pine barrens ecosystem
        iii. House camper check-in visitor's center so that campers are exposed to the ~~"w~~onders of the pine barrens", provide camping supplies, and firewood distribution center
        iv. Include a separate meeting room for 50+ people for community events and interpretive programs
    b. The MSSF Headquarters and the Regional Headquarters share the same building. Separate buildings should be provided for MSSF staff and DCR staff. The locked door between the offices of the two agencies gives everyone a negative impression
    c. Consider housing MEP at MSSF (Perry House) to maximize the effectiveness and highlight the importance of enforcement in MSSF

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Appendix O. Public Comments on Draft RMP

A public meeting to present the draft Resource Management Plan for MSSF was attended by 35 people on July 14, 2011 in the CCC Amphitheatre at Myles Standish State Forest. Responses to questions raised at the July 14th meeting were posted on the DCR web site after the meeting. The draft RMP was made available on the DCR website, at the Plymouth and Carver Public Libraries, and at the MSSF park headquarters on July 15, 2011. The public comment period on the draft MSSF RMP ran from July 15, 2011 through September 15, 2011. Written comments were received from 62 individuals and nonprofit organizations during the public comment period.

Five comment letters argued for increased enforcement of the ban on off highway vehicles (OHV). No comments were received supporting OHV use at MSSF. The Nature Conservancy and Mass Audubon supported controlled burning and mechanical treatments to reduce wildfire hazards while maintaining habitat for rare species living in the Pine Barrens. No comments objected to these active management techniques within a Reserve.

All comments received during the public comment period were given consideration. Proposed changes consistent with DCR's mission and policies, Massachusetts laws and regulations were considered for inclusion in the final draft. Many public recommendations have been added to this plan. Suggested recommendations best implemented by an agency or organization other than DCR were not included. The following changes were made to the draft Resource Management Plan in response to public comments received by DCR. Normal editing activities and minor technical edits are not identified.

Executive Summary

The Executive Summary was revised to reflect four new or revised high priority recommendations that were incorporated into the RMP as a result of public input, including:

- Conduct both natural and cultural resource surveys to identify sensitive resources in areas scheduled for fuel reduction, controlled burns or plantation removal operations.
- Work with MassWildlife to prepare a new management plan and MOA for the pheasant and quail Wildlife Management Areas to control non-native species, promote native plants and reduce trail impacts in consultation with the NHESP.
- Prepare site plans for each cottage pond that protects sensitive wetland communities, corrects shore erosion, provides appropriate access for public recreation and preserves the cottage communities. The site plans should identify cottages that must be removed or relocated to protect sensitive wetland communities or provide appropriate public recreational access.
- For the remaining privately owned cottages, continue the current management policy of eventually eliminating the private cottage program through gradual retirement of existing permits.

Section 2.1. Ponds

The UMass Acid Rain Monitoring Project description on page 19 was revised to:

The UMass Acid Rain Monitoring Project has monitored the pH, alkalinity and other water quality indicators at College Pond from 1983 through 2010 (www.umass.edu/tei/wrrc/arm). Over the past decade, the pH of College Pond has risen from 5.25 to 6.47 (reflecting decreased acidity), while alkalinity has increased from 1.1 to 2.6 mg/L of $CaCO_3$, which increases the acid neutralizing capacity of the pond.

Section 2.3. Private Cottage Program

Fifty four sets of comments were received from cottage owners who strongly objected to the RMP's assessment of the existing cottage program and provided detailed arguments for continuing the program. No comments were received criticizing the existing cottage program.

Appendix O. Public Comments on Draft RMP (Continued)

In their comments, cottages owners pointed out that they are important partners that assist DCR by:

- Picking up trash around the pond's shoreline and roadways.
- Offer aid and directions to pond visitors.
- Extinguish campfires left behind by day users and campers.
- Report incidents of abuse to forest headquarters.
- Assist swimmers and boaters in distress.
- Contribute almost $500,000 per year in permit fees to the state.

In response to criticisms of the cottage program, the owners noted that:

- Twelve years of water quality monitoring have not documented any pollution of drinking water wells or pond water by the cottages.
- Cottage families are dedicated to protecting the character, environment and safety of recreational users in the forest.
- At Fearing Pond, 76% of cottage sales over the past 89 years were to new members of the general public, while only 24% were to family members or heirs.
- The cottages are also enjoyed by relatives, friends, guests, church groups, boys and girls clubs, boy and girl scout groups, school groups, civic clubs, senior citizen groups, handicapped individuals and civic associations.
- Only 1 of 495 respondents to the U/Mass 2009 Visitors Survey criticized the cottage program.
- —No Access Beyond This Point," —Danger Unguarded Water," and —Area Closed" signs criticized by the State Auditor were erected by DCR.
- With the state's current fiscal crisis, DCR needs the cottage permit fees more than ever.
- The cottage owners worked diligently with DEM to correct findings in the 1989 audit report.
- The beach area in front of the cottages is not included in the permit and the public has full access to the shoreline in front of the cottages.
- The cottage program provides 24 hour forest security by placing many eyes on unstaffed ponds.
- DCR has reduced the available swimming area at College Pond from 530 lineal feet of beach to the present 247 lineal feet. Re-opening the 830 lineal feet swimming area at Fearing Pond and using the entire swimming beach at College pond will increase swimming beaches available at the day use areas by 446%.

Changes in this section include:

- Page 45 - Deleted last sentence of first paragraph containing erroneous information about new permits since 1939.
- Public Access, Page 48 - Deleted first two paragraphs of Public Access section containing unsubstantiated information about new permits and signs erected by permit holders.
- 2005 State Auditor's Report, Page 49 - Deleted first sentence of 2nd bullet and 3rd bullet containing unsubstantiated information about signs erected by permit holders, and compliance with building, plumbing and electrical codes.
- Drinking Water Testing, Page 49 - Added an introductory sentence: Private cottage owners have been testing their drinking wells from 1999 to the present.
- Drinking Water Testing, Page 49 - Revised the last 2 sentences of the first paragraph to read: No harmful concentrations of ammonia were found in any private drinking water well during the period 1999 through 2005. Presence of ammonia is an indicator of a failed septic system. From 1999 through 2010, no nitrate has been found in the private wells (Bentley, letter of August 21, 2011).

Appendix O. Public Comments on Draft RMP (Continued)

Section 4. Land Stewardship Zoning

The Nature Conservancy commented that the RMP did not adequately reconcile a Reserve Landscape Designation with proposed Land Stewardship Zoning for MSSF. They recommended that language be added to the RMP stating that statewide Land Designation guidelines take precedence over facility specific Land Stewardship Zoning if there is a conflict.

The following clarification was added to the Land Stewardship Zoning section on page 71:

The DCR uses a two-tier system for guiding the management of its parks, forests and reservations: (1) the Landscape Designation of entire properties, or major portions of properties, is intended to assess and guide land use activities of properties throughout the entire DCR system; and (2) Land Stewardship Zoning, which is applied to properties on an individual basis through the Resource Management Planning process, incorporates site specific information to guide the management of specific areas within these properties.

Regardless of the landscape level designation or site specific zoning application, the DCR‘s objective is to provide sound stewardship for natural and cultural resources, while complying with all applicable state and federal regulations, and to provide sustainable recreational opportunities.

At the statewide scale, the DCR is designating all of the facilities within the State and Urban Parks System as parklands, woodlands or reserves, as a means to differentiate the primary ecosystem services provided by these facilities, make land use management decisions based upon these services and communicate the agency‘s land use management objectives to the public. These designations, which can be applied to a facility in its entirety or split facilities so that more than one designation is applied to an individual facility, have been determined via the use of available GIS computer modeling information, drawing upon statewide resource databases with additional input by DCR field staff. These designations are designed to provide a framework of overarching management guidelines for the entire DCR system.

At the site specific level, the inventory and assessment of resources during the preparation of a Resource Management Plan leads to the zoning of specific sites and resources within DCR properties, based on their sensitivity to recreational and management activities that are typical for that facility. Through this process, site specific resource information can be factored into land use management and decision making and provide guidance for the stewardship of these resources.

The three land stewardship zones provide a general continuum to categorize resources relative to the potential degradation from human activities, from undisturbed sites with highly sensitive resources, through stable/hardy resources, to sites that have been developed and consistently used for intensive recreation or park administration purposes. Significant feature overlays are applied to highlight resource features that have been researched and assessed by professional resource specialists. Management and protection of these significant features is guided by specific management recommendations that have been developed by resource specialists. The Land Stewardship Zoning system helps to ensure that visitor and management activities do not degrade ecological or cultural resources.

Application of the three-zone system to individual DCR properties is facilitated by gathering available field data related to natural and cultural resources, recreational uses and developed facilities during the RMP process. Lands of special resource sensitivity and significance are identified and mapped. Resource and landscape features such as priority habitat areas, endangered species, wetlands, streams and ponds are mapped as part of this approach. This type of mapping and data collection, based on the best information currently available, provides the basis for subsequent analysis and the development and application of appropriate management guidelines for specific resources, designed to provide greater protection to valuable natural and cultural assets.

The Land Stewardship Zoning process identifies areas where the general management guidelines for the overarching Landscape Designation are not adequate to fully protect these embedded areas (e.g. highly sensitive ecological or cultural assets within any of the three Landscape Designations). The finer grained land stewardship zones are needed to provide management guidelines on a site and resource specific level.

4.3. Recommended Land Stewardship Zoning

Zone 2: The Zone 2 description on page 74 was revised to clarify habitat types included in the proposed zone: Most of the forested habitat including white pine forests, pine plantations and hardy Pine Barrens pitch pine and scrub oak communities.

Significance Feature Overlays: To coordinate the RMP text with the Recommended Land Stewardship Zoning Map, text for the Historic Resources overlay was deleted and the following description of the Wildlife Management Areas overlay was added to page 74:

Wildlife Management Areas: The DFW pheasant and quail Wildlife Management Areas (WMAs) are included in this overlay. The habitat management strategy implemented in the WMAs involves the creation of small clearings of early successional habitat within the dominant Pine Barrens community. These clearings are important to grassland wildlife for nesting and brood rearing, as they supply food in the form of herbs, grasses and insects for bluebirds, whip-poor-wills, bobwhite quail, ring-necked pheasant, ruffed grouse and small mammals. The WMAs included in this overlay should be managed to enhance and protect Pine Barrens, coastal plain pond shore and vernal pool habitat from overuse and avoidable environmental damage. Hiking and hunting should be concentrated on previously established and appropriately located trails. Access to pond shores with intact soil and vegetation should be avoided. The presence of invasive species should be monitored and controlled. Review management practices with DFW and re-establish a MOA.

Table 5.1.1. Plant and Wildlife Habitat Recommendations

The following recommendation was added:

- Conduct both natural and cultural resource surveys to identify sensitive resources in areas scheduled for fuel reduction, controlled burn or plantation removal operations.

Table 5.3.1. Cultural Resource Recommendations

In response to comments submitted by the Massachusetts Historical Commission (MHC), the following recommendation was added:

- Prepare and submit MHC Archaeological Site Forms for sites identified in this plan, but not already included in MHC‘s inventory.

Table 5.4.1. Sustainable Recreation Recommendations

The Private Cottage Program recommendations were revised to read:

- Prepare site plans for each cottage pond that protects sensitive wetland communities, corrects shore erosion, provides appropriate access for public recreation and preserves the cottage communities. The site plans should identify cottages that must be removed or relocated to protect sensitive wetland communities or provide appropriate public recreational access. Upon approval of the site plans, give three years notice of permit termination for cottages identified for removal.
- For the remaining privately owned cottages, continue the current management policy of eventually eliminating the private cottage program through the gradual retirement of existing permits.
- The DCR will maintain and rent appropriately sited cottages in good condition to the general public as cottage titles revert to the Department.
- As with all DCR facilities, sanitary systems for all remaining cottages must be certified for compliance with Title 5 of the State Sanitary Code.

Appendix O. Public Comments on Draft RMP (Continued)

Table 5.6.1. Partnership Recommendations
The following recommendation was added:

- Foster partnerships with colleges and universities with degree programs in biology, botany, archaeology and history to assist in carrying out lower priority natural and cultural resource recommendations (e.g. Pine Barrens, eastern box turtle and invasive plant surveys and historic documentation for the ―Old Homestead" and Park Headquarters Complex).

Appendix H. Cultural Resource Policy
The current Cultural Resource Policy was inserted into the appendix.