



View of the River Otter exhibit and Trailside Museum Visitor Wing beyond (Pressley Associates 2007).

2. Summary of Current Conditions

This chapter summarizes existing conditions at Trailside, to help frame the issues, program, and design recommendations addressed in Chapters 3 and 4. Much of the information contained here was presented in greater detail as the Master Plan Phase 1 submittal: Summary of Findings. The complete building inventory and evaluation has been updated and is included as Appendix A. For brevity, Appendices included in the Summary of Findings, such as American Zoological Association (AZA) standards and cultural resource documents, are not contained in this Master Plan. The site and building inventory for this section was conducted in Summer 2007, so a few site conditions have changed with the ongoing installation of the NSTAR exhibit, accessibility improvements, new fencing and relocation of program animal holding structures, and the picnic area.

Landscape and Site

The Trailside project area at the Blue Hills Reservation consists of a nine point three one (9.31) acre site located along Canton Avenue/Route 138 near its intersection with Interstate 93/128 in Milton, Massachusetts approximately ten (10) miles south of Boston. Trailside is located at the base of the Great Blue Hill

and adjacent to the Blue Hills Ski Area, both DCR properties with which Trailside shares its parking lots.

The roughly triangular property features two (2) prominent buildings, the existing Trailside Museum, a complex of three (3) internally connected wings, and the Canton Ave. Restroom, designed in 1904 by Stickney & Austin, as well as numerous auxiliary structures, including a maintenance garage, barn, holding sheds, deer-feeding shelter, and duck blind. Along the western edge of the property, two (2) large bituminous concrete parking lots accommodate up to two-hundred and eight (208) parked vehicles. Three (3) trailheads originate from Trailside, leading to the summit of Great Blue Hill and the Blue Hill Observatory via alternative routes. A set of stairs also leads from the southern lot to the Blue Hills Ski Area.

Topography

The topography surrounding Trailside slopes from the southeast to the northwest of the property for a grade change of approximately sixty-five vertical feet (65'). At the core of the property is an approximate half-acre man-made pond at an elevation of approximately two hundred thirty-six feet (236'). A drainage swale feeds into the pond from the east and the pond

is drained by an intermittent stream that flows to the north along the side of the northern parking lot.

The eastern (upland) portion of the site, which features live animal exhibits, is the steepest portion of the property, with an approximate average slope of eleven point five percent (11.5%) from east to west. The portion of the property nearest Canton Avenue is the most level portion of the property, sloping at an approximate average grade of one point three percent (1.3%) from south to north. Steep slopes on many of the property's (paved) walks and (unpaved) paths prevent universal access. In some areas, the slopes on principal access walks and paths exceed ten percent (10%).

Universal Site Access

Universal site access is intended to accommodate access to sites, facilities, buildings, and elements for individuals with disabilities. For the purposes of site access at Trailside, the standards set forth in the Americans with Disabilities Act of 1990 (ADA) relate principally to the design of walks and paths, as well as parking for mobility impaired individuals. ADA stipulates that "at least one accessible route shall be provided within the site from accessible parking spaces and passenger loading zones; public streets and sidewalks; and public transportation stops to the accessible building or facility they serve".¹ For accessible routes, ADA recommends that walks not exceed a slope of 1:20 (5%), with a cross-slope not to exceed 1:48 (2.08%). In most locations, a thirty-six inch (36") minimum clear width is required unless special provisions are made for narrower and wider areas. Ramps, which are distinguished from walks by the addition of handrails, are recommended not to exceed a slope of 1:12 (8.33%).

Many of walks and paths at Trailside currently exceed the five percent (5%) threshold for accessible walks. Additionally, the surface material of many of the paths does not meet the recommendations of the ADA, which does not recognize loose gravel as a universally accessible surface treatment. For universal access, acceptable walking surfaces are stable, firm, and slip-resistant, with the exception of those walks within animal containment areas.



View up the steep path leading from the south parking lot to the existing Museum building entrance and outdoor exhibit area (Pressley Associates, 2007).

Most walks, paths, and areas that are oriented parallel to the topography of the Trailside site (in the north south orientation), as well as the majority of the bituminous concrete walkway around the pond and the surface of both parking lots are universally accessible. However, at present, there is no fully accessible route to the existing Museum building from either parking lot. From the southern parking lot, the slope on the walk from the lot to the building entrance and outdoor exhibit area exceeds the 1:20 (5%) threshold for accessible walks. From the north parking lot, portions of the walk exceed the 1:20 (5%) threshold and some paths are surfaced with loose gravel, a non-accessible surface treatment.

The route from the north parking lot to the Canton Ave. Restroom is universally accessible; the building is currently being renovated to provide accessible toilets. The only existing universally accessible restroom is located in the existing Trailside Museum building, which itself is not universally accessible from the parking lot.

Both parking lots have the correct number of accessible parking spaces. However, one (1) of the accessible parking spaces in the south lot is blocked by a bike rack, which is rusted and in poor condition.

Circulation

Vehicular Circulation & Arrival

Vehicular circulation at Trailside is restricted to the property's two (2) parking lots, which are accessed from Canton Avenue. Circulation in both lots is determined by the one-way entrance and exits to the lots. In both lots the entrance occurs on the southern-most end and the exit on the northern-most end. As a consequence of the one-way circulation pattern of the parking lots, views of Trailside from the entrances to both lots are obstructed. Left-turns are restricted both from the parking lots onto Canton Avenue, and from Canton Avenue into both parking lots. This means that the parking lots can only be entered (legally) by vehicles traveling north on Rte 138/Canton Avenue, and that vehicles must also exit by turning right (northbound).

The south parking lot is striped to accommodate one hundred and three (103) vehicles, including four (4) accessible parking spaces, and the north parking lot is designed to accommodate one hundred and five (105) vehicles, including five (5) accessible parking spaces. The south parking lot has ten (10) spaces designated as staff parking. While this appears to accommodate a substantial parking capacity, the parking spaces are below standard size so that the actual usable capacity is substantially less than 208 striped parking spaces. This problem is particularly acute during winter ski season when the south lot is shared with the Blue Hills Ski area.



Entrance to the south parking lot, note the small green parking sign at the center of the image (Pressley Associates, 2007).

Service access to the Trailside Museum building is facilitated by a bituminous concrete walk/drive that extends perpendicular to Canton Avenue along the south side of the building. Service access to all of Trailside's facilities interferes with the visitor experience, creating an unsafe condition, and parked maintenance and program vehicles (at the garage) present a visual intrusion in the exhibit area. No loading or unloading zone for cars, vans, and/or school busses is provided. Given the large visitation by school groups, the addition of a loading zone may both increase visitor safety and benefit the entrance and arrival experience.

Pedestrian Circulation & Visitor Sequence

Pedestrian circulation and visitor sequence is determined largely by the parking lot in which the visitor chooses to park. For pedestrians in the south parking lot, the entrance to the Trailside Museum and outdoor exhibit area is reasonably clear. To enter the building, visitors ascend a steep (6-11%) walk that leads from the south lot to the building entrance. The walk is bordered by a low split-rail fence and a wildflower garden.

An informational board welcomes visitors to Trailside before they enter the outdoor exhibit area through an eight foot (8') high black sliding chain-link fence gate. The slope of the walk in this area is not as steep (1.2%), and both stairs and an accessible ramp with handrails lead to the building entrance.

For pedestrians in the north parking lot, three (3) walks lead out of the lot in the direction of the existing building. The first paved walk follows Canton Avenue, traversing an un-mown meadow, eventually leading to the service drive and south parking lot. Portions of this walk at both its southern and northern end exceed the 1:20 (5%) threshold recommended for universal access. The other two walks pass the historic Canton Ave. Restroom building on either side and converge at an eight foot (8') high black swinging chain-link fence gate. Selected views of the pond are possible along the right side of the loose gravel path and the deer barn can be seen ahead through the trees ahead; the Museum building, however, remains out of sight and no directional signs indicate its location. The pedestrian route from the north parking lot to the existing Museum entrance and outdoor exhibit area is inaccessible due to steep slopes along the path and the path's gravel surface.

At the time the site survey and inventory was completed in 2007, visitors to the outdoor exhibit area at Trailside travelled on a loop inside which the animal enclosures were placed. Once

the 2008 site improvements are complete, the exhibit area will contain an elongated inner loop of compacted stonedust, most of which is accessible, with spur trails connecting to specific exhibits, pond, and picnic area. From the Museum entrance, the River Otter exhibit serves as the focal point of the animal enclosures; from there, visitors can explore the outdoor live animal exhibits, principally turtles, Snowy Owl, White-tailed Deer, and Red Tailed Hawks, with new Rocky Outcrop exhibit for Red Fox and a new fenced enclosure for Turkey Vulture.² Although some wide granite steps have been added to connect portions of the exhibit paths at varying elevations, overall the improvements create accessible viewing to most of the enclosures and are a enormous improvement to the site.



New path under construction within the animal enclosure area (Pressley Associates, 2008).



New NSTAR Rocky Outcrop exhibit, nearly complete (Pressley Associates, 2008)

The pond loop follows the edge of Blue Hills Pond from northeastern corner of the existing building to the gravel path near the Canton Ave. Restroom. The pond walk is paved with bituminous concrete and varies in width around five and one half feet (5.5'). The majority of the pond walk is accessible with the exception of a small, twenty-five foot (25') length near the Museum building that exceeds the ADA recommended slope. The pond walk features a synthetic wood boardwalk, synthetic wood dock, and a small synthetic wood bridge that crosses the intermittent stream, which drains the pond. There are no railings on the boardwalk so it is easy for visitors to reach the water and/or trample the fragile wetland vegetation. For this reason, the pond walk is closed to regular visitors and is only open for organized walks supervised by a naturalist.

Five (5) small green signs, located around the pond, provide interpretive information about the pond ecosystem. Two of these signs, however, are faded beyond legibility. Informational signs at both entrances to the pond walk provide additional information and identify the donors who contributed to the construction of the walk. Locking split-rail gates at each entrance restrict access to the pond.



Northern side of the existing Trailside Museum building from the synthetic wood boardwalk, note the faded green interpretive sign (Pressley Associates, 2007).

Recreational Trail Connections

Three (3) recreational trail connections lead from Trailside to the summit of the Great Blue Hill. All trails emanate from the two parking lots and are marked by signage that indicates the trail's name or destination.



Informational sign and Red Dot Trail entrance at the south parking lot (Pressley Associates, 2007).



Existing kiosk at the entrance to the Wolcott Path at the north parking area (Pressley Associates 2008).

The Red Dot Trailhead, which is the most popular trail in the Blue Hills Reservation leading to the summit of the Great Blue Hill and to the Blue Hill Observatory, is located in the south parking lot. The trailhead has both an informational board and directional signs at its entrance. However, the entrance to the trail is partially obstructed by parked vehicles. A set of new granite stairs with stone dust treads in good condition begins the

trail as it wraps around the perimeter fence of the Trailside outdoor exhibit area and ascends the hill. This trail segment follows a relatively straight alignment up the face of the slope. This alignment was originally a drainageway until it was improved as trail in the 1970s, with the trailhead relocated from its original site near the center of the existing parking lot. The straight alignment directly down the face of the slope continues to create drainage challenges.

In the north parking lot, there are two (2) trailheads. The first trailhead, located nearest the Canton Ave. restroom, connects to the Wolcott Path from the east side of the parking lot. The trailhead is marked by an informational board and granite trail marker. The second trailhead in the north parking lot leads from the far (northernmost) end of the lot to the Green Dot Trail and connects to the Summit Road, which leads to the Blue Hill Observatory. This trail is identified by a small white sign.

Vegetation

Vegetation at Trailside is largely natural and consists primarily of a mature deciduous and evergreen tree canopy with mown lawn and low natural understory. The bulk of the evergreen trees on the Trailside property are located near the River Otter enclosure and along the east side of the south parking lot. Many of the native Eastern Hemlock (*Tsuga canadensis*) are infested with Hemlock Woolly Adelgid (*Adelges tsugae*), but are being treated with some success. With the exception of the area along Canton Avenue, mature trees serve as a dense backdrop to the buildings, structures, and outdoor exhibits at Trailside and create the enclosed, forested setting.

Along Canton Avenue, the landscape is more open. A partially un-mown wildflower meadow borders Canton Avenue and the walk that connects the north and south parking lots. From the road, the meadow is quite pleasant to walk through and attracts many insects and birds. Its adjacency to Canton Avenue, however, is undesirable for both wildlife and visitors due to the constant sound of passing vehicles. At the entrance to the Trailside Museum building from the south parking lot, a wildflower garden provides an attractive foreground planting for the entrance experience, although this is a high-maintenance garden.



View south along the walk through the partially un-mown meadow (Pressley Associates, 2007).

An Arborvitae (*Thuja occidentalis*) hedge of fourteen (14) trees parallel to Canton Avenue along the west side of the pond provides a screen from the road and a backdrop for views of the pond from the Museum. Planting around Blue Hills Pond, while still young, is largely naturalistic and consists of many native plants. The pond's edge is un-mown, but periodically pruned to keep paths and sight lines clear. Bordering vegetated wetlands (BVW) occupy the sides of the man-made pond and the banks of the intermittent stream that drains the pond.

Small-scale Features

Water Features

One (1) drainage swale leads into Blue Hills Pond and one (1) intermittent stream leads from the pond off the Trailside property. The drainage swale leading into the pond is formed by two (2) drainage swales that converge near the Red-tailed Hawk enclosure to feed into the pond near the duck blind. An area of sedimentation has formed in the southeast quadrant of the pond where the drainage swale enters.

An intermittent stream drains the man-made pond from its north side and flows along the eastern side of the northern parking lot. Additionally, the drainage stream receives rainfall from the northeastern corner of the northern parking lot. Near the pond and where the drainage swales and stream border/cross walks and paths, the drainage swales and stream are reinforced with rocks or granite blocks to prevent erosion. However, the steepness of the site frequency results in sedimentation downstream.

The pond was constructed in 1960 with an asphalt bottom to ensure retention of water, and is approximately point four five (.45) acres in size. The man-made pond is dependent upon rainfall to supply it with water, with some water channeled down the slope in the existing drainage swales. During dry spells, the bottom of the pond is exposed along the eastern side. Discharges from flushing and cleaning of the River Otter and turtle enclosures flow into the pond along the east side.



Westerly view of the pond showing the boardwalk (Pressley Associates, 2007).

The River Otter enclosure is a concrete basin, the bottom of which is half filled with a pool of water and half occupied by a dry upland area for the single otter. A drain at the bottom of the pool draws water from the pool with out-flow spouts along the edge of the pool near the surface of the water. Nearby, the turtle enclosure is a concrete circular pool with an island in the middle. The island provides a basking location for the turtles. A shrub planted on the island provides shade for the turtles.

Furnishings

Site furnishing at Trailside are minimal. Four (4) wooden picnic tables were located in 2007 near the White-tailed Deer enclosure, along with two (2) trash receptacles and served as the eating/picnic area for Trailside. The furnishings were in good condition, located in the shade of mature trees. Four (4) brown painted wooden benches, located around the Turtle enclosure, are another popular location for resting and eating at Trailside. The benches are in fair condition and in need of a fresh coat of paint.



Wooden picnic tables in the loose gravel area adjacent to the White-tailed Deer enclosure, prior to 2008 improvements (Pressley Associates, 2007).



New picnic area under development on the north side of the outdoor exhibit area (Pressley Associates, 2008).

One (1) exterior drinking fountain is located along the northern side of the existing Trailside Museum building. The fountain is mounted against a wood post and in poor condition. In accordance with ADA, Trailside should have at least one fully accessible drinking fountain, and a seasonal drinking fountain was added in 2008 outside the Canton Ave. Restroom.

An aging, rusted, and partially bent bicycle rack in the southern parking lot provides bicycle parking at Trailside. In addition to its deteriorated condition, the bike rack is located in one of the accessible parking spaces. A dumpster, surrounded by an eight foot (8') high chain-link fence with black plastic fence slats is located in the north parking lot adjacent to the accessible

parking spaces. The dumpster detracts from the appearance of the already bleak parking lot.

Fences

There are four (4) principal fence types at Trailside. An eight foot (8') high black chain-link fence, which is required by the U.S. Department of Agriculture (USDA) for the area containing live mammals, surrounds the entire outdoor exhibit area, the existing Museum building, and Blue Hills Pond, and excluding the two parking lots and the connector path along Canton Avenue. At the two entrances to the property (near the southern and northern parking lots), chain-link fence gates regulate access. The fence was installed in 2000 and is in good condition. All of the chain-link fencing that forms the enclosures for the exterior zoological exhibits was replaced in 2008 and is in good condition.

Split-rail fences border many of Trailside's walks and paths, including portions of the walk from the south parking lot to the entrance to the Trailside Museum building, the entrance path from the north parking lot to the Trailside Museum building, and visitor paths within the outdoor exhibit area. In general, the split-rail fence is in good condition, with many new segments added in 2008.



Section of new and old split-rail fence on the path above the pond, between the duck blind and Turkey Vulture enclosure (Pressley Associates, 2008).

As part of the current improvements, a wood board fence, approximately six feet (6') in height has been added to screen views of service areas – the maintenance garage and program bird holding buildings (mews).

Wood guard rail surrounds the majority of both parking lots and is in fair to poor condition. In both parking lots, portions of the horizontal rail are broken and present an undesirable roadside appearance.

Public Transportation Connections

Trailside is somewhat accessible by public transportation from the greater Boston area. From the MBTA Red Line Ashmont Station, the high speed line to Mattapan brings visitors to a privately operated bus route with roughly hourly service past Trailside. From Mattapan, Trailside is an approximate fifteen (15) minute bus ride on JBL Bus Line 716. Although Trailside is listed as one of the principal stops on Line 716 schedule, the JBL Bus will stop at any safe location along the route if indicated to the driver. Service is provided on this route Monday through Friday from approximately 7AM to 6PM and Saturday from approximately 8AM to noon with no Sunday service.

Access to Trailside by public transportation is complicated and potentially time consuming. Additionally, with bus service to Trailside operating only on weekdays and in the morning on Saturday, it is possible that the bus schedule may be incompatible with preferred visitation times. The DCR Blue Hills Reservation website provides only a brief description of the public transportation route and does not provide details or links to related public transportation websites. Although the Massachusetts Audubon Society website provides excellent driving directions to Trailside in a printable format, the site does not reference any public transportation connections.

Drainage/Stormwater Assessment

Trailside's existing site drainage characteristics and stormwater management were assessed in three discrete parts, the south parking lot, Blue Hills Pond and the north parking lot. These areas comprise three (3) distinct systems, differentiated by their tributary areas, types of outlets and by the physical characteristics of their drainage systems.

South Parking Lot

The area contributing runoff to the south parking lot consists primarily of a portion of the steep, forested hillside of the Great Blue Hill up to the Blue Hill Observatory. Runoff from the south side of the site and from the parking lot pavement also contributes to this system, for a total of approximately twenty-one (21) acres. Runoff from the hillside enters the parking lot along the entire easterly edge of pavement. Runoff from the

south portion of the Trailside site (south of the entrance/main walkway) is collected in a series of small swales, paved waterways and small culverts along the edge of the walk, and discharged to the pavement at the northeasterly corner of the lot via a paved waterway and earth swale. The parking lot pavement is graded to direct runoff to a centerline gutter, running from north to south, directing flows to a single catch basin near the southerly entrance. Bryant Associates' field survey crew could not see any outlet pipe from this catch basin during their July 2, 2007 site survey. A fifteen inch (15") diameter reinforced concrete pipe culvert was observed during a subsequent site visit, which would appear to channel runoff from the south parking lot catch basin, under the driveway to the south, discharging to the ground through a headwall located south of the driveway. This culvert was observed in August 2007 to be half filled with accumulated sediment.

The major problems observed during site visits appear to be inadequate capacity of the stormwater collection system and control of sedimentation. All of the runoff entering the parking lot is directed to the center of the pavement, in the bus parking area, where it creates problems for passengers boarding and exiting the buses. Since all of the runoff is directed to a single catch basin, removal of water from the pavement is slow; puddling and icing result. While some settling out of the sediments carried from the hillside through naturally occurring erosion takes place before it reaches the pavement, some sediments are deposited on the pavement, and eventually are washed to the catch basin and culvert at the south end of the lot. As noted above, it is not clear whether there is a pipe connection between the catch basin and the culvert. In any case, maintenance of this collection system is probably more frequently required than would be expected.

Blue Hills Pond

The following is a synopsis of the findings described in the *Watershed Management Plan, Blue Hills Pond, Milton, MA*, prepared by Baystate Environmental Consultants, Inc. (BEC) in October 2006 and subsequent observations by Bryant Associates personnel in August 2007.

Blue Hills Pond receives stormwater runoff from the hillside of the Great Blue Hill, primarily via a variable width natural watercourse, which enters the Trailside site near its northeasterly corner and runs westerly through the site, entering Blue Hills Pond in its southeast quadrant. Runoff is also contributed via overland flow from the central and eastern

portions of the site. Roof runoff from the existing Museum building is discharged to the pond via a pipe entering on the south side. Additional discharges are received from the outdoor animal exhibits via pipe connections to the pond and to the tributary stream. BEC notes that the total area tributary to Blue Hills Pond comprises approximately twenty-seven (27) acres. Overflow from Blue Hills Pond is discharged to a stone-lined channel at the northeast end of the pond. This channel continues in a generally northerly direction, roughly parallel to the easterly edge of the north parking lot, to a sedimentation area, and subsequently under Route 138 toward the Neponset River (refer to the *Watershed Management Plan* (the *Plan*) for a more detailed description of these downstream areas).



Westerly view of the Blue Hills Pond showing the area of sedimentation along the eastern side (Pressley Associates, 2007).

The primary issue directly involving the pond, as identified in the *Plan*, is sedimentation in the southeastern quadrant at the location of the watercourse inlet from the hillside. The *Plan* discusses the sources and effects of this sedimentation in detail. The primary source of sediment appears to be materials carried down the feeder stream through natural erosion of the hillside, with a secondary component consisting of gravel walkway material originating in the Trailside site. The *Plan* also identifies an obstructed cross culvert under the trailhead adjacent to the east side of the north parking lot, with the potential to cause flooding during high flow conditions.

North Parking Lot

In addition to the rain that falls on the pavement itself, the north parking lot receives runoff from approximately point five (0.5) acres of the Trailside site directly to the south via overland flow. The pavement is graded for sheet flow from south to north.

There is a single catch basin in the northeastern quadrant of the parking lot, approximately two thirds (2/3) of the distance from the south edge of pavement. This catch basin outlets to the outlet stream from Blue Hills Pond, described above, through an eight-inch (8") corrugated metal pipe. There is no curbing at the pavement edges.

The parking lot pavement is not graded to direct runoff to the single drainage structure. There is no defined low point in the pavement; runoff sheets across in a north-south direction and runs off the north pavement edge to the adjacent ground. This runoff has eroded a channel from the northeasterly corner of the parking lot to the pond outlet stream near Route 138.

Habitat Inventory

Wildlife habitat associated with the Trailside property is primarily comprised of upland forest, with a narrow band of forested wetland, scrub/shrub, and wet meadow habitats surrounding the pond. Two (2) constructed stormwater swales traverse westerly through the upland forest and converge approximately one hundred feet (100') east of the pond prior to discharging into the pond. Another stream flows northerly, from the pond along the northerly parking lot.

Upland Forest

With the exception of the pond and immediately surrounding wetland areas, virtually the entire undeveloped portion of the site is comprised of upland forest. Surprisingly, the plant community is largely comprised of native species, with little displacement by exotic invasive plants typical of many forested areas in eastern Massachusetts. The forest canopy provides a dense cover and is dominated by Northern Red Oak (*Quercus rubra*), with scattered clusters of Eastern White Pine (*Pinus strobus*), and individuals of Red Maple (*Acer rubrum*), Paper Birch (*Betula papyrifera*), Black Birch (*Betula lenta*), American Beech (*Fagus grandifolia*), Black Cherry (*Prunus serotina*), and Sassafras (*Sassafras albidum*). The shrub layer/understory is comparatively sparse, and comprised of sapling canopy species, with scattered clusters of Maple-leaf Viburnum (*Viburnum acerifolium*), Witch Hazel (*Hamamelis virginiana*), and sapling Eastern Hemlock (*Tsuga canadensis*). The groundcover is variable in density, and contains patches of Canada Mayflower (*Maianthemum canadense*), wild Sarsaparilla (*Sarsaparilla nudicaulis*), Indian Cucumber Root (*Medeola virginiana*), and Lowbush Blueberry (*Vaccinium angustifolium*), with individual False Solomon's Seal (*Smilacina*

racemosa), Stripped Pipsissewa (*Chimaphila maculata*), Bellwort (*Uvularia sessilifolia*), and tufts of grasses. Scattered boulders and rock outcroppings dot the forest landscape, and a series of earthen trails lined with logs, stones, and boulders provide hiking access throughout Trailside and the Blue Hills Reservation.



Rocky outcrop and stormwater drainage swale at the Trailside Museum (Pressley Associates, 2007).

The upland forest associated with the Trailside site is contiguous with the larger Blue Hills Reservation, and functions to buffer the forest interior from the activity focused in the vicinity of Trailside and its associated buildings and infrastructure. In addition to its capacity as a vegetated buffer, the upland forest itself provides foraging, nesting/denning, and cover habitat for a variety of mammals, birds, amphibians and reptiles, although its capacity to provide such habitat is somewhat limited by the chain-link fence located between the Trailside property and adjacent Blue Hills Reservation land. Considering the recreational use of the property, daytime wildlife utilizing the site likely include foraging by more common wildlife species well adapted to human activity, such as Gray Squirrel (*Sciurus carolinensis*), Red Squirrel (*Tamiasciurus hudsonicus*), Blue Jay (*Cyanocitta cristata*), Eastern Tufted Titmouse (*Baeolophus bicolor*), and White-breasted Nuthatch (*Sitta carolinensis*). However, the dense forest canopy above the museum property provides excellent bird nesting, foraging, and cover habitat that is far removed from the human activity below, and ideal for migratory birds including Wood Thrush (*Hylocichla mustelina*), vireos (*Vireo* spp.), Northern Oriole (*Icterus galbula*), and Scarlet Tanager (*Piranga olivacea*). Nocturnal wildlife habitat utilization likely includes foraging by Virginia Opossum (*Didelphis virginiana*), Striped Skunk (*Mephitis mephitis*), White-

footed Mouse (*Peromyscus leucopus*), and perhaps Common Porcupine (*Erethizon dorsatum*).

Pond and Surrounding Wetland Areas

The western portion of the site contains the pond and a narrow band of wetland, comprised of a range of successional habitats, including forest, scrub/shrub, and meadow. The pond water elevation appears to fluctuate over the season, as evidenced by exposed substrate during our summer evaluations. The pond itself is largely unvegetated, with the exception of a patch of Cattail (*Typha latifolia*) within the northern portion.

The forested wetland occurs along the stream's eastern bank, while the scrub/shrub areas occur along the northern and western banks. The meadow habitat is located along the southern bank. An intermittent stream directs pond overflow northerly along the eastern edge of the northern parking lot. The forested wetland areas are not as mature as the adjacent upland forest, containing individual large red maple and willow (*Salix* sp.) within the sparse canopy. The shrub layer, which is comprised of dense thickets along the pond bank, contains clusters of Arrowwood (*Viburnum dentatum*), Winterberry Holly (*Ilex verticillata*), and Dwarf Sumac (*Rhus copallina*), while the groundcover is vegetated with patches of Sensitive Fern (*Onoclea sensibilis*) and Poison Ivy (*Toxicodendron radicans*). In addition to the forest shrubs, the scrub/shrub plant community contains Elderberry (*Sambucus canadensis*), Meadowsweet (*Spiraea latifolia*), sapling Quaking Aspen (*Populus tremuloides*), sapling Red Maple, and sapling Gray Birch (*Betula populifolia*). The meadow contains patches of Purple Loosestrife (*Lythrum salicaria*), Jewelweed (*Impatiens capensis*), Goldenrods (*Solidago* spp.), Sensitive Fern, Meadowsweet, and raspberry (*Rubus* sp.).

The pond and intermittent stream provide a water source for wildlife. The pond does support a small fish population and the overhanging vegetation, particularly along the eastern bank, provides preferred cover habitat for fish and amphibians, and also provides shade for moderating summer water temperatures. While daily human activity may deter more illusive wildlife, herons, including Great Blue Heron (*Ardea herodias*), Green Heron (*Butorides virescens*), and Black-Crowned Night Heron (*Nycticorax nycticorax*) may frequent the pond during early morning and early evening hours to feed. Belted Kingfisher (*Ceryl alcyon*) may feed in the pond, making use of the overhanging tree branches to search for fish. More obvious avian use would include wading Mallard Ducks (*Anas*

platyrhynchos), and Black Duck (*Anas rubripes*). Raccoon (*Procyon lotor*) and Virginia Opossum would also likely be found foraging along the pond shore at night, along with Little Brown Bat (*Myotis lucifugus*) and perhaps Big Brown Bat (*Eptesicus fuscus*) feeding on insects flying above the pond, or skimming the water surface to drink. The pond also provides foraging, basking, and overwintering habitat for reptiles, including Painted Turtle (*Chrysemys picta*), Snapping Turtle (*Chelydra serpentina*), and Northern Water Snake (*Nerodia sipedon*); and habitat for amphibians, including Eastern Newt (*Notophthalmus viridescens*), Bullfrog (*Rana catesbeiana*), Green Frog (*Rana clamitans*), and Pickerel Frog (*Rana palustris*).

Buildings

For more detailed information on each of the buildings described below, please see Appendix A.

Trailside Museum Building

Visitor Wing (1898)

This was the first structure constructed at the site, built by the Metropolitan Park Commission as the Superintendent's residence. It retains the character of a house, which is reflected in the relatively close spacing of its three floors, short structural spans, small rooms, corridors and window openings. The public reception areas near the first floor entry have been opened up and enlarged in recent renovations, but the lower and upper floors remain divided into smaller spaces.



Approach to the Trailside Museum Visitor Wing (Schwartz/Silver Architects, 2007).



Visitor orientation desk and small gift shop inside the Visitor Wing (Schwartz/Silver Architects 2007).

Exhibit Wing (1956)

The Exhibit Wing is a single large hall with a vaulted ceiling under a gable roof. The major floor beams are steel and the roof beams are laminated wood, with the remainder built in ordinary wood construction on concrete foundations. It has large windows at the north end, overlooking the pond. Below the hall is a dirt-floored crawlspace currently used for storage. Nearly half of the exhibit hall has a raised floor level, built above a single structural floor deck.



View of the Exhibit Wing from the pond boardwalk (Schwartz/Silver Architects, 2007).

Lecture Wing (1975)

The Lecture Wing contains a single large hall on the first (public) level, a staff wood shop and animal care facility at the lower level, and a storage loft above part of the main hall. The structure is concrete block clad in wood, with major columns made from complete tree trunks and major beams of sawn and laminated timber. The lower level has a slab on grade with walk-out openings to the boardwalk along the pond. The exposed wood and vaulted ceiling give the main hall a somewhat rustic character, which is compromised by the low level of daylight in the room except for a single large window overlooking the pond.



Trailside Museum Lecture Wing from the approach walk (Schwartz/Silver Architects, 2007).



Trailside garage (Schwartz/Silver Architects, 2007).

Maintenance Garage

The garage is a simple freestanding wood structure on a concrete slab, used for storage of vehicles and equipment. It has electricity but no other systems, and no wall or roof insulation. It includes a storage loft, and a small animal enclosure attached to the east side.

Canton Ave. Restroom (1904)

The historic "Sanitary", designed in 1904 by Stickney & Austin, stands outside the outdoor exhibit area, at the south end of the north parking lot beyond the perimeter fence. The building was erected as a roadside convenience, and designed in a rustic chalet style with dark-stained wood ornament, projecting square windows and deep roof overhangs.

The restroom is a public toilet facility available to Blue Hill visitors as well as Trailside visitors. The first floor is raised about five feet above the ground, and is divided into separate multi-fixture toilet rooms for men and women. Below the first floor is a basement accessed from a bulkhead at the east side of the building.

The Canton Ave. Restroom is being rehabilitated in 2008, with accessible restrooms added to the east side and heat so it can now be used year-round. It is the only designated historic resource at Trailside.



Historic Stickney & Austin-designed "Sanitary" known as the Canton Ave. restroom building (Schwartz/Silver Architects, 2007).

Other Structures (duck blind, animal barn and sheds)

These are simple wood structures directly related to live animal exhibits, holding areas, or viewing of animals. They are in good condition but their disposition in any future project should follow from the requirements of new or renovated exhibits. The 2008 improvements to the outdoor animal enclosures consolidated the functions of some of the smaller structures, such as the holding areas for program birds.



Deer shed (Schwartz/Silver Architects, 2007).

Zoological Exhibits/Husbandry

Interior Live Animal Exhibits

Exhibits for Great Horned Owl, Opossum, Striped Skunk, Honey Bees, and poisonous snakes are located inside the Trailside Museum building. These are quite small and are accessed directly from public areas. Cleaning is difficult as there are no water or drains or proper provisions for sanitizing enclosures. Animals are singly housed (except for the bees). The species do not have access to direct sunlight and ventilation is quite limited.

The snake tanks are quite small and have little enrichment opportunities. At the time of existing conditions inventory in 2007, they were also accessed within the public gallery space making this a particularly dangerous situation, as they are deadly poisonous. Since then, a new holding and display area for the Eastern Timber Rattlesnake has been added.

The Bee exhibit is quite interesting. This is a great opportunity to talk about the interdependency of bees and their environment, and the issues facing our bee population.

Animal Demonstration & Care Facilities

Lecture Hall

The indoor program area is a simple, flexible space used for weekend and school group programs. Animals are brought up from the basement holding area prior to each demonstration in kennels and crates and set in the oversized podium for use in the shows. They are then put back downstairs after the show is over. These 'animal encounters' are a tremendous offering for Trailside but the arrangement is rather labor intensive and potentially dangerous to both animal and naturalist.

The Lecture Hall is a large room filled with an assortment of artifacts and graphics that could also be useful for display elsewhere in the building exhibit area.

Program Animal Holding

This new facility is located in the basement, below the Lecture Hall, with access to the exterior via large sliding windows or up the internal stairs. There are several cages used for demonstration animals such as owls, falcon, raven, and others plus shift cages used for transferring animals while cleaning primary cages. All are independent cages that can be removed and brought upstairs for demonstrations.

A (very) small office is provided for record keeping and computer access. A residential-style kitchen is provided for preparing animal diets and cleaning supplies. The walls and floors are cleanable surfaces. There are no floor drains or cage cleaning areas so everything is cleaned with sponges, brooms and by removing/replacing paper cage lining. While a large sliding glass door overlooking the pond provides natural light into the animal care area, the animals do not have direct outside access to sunlight and fresh air while in their cages.

Animals going out for off-site programs have a circuitous path that takes them through public areas and up narrow outdoor stairs.



Program animal holding cages (Schwartz/Silver Architects, 2007).

Quarantine Area

There is a quarantine area in the basement space below the Visitor Wing with access down a narrow exterior stair adjacent to the main entrance and from the internal service stairs.

This space has no apparent heating or cooling capability. There is a (undersized) window mounted ventilation fan (that is currently inoperable) that would exhaust air and odors into the main entry plaza. There are multiple electrical extension cords and jerry-rigged lighting fixtures that are suspect. This area is filled with cages and counters for kennels and crates wherever possible. There are also aquatic tanks for turtles. The reptiles are kept in the furnace room adjacent to the quarantine area, so they get the necessary heat during the heating season. In 2007, the poisonous snakes that were not on exhibit were also housed in the furnace room, but they have since been moved to either the animal care area or the upstairs exhibit hall.



Animal quarantine area (Schwartz/Silver Architects, 2007).

Exterior Live Animal Exhibits

Note that the inventory of animal enclosures was completed in September 2007; in Summer 2008 DCR installed new fencing to improve the existing enclosures, with added vestibules and setbacks from pedestrian paths.

White-tailed Deer Exhibit

The White-tailed Deer enclosure is located within small area with several native trees. Compaction and erosion are evident and the health of the trees will soon begin to suffer. At the time of the site inventory in Summer 2007, a male White-tailed Deer was in residence in the enclosure. Two (female) fawns, born in May 2008, are currently in quarantine at Trailside pending their move into the new enclosure. The interior of the enclosure was planted with grass, which was thriving in Fall 2008.



New fencing for deer enclosure (right) (Pressley Associates, 2008)

These animals could use a much larger and more interesting enclosure as they require much more enrichment opportunities than this exposed site. The exhibit fence existing in 2007 was of the proper height, but it is also quite obvious on all four sides and all views are through the fence.

The holding area is a simple feeding shelter. There is a fenced shift area that the animal can be held off-exhibit for exhibit maintenance. In 2008, a new vestibule was added with pulleys so keepers can open and close the gate without entering the enclosure. However, this enclosure still does not have a sufficient off-exhibit holding area. Other improvements implemented in 2008 include a split-rail fence separating visitors four feet (4') from the chain-link fence. In 2007, there were no interpretative signs along the visitor perimeter.

River Otter Exhibit

The River Otter is a great exhibit animal for Trillside, yet this exhibit is quite poor. The exhibit currently houses a single female River Otter. The exhibit consists of a very small circular pool with a large composite rock feature in the center. When the animal is in the pool it is eight feet to ten feet (8'-10') below viewing elevation with a rusting short chain-link fence surrounding the enclosure. The visitors can view from three hundred sixty degrees (360°). Together with the viewing angle, this exhibit has psychological and behavioral implications for the Otter. The redeeming feature is the central rock, which provides appropriate level viewing, yet creates a dangerous place for keepers to access and clean properly.

The service capability is quite bad without a sufficient holding or shift pen, no direct access or secondary containment. The keeper must access the exhibit with the animal in it, using a ladder from the public area, into a shallow pool. There is a holding area inside the center rock, but the keeper must somehow get the otter inside it, and cannot remove the animal from the enclosure for general pool cleaning, etc. Furthermore, the otter is forced into a defensive posture whenever routine access is attempted. If anything more complicated is necessary, the otter has to be sedated or trapped and moved out of the exhibit.

The water is non filtered and must be dumped and refilled as necessary, which is a waste of water and may result in poor water quality for an animal that spends a large portion of the day swimming. The water is quite shallow and doesn't provide enough enrichment or educational opportunities for this great species.



Existing River Otter exhibit (Pressley Associates, 2007).

There are no soft substrates for digging and fur maintenance, or any live plants. There are small deadfall elements, which are useful for the River Otter to interact with.

There are no interpretative signs along the visitor perimeter, but there is one within the animal's habitat.

Raptor Cages

There are currently three raptor enclosures: Snowy Owl, Red-tailed Hawk and a newly constructed enclosure for Turkey Vulture. They are of reasonable size and shape. While flight is possible, it is very limited. The current owl and hawk specimens appear to be non-flighted birds. There are multiple perching opportunities and shelter. There are no interpretative signs along the visitor path even though there is an ongoing research program at Trillside devoted to the study of Snowy Owls, which would be important and interesting to highlight.

In 2007, the owl and hawk cages lacked secondary containment with a single keeper service gate. This problem was solved in 2008 with the new fence enclosures, which have an additional vestibule and are constructed of plastic-coated wire mesh to prevent rust. The new enclosures are also larger.

In 2007, the abandoned fox exhibit was empty and its wire fence was rusting so badly that it was unfit for animals. Subsequently, DCR did remove the enclosure and replaced it with a new fenced enclosure, with vestibules, which will be used for the Turkey Vulture exhibit. This exhibit has a suitable visitor barrier and can be viewed both from the upper and lower paths within the outdoor exhibit area. The new Turkey Vulture enclosure, has space for two separate exhibits and a Common (Northern) Raven may be added to the second enclosure.

Ultimately, a new set of exhibits should be planned if there is a desire to maintain these species in the collection. Alternatively, proper raptor mews can be built in association with an outdoor amphitheater for flight demonstrations and educational talks if there is a desire and skill set to accomplish this highly educational form of display.



New fence enclosure with vestibule for Red-tailed Hawks (Pressley Associates, 2008).

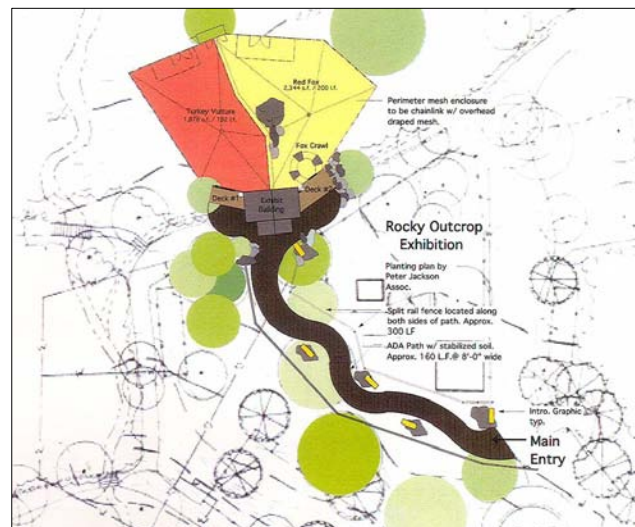


New enclosure for Turkey Vulture (Pressley Associates 2008).

Rocky Outcrop Exhibit

The new NSTAR exhibit is sited in an area of native woodlands, is quite large (2,344 s.f.) and will be a total mesh enclosure. At the time of the site inventory, the exhibit design was in a conceptual stage, but is now under construction with the building complete and the mesh enclosure and interpretive information still to be added. During the implementation of the exhibit, the enclosure has been modified by removing the center divider to support two Red-tailed Fox rather than a fox and Turkey Vulture as originally designed. URSA International provided the following comments on the proposed design:

- Viewing will be from the narrow end of a deep enclosure. There will be a high likelihood that the fox will be most comfortable at a distance from the view. The children's 'fox crawl' appears to be a good idea, but it cuts off the primary view from the building.
- Holding areas are shown within the exhibit enclosure creating an odd condition at the roofline. Additionally, there is no secondary containment vestibules considered even though one is shown for the joined keeper access vestibule into each exhibit. A combined building with access to the exhibits and holding and secondary containment would be useful. A new holding area is planned, but has not yet been constructed.
- There is a plan for an extensive interpretive signage program (twelve signs) for the new exhibit.



Proposed "Rocky Outcrop Exhibition" design (Trace Design Group, 2007).



New Rocky Outcrop Exhibit building (Pressley Associates, 2008).

Turtle Exhibit

There is a small turtle exhibit next to the Otter exhibit in the main entry plaza. This is a concrete pond with a central island with a small shrub and a concrete wall surround.

This exhibit has all the same issues as the River Otter exhibit with the poor viewing, the un-natural appearance, the poor water quality and use, and dangerous keeper access. This exhibit does have some natural plant material and grass surface.

The Turtles must be taken off exhibit during the long winter months and during the summer they are brought in and out daily because of theft in the past.



Existing Turtle exhibit (Pressley Associates, 2007).

Cultural Resources

In 1891, Sylvester Baxter presented a cogent and thoughtful plea for a "Massachusetts Forest" at Blue Hills. In addition to extolling the physical and aesthetic virtues of the Blue Hills, Baxter stated that the "establishment of such a public forest would greatly advance the happiness and health of this population and would thereby, in increasing the attractiveness of the region, correspondingly enhance its prosperity."³ This was a fortuitous recommendation, which was followed immediately by the formation of the Metropolitan Park Commission in 1892. In January 1893, Landscape Architect, Charles Eliot, who had worked for a time in the Olmsted firm, presented an overview of the proposed park lands to be acquired for the Metropolitan Park System, including further justification for the acquisition of the Blue Hills:

"If the people of metropolitan Boston care to possess in common a park such as any king would be proud to call his own, a public forest possessed of vastly finer scenery than any of the great public woods of Paris can show, a recreation ground far surpassing in its refreshing value even London's Epping Forest, they have only to possess themselves of the still cheap lands of the Blue Hills. Like the other highlands which have been mentioned, these Hills stand wholly within the sweep of the eleven-mile radius from the State House. They lie south of Boston as the Lynn Woods lie north; and if it is well for the public to possess the northern reservation, it will be even better for it to own the grander southern heights."⁴

Since its creation in 1893, the Blue Hills Reservation has been the largest of the metropolitan parks. By 1899, it constituted 4,858 acres, over half of the acreage of the entire Metropolitan Park System.⁵ In 1899, the MPC hired the architectural firm of Frederick Stickney (1835-1918) and William D. Austin (1850-1944) to design a series of buildings for the Reservation, which includes a "Sanitary" (Canton Ave. Restroom) constructed in 1904 and a "Refectory" pavilion (no longer extant) also constructed in 1904 on or near the Trailside grounds. The Superintendent's House (altered as the Visitor Wing of the Trailside Museum) was built in 1898.

The Blue Hills are a "documented locus of ancient Native American settlement containing regionally dense concentrations of archeological sites representing every period of Native settlement known for the Northeast United States from the Paleoindian (12,000 BP) through historic periods."⁶

As a part of the Blue Hills Reservation, Trailside is included within the Blue Hills Multiple Resource Area, listed on the National Register of Historic Places in 1980 and is within the boundary of the Multiple Property Documentation Form "Metropolitan Park System of Greater Boston," approved in 2003. Only the "Sanitary" or Canton Ave. Restroom building is cited as a contributing resource. A prehistoric site form filed at the Massachusetts Historical Commission (MHC) indicates the location of a single projectile point on the slope above the museum building.



20. THE BLUE HILLS OVER MUDDY POND WOODS.

Drawing of The Blue Hills, 1893 (Report of the Metropolitan Park Commissions, 1893).

Interpretation/Education

Indoor Exhibits

This evaluation is based on several site visits that occurred between May 2006 and September 2007.

The exhibitions were evaluated based on four aspects of the visitor experience:

- Comfort
- Engagement
- Reinforcement
- Meaning

Comfort

Because the exhibition experience at Trailside is disjointed, it is very difficult to capture the visitors' attention and equip them with physical and conceptual orientation devices. There is no clear starting point and visitors venture into the outdoor

exhibitions without knowing much about the Blue Hills. Interpretation at the animal enclosures is mostly about the animals themselves and not about larger ecological systems or the uniqueness of their Blue Hills habitat.

Throughout the experience there are wonderful places to rest and contemplate the natural environment or simply decompress from the interpretive experience. There are benches indoors and out.

Sound levels in the indoor space approach uncomfortable levels when there are large groups of people engaged in exciting moments (like spotting the queen bee). Interior finishes are mostly hard and reflective. Lighting and temperature settings are appropriate.

Most of the indoor experience is functioning and in good repair. There are few mechanical interactive elements and no technology-based ones. There were no "out of order" or "animal off exhibit" signs present during any of the indoor site visits. Outdoor exhibits are obviously harder to maintain. There are empty enclosures, and animal-based exhibitions that have fallen below the standards of what most visitors might expect. Visitors may be uncomfortable viewing animals that are uncomfortable.

Ergonomics were observed in the design of the Trailside Museum building and indoor exhibits. There are wide walkways, low graphics that read at an elementary school level, and ramps that link slight elevation changes. Items that require a higher look have been augmented with stepstools or benches.

The voice of the exhibitions is generally impersonal. Rarely do we hear the differing interpretations or opinions of experts, local residents, agencies or staff. It might be helpful to hear from an animal keeper now and then and the occasional voice of Massachusetts Audubon Society or DCR might be appreciated. Where viewpoints differ, there are opportunities to solicit visitors' opinions.

The subject matter of the exhibition is interpreted from a generally scientific perspective. There is no interjection of popular culture or myth, poetry or art. The exhibition is not very "layered" in order to accommodate those persons who wish to explore deeper ideas and details.

Engagement

The indoor exhibitions are working quite well to engage their audiences. They are, at first view, inviting and enticing. Outdoor exhibitions are less successful in engaging the audience. The pathways do not offer anything other than moving from animal to animals, and the interpretation at the animal enclosures does not often feature directly observable ideas. That said, the animals are highly popular and are among the main reasons why people visit Trailside.

The indoor museum, while quite small, features little modulation in its presentation. There are few special moments that capture attention and cause people to linger. The live animal components featured indoors (owls, skunk, bees) are, again, among the most popular offerings.

There are few exhibition elements that encourage socialization. Tense topics (like land management, habitat destruction, urban/suburban/wild land interface etc.), are rarely included in the exhibit program.

There is a pleasing variety to the indoor experience, with graphics, live animals, taxidermy, and cultural artifacts all working together.

There are not strong ties created between the indoor exhibits and the outdoor exhibits. For those visitors that are touring the outside exhibits, there is little incentive to venture inside.

There are few "WOW!" moments beyond the animal exhibits.

Reinforcement

The scale of the exhibitions is appropriate in achieving a long-term goal of getting people out onto the Blue Hills Reservation. The depth of the interpretation is just enough to get people interested but not overwhelming.

The indoor and outdoor exhibits do not share a common communication aim and therefore do not support a large "I get it!!" There are few words of encouragement to see more, make a difference, or get involved.

Meaning

The exhibitions are not fully integrated via a cohesive storyline. They are *organized* by areas in the Reservation (stone wall, bog, meadow, etc.), but these distinctions are not directly observable outside.

The ideas of the exhibitions are mostly about the unique habitats that occur in the Blue Hills and ideas about animal and plant adaptation and conservation do not readily spring from these foundations. There is little "so what" for the visitor that brings no prior knowledge. While the indoor exhibits do touch on the history of Native Americans in the Blue Hills, much could be done to enhance the exhibits with more information about the Reservation's cultural history.

Permanent exhibitions offer little to spark advocacy for habitat preservation and land and water conservation, or other concepts integral to land stewardship.

There are no bilingual signs or interpretive materials.

Education Programs

The greatest assets of Trailside are the diverse programs offered by the Massachusetts Audubon Society naturalists. These include camp programs at Chickatawbut Hill and Trailside Museum, outdoor youth programs in several locations, indoor programs (1 hour, usually with 2 animal encounters), and off-site programs listed in Table 2.1.

In addition to the education programs, Trailside has an ongoing research program. Since 1981, Trailside staff have captured and banded migrating hawks on Chickatawbut Hill, as a way to study migration movements and population changes from year to year. This work has included twelve (12) species of hawks, including a Golden Eagle in 1998. Birds banded by Trailside have been recovered as far south as Panama and as far north as Manitoba, Canada. The oldest bird recovered was a Red-tailed Hawk banded at Chickatawbut as a hatch-year bird, and recaptured seventeen (17) years later. The rarest bird was a Gyrfalcon, banded in 1995, the first one ever banded in New England.

In 1981, Trailside also began studying Snowy Owls at Logan Airport, and in 1999 attached satellite transmitters to track their journey back to the Arctic; this data disputes published reports regarding the owls' success at returning to their breeding grounds. One Snowy Owl returned to Logan Airport sixteen years later making it the oldest wild Snowy Owl on record. In 1994, Trailside began capturing Saw-whet Owls, which revealed that these birds were much more abundant than previously thought. A captured, banded owl that was originally banded in Montana, demonstrated the longest distance a Saw-whet Owl has been known to travel.

Table 2.1: Education Programs at the Trailside Museum

CAMP PROGRAMS

<i>Program Name:</i>	Chicakadees
<i>Location:</i>	Chicakatawbut Hill Education Center
<i>Audience:</i>	Children 4 to 6
<i>Session:</i>	Summer
<i>Description:</i>	This camp is designed to stimulate the natural interest young children have in the world around them. Campers will take nature hikes, go on scavenger hunts, and participate in songs and sensory awareness activities to learn more about native habitats. Games and crafts will round out this week of discovery. Children will spend time in both large and small group settings. A family afternoon will be offered on Thursday.
<i>Program Name:</i>	Naturalists
<i>Location:</i>	Chickatawbut Hill Education Center
<i>Audience:</i>	Children 7-10
<i>Session:</i>	Summer
<i>Description:</i>	Naturalists will enjoy a natural history experience including predator-prey games, species identification and conservation lessons. Each day non-competitive games will be offered to strengthen friendship bonds and increase natural history knowledge. A family afternoon will be offered on the first Thursday of each session. Two-week sessions feature an overnight on the second Thursday, when children will enjoy a twilight hike, campfire, dormitory accommodations, and Friday breakfast. Two-week sessions end 9 am Friday.
<i>Program Name:</i>	Explorers
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 10 – 12
<i>Session:</i>	Summer
<i>Description:</i>	This two-week session is for campers who want to go exploring throughout the Blue Hills. Every day campers will learn natural history through seeing wildlife firsthand on the trails. Each day a new area of the Blue Hills Reservation will be explored through non-competitive games, short hikes, and hands-on learning. A special itinerary will be provided at the start of the session. A traditional overnight in the camp dormitory will complete the session on the second Thursday with pick up at 9 am Friday.
<i>Program Name:</i>	Adventurers
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 12 -14
<i>Session:</i>	Summer
<i>Description:</i>	Our oldest campers will expand their natural history knowledge and learn such wilderness skills as orienteering and wild edibles. They will also participate in a natural history project of their choice. They explore more of the Blue Hills Reservation including Ponkapoag Bog, Brookwood Farm, Great Blue Hill, Houghton's Pond and the Trailside Museum. A special itinerary will be provided at the start of the session. A traditional overnight in the camp dormitory will complete the session on the second Thursday with pick-up at 9 am Friday.

Table 2.1 continued

OUTDOOR YOUTH PROGRAMS	
<i>Program Name:</i>	Maple Sugaring
<i>Location:</i>	Brookwood Farm
<i>Audience:</i>	Children 7+
<i>Session:</i>	Mid-Feb thru March
<i>Description:</i>	Children will learn the process of turning sap to sugar, see a real evaporator and sample a traditional maple syrup snack.
<i>Program Name:</i>	Pond Exploration
<i>Location:</i>	
<i>Audience:</i>	
<i>Session:</i>	April - October
<i>Description:</i>	Focusing on pond life, probe for pond critters and discover their connection to the life cycle. Learn how to classify these organisms and identify their adaptations.
<i>Program Name:</i>	Orienteering
<i>Location:</i>	Chickatawbut Hill Education Center
<i>Audience:</i>	
<i>Session:</i>	April – October
<i>Description:</i>	Learn how to use the compass to find cardinal and intermediate directions and how to use your own pace to tell how far you have traveled. Practice your skill on a small orienteering course and then go out on a larger course laid out throughout Chickatawbut Hill.
INDOOR PROGRAMS	
<i>Program Name:</i>	Adaptations
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 7+
<i>Session:</i>	School
<i>Description:</i>	This program describes the characteristics and survival techniques that relate and classify all species to their environment, ecosystem and place them within the food chain.
<i>Program Name:</i>	Owls, Birds of Prey or Nocturnal Animals
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 7+
<i>Session:</i>	School
<i>Description:</i>	Discover these fascinating creatures and learn what makes them unique hunters and how they fit into the New England ecosystem.
<i>Program Name:</i>	Reptiles & Amphibians
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 7+
<i>Session:</i>	School
<i>Description:</i>	This program will help children learn more about this often misunderstood group of animals and how they are important to our environment.

Table 2.1 continued

<i>Program Name:</i>	Endangered Species
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 7+
<i>Session:</i>	School
<i>Description:</i>	What does “endangered” mean? What causes it? Which species are affected? Learn how you can help.
<i>Program Name:</i>	New England Wildlife
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 7+
<i>Session:</i>	School
<i>Description:</i>	Become better acquainted with the wildlife found in your own neighborhoods! Learn how habitat change has affected these animals.
<i>Program Name:</i>	The Massachuseuk Way
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 7+
<i>Session:</i>	School
<i>Description:</i>	View a slide show and participate in activities that demonstrate how the local Native Americans historically made use of their resources. <i>No animal presentation, unless requested.</i>
<i>Program Name:</i>	Pets and Wildlife
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 4 - 6
<i>Session:</i>	All
<i>Description:</i>	This program focuses on the differences between what is wild and what is not, looking at the diversity of animals, what kind of habitat they live in and what they need to survive. Children will meet a real wild animal and discuss why it can no longer live in its wild home.
<i>Program Name:</i>	Nature Tales
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Children 4 -6
<i>Session:</i>	All
<i>Description:</i>	Learn a memorable nature lesson through a story and the presentation of a live animal.
<i>Program Name:</i>	Little Adventures
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	All
<i>Session:</i>	School, visitors, general programming
<i>Description:</i>	1/2 hour program featuring one animal encounter

Table 2.1 continued

OPPORTUNITIES FOR VOLUNTEERS	
<i>Program Name:</i>	Butterfly Gardeners
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Adult Volunteers
<i>Session:</i>	Spring, Summer, Fall
<i>Description:</i>	Volunteers help maintain and enhance Trailside's Butterfly Garden. Planted in spring 2007, the native plants in the garden attract a variety of butterfly species. Activities include weeding and planting.
<i>Program Name:</i>	Visitor Services
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Adult Volunteers
<i>Session:</i>	All
<i>Description:</i>	Volunteers help out in the visitor service and gift shop area - staffing the front desk area. They answer general park and museum inquiries; sell admissions and gift shop items in an informal, educational setting.
<i>Program Name:</i>	Wildlife Care
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Adult Volunteers
<i>Session:</i>	All
<i>Description:</i>	Volunteers help care for Trailside's wild animal ambassadors: Turtles, hawks, owls, snakes, opossum and more! Requires gentle caretakers to feed, clean and provide enrichment.
Customized Walks and Talks for Adult Groups	
<i>Audience:</i>	Adults
<i>Session:</i>	All
<i>Description:</i>	Massachusetts Audubon Society offers high-quality programs for adult groups such as garden clubs, senior centers, historical centers, and other clubs and organizations. Most programs include a lecture, a walk, or a combination of the two, with an experienced naturalist, who uses images, plant and animal specimens, artwork, and/or other visual aids to share their expertise and knowledge to meet the group's interests and needs.
RESEARCH PROGRAMS	
<i>Program Name:</i>	The Snowy Owl Project
<i>Location:</i>	Blue Hills Trailside Museum
<i>Audience:</i>	Scientific Community
<i>Session:</i>	Ongoing
<i>Description:</i>	In 1999, the MAS Blue Hills Trailside Museum began attaching satellite transmitters to selected wild snowy owls wintering at Boston's Logan International Airport. These satellite transmitters will identify the migration routes of selected wild snowy owls. This 3-year project will be done in collaboration with the USGS Forest & Rangeland Ecosystem Center (USGS FRES), Boise State University in Idaho (BSU), and the Owl Research Institute (ORI) in Missoula, Montana. Denver Holt (ORI), Mark Fuller (FRES), and Linda Schueck (BSU) are tracking snowy owls via transmitter from their breeding grounds in Barrow, Alaska, while Trailside Director, Norman Smith and his colleagues track owls from their wintering grounds at Logan International Airport in Boston, Massachusetts.

Endnotes

¹ Americans with Disability Act, Section 206.2.1

² This enclosure has two separate exhibit areas; a Common (Northern) Raven is currently being considered for the second exhibit.

³ Sylvester Baxter. "A Massachusetts Forest." *Garden and Forest*. August 1891.

⁴ Charles Eliot. "Report of the Landscape Architect." *Report of the Board of the Metropolitan Park Commissions* (Boston, MA: 1893), pp. 97-98.

⁵ Virginia Adams et. al. "National Register of Historic Places Multiple Property Documentation Form for the Metropolitan Park System of Greater Boston." (National Park Service and the Massachusetts Historical Commission, 2002), Section E, pp. 9-10.

⁶ Ibid. Section E, page 48.