Bates-Morse Mountain Conservation Area
Annual Report 2013-2014

Laura Sewall, Director
The Harward Center for Community Partnerships
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Letter from the Director: While reflecting on the year, I am most struck by the range of activities and opportunities offered by my position, and by BMMCA itself. In the past year, my work has included assisting students in forming partnerships in Phippsburg, teaching a First Year Seminar, installing research equipment in the Sprague Marsh, promoting climate adaptation strategies, confronting coyote hunters, facilitating information exchanges across disciplines and environmental organizations, hiring staff and mentoring students on art projects and clam flats. I feel fortunate for the lively variety.

Oddly, one of the most rewarding experiences required sitting through two days of disturbing descriptions of how climate change will increasingly impact the coastal zone. Sponsored by the Washington DC-based Renewable Natural Resources Foundation and the National Oceanic and Atmospheric Administration (NOAA), the conference on Coastal Risk and Resilience inspired a vision for a National Science Foundation (NSF) proposal that could serve to integrate the knowledge creation and community practice that is unique to Bates, and to leverage the particular assets of BMMCA and Shortridge. I am pleased to be working with Bev Johnson and Lynne Lewis on a proposal to link coastal geology with environmental economics, social science and land use policy. My hope is that we, as an academic community working in partnership with municipalities, are able to meaningfully inform pressing issues with respect to climate adaptation in the coastal zone. As part of the Shortridge Summer Residency, two student fellowships will address the question of adaptation through the lens of land use law. The Summer Fellowship goal is to offer a suite of land use policy proposals that will serve to both conserve salt marsh functions and provide opportunities for land owners to move out of shoreland zones most vulnerable to inundation through storm surges and sea level rise.

Another rewarding experience was in the fruition of a National Science Foundation planning grant I wrote in 2012 that, in the end, was funded by Bowdoin College. Regional coastal field station directors gathered together for two days to discuss directions, needs and opportunities for collaboration and research.

The opportunities provided by BMMCA—for students, faculty and the coastal research community—continue to emerge. I am thankful for the many collaborations, and for the opportunity to make a difference.
Education, Research and Outdoor Experience

The primary mission of the Bates-Morse Mountain Conservation Area Corporation is the conservation of land and coastal systems, and to provide opportunities for environmental education and outdoor experience consistent with a conservation ethic. Bates College encourages the educational use of BMMCA, and a significant number of schools visit the area annually. Between early May and Thanksgiving (the gate-keeping season), 16 elementary, middle and high schools brought 566 students to BMMCA. This does not represent the full extent of use by area schools. Numerous schools, college courses and student groups also visit BMMCA during the off-season, or when gatekeepers are not on duty.

Elementary, Middle and High Schools

Lewiston Middle School, 225
Winthrop Middle School Outing Club, 17
Phippsburg Elementary School, 26
Hyde School, Bath, 35 (estimated)
Thornton Academy, 21
White Pines High School, Cumberland, 25
Camden/North Glouster Community School, 12
Waldorf School, Kimberton, PA, 15
Phippsburg Elementary School, 85
Make it Happen Program, Portland Public Schools, 17
Chewonki Semester School, 23
Real School, Windham, 20, 2 visits
Chop Point School, Woolwich, 7
Auburn Middle School, 9
Winthrop Middle School Outing Club, 29

Total Grade Schools: 16; Total Students: 566
**College Use**

Greater opportunities for college level coursework and research are emerging. The installation of Sediment Elevation Tables in May, 2014, launches a research program that requires twice yearly monitoring to determine the accretion rate of the Sprague Marsh in response to changes in sea level. Ideally, this will promote on-going course work in geology field methods. Over the last year, other opportunities included research on sediment transport and erosion, carbon storage in salt marshes, migratory shorebirds, and marsh nesting birds in the context of “abrupt climate change.”

The use of BMMCA by academic institutions extends much beyond research activities. College groups also visited BMMCA for athletic training, student orientation, art instruction and more. In addition, student groups from Bates often walk over Morse Mountain while staying at the Shortridge Coastal Center for retreats. Because gate keepers are not on duty for much of the academic year, these visits are generally not recorded. Recorded college-affiliated events brought 559 visitors to BMMCA.

Bates, Alumni Hike, 26
Bates Rowing camp, 40
Bates Summer Scholars, 12
Bates Geology Field trip, 18
Bates, Bonner Leaders Group, 22

Bates, Ecopsychology Course, 16
Bates Women’s Soccer team, 23
Bates Outing Club, 9
Bates, American Asian Club, 14
Bowdoin Outing Club, 15
Bates, Marine Ecology, 12
Bates, Coastal Hazards, short-term course, 15
Bowdoin College Orientation, 53
Colby College Orientation, 20
Colby, Introduction to Ecology, 45
Bowdoin Nordic Ski team, 46, 4 visits
Bowdoin, Parent’s week-end, 75

**Total Colleges, 5; Total students, 559**

**Bates College Courses:**

FYS 427, Ecopsychology: The Human-Nature Relationship, Laura Sewall (12)
GEO 210, Sedimentary Processes and Environments, Mike Retelle (18, 2 visits)
BIO 313, Marine Ecology, Will Ambrose (12)
GEOs36, Coastal Hazards, Bev Johnson (15)

**Total: 4 courses; 57 students**

**Bates Senior Theses:**

Three seniors, Cameron Russ, Sara El Assaad, and Alec Douglas conducted research at BMMCA (or in the nearby vicinity) during the 2013-2014 academic year. Students were supervised by Geology professors Bev Johnson and Mike Retelle.


Alec Douglas (2014) *Monitoring the effects of hard Stabilization Rock Wall at Popham beach State park, Phippsburg Maine*

Sara El Assaad (2013) *Monitoring Sedimentation Patterns and Inlet Migration at Popham, Seawall and Small Point Beaches, Phippsburg, Maine*
Camps and Clubs (recorded during gate-keeping season only)

- Chewonki Foundation, 75, 3 visits
- Girl Scouts Club, Bath and Woolwich, 22
- Yarmouth Youth Camp, 25
- Kingsley Pine Camp, 11
- Androscoggin Camp, 30
- Camp Fernwood, Poland, 28, 2 visits
- Camp Newfound, Harrison, 11
- Camp Renoa, Belgrade, 12
- Small Point Summer School, 142, 5 visits

**Total Camps and Clubs, 18; Total visitors, 530**

Other Organizations (recorded during gate-keeping season only)

- Gorham Recreational Department, 36
- First Evangelical Free Church, 10
- LL Bean Employee Outing Club, 18, 2 visits
- Brother Volunteers Service, Lewiston, 31
- Cross Feet Mixed Marital Arts, 32
- Merrymeeting Audubon, 11
- Maine Interest Travel Club, 12
- Independence Association, Topsham, 11

**Total Organizations, 8; Total visitors, 161**

Conservation and Stewardship

**Piping Plovers:** Overall, 2013 was considered “a challenging year” for Piping Plovers in Maine. Winter storms decreased nesting habitat, natural predators minimized reproduction at Wells Beach and Popham, and high tides washed away several nests over Memorial Day week-end. In addition, a plover chick was killed by an unleashed dog in Scarborough, which has provoked a community wide discussion about leash laws (see note below).
Despite these challenges, Piping Plovers fledged 85 chicks statewide—21 more fledglings than in 2012. The average reproductive rate was 1.93 chicks per pair, above Audubon’s recovery goals. The success, given astronomical tides and other challenges, is believed to be due, in part, to the establishment of new nesting areas in hollows within dune escarpments, and in the upland dune grasses—and to the continued efforts of Maine Audubon’s field crew. On Seawall Beach, 1 pair made 2 nesting attempts and fledged 4 chicks. At Popham, 7 pairs made 18 nesting attempts and fledged 7 chicks. Given the high number of nesting attempts and high degree of predation occurring at Popham, predator control will be implemented for the 2014 summer season on Popham Beach.

**Shorebird Migration Monitoring:** Funding from a State of Maine Wildlife Grant and the Maine Department of Inland Fisheries and Wildlife (MDIF&W) provided the opportunity for assessing shorebird populations on Seawall and Popham beaches. The study was part of an international effort to develop and evaluate a consistent monitoring method for four species of shorebirds across their entire migration routes, and to assess population numbers and trends. The ongoing goal of the project, sponsored by the International Shorebird Survey, is to develop new monitoring methods to inform the management and conservation of critically imperiled populations of migratory shorebirds. Iza Bruen-Morningstar, a Shortridge Summer Resident from Prescott College, served as a seasonal biologist working under the supervision of Lindsay Tudor (MDIF&W). Population data were collected on Red Knots, Ruddy Turnstones, Sanderlings, and Black-bellied Plovers.

**Native Seed Collection:** The New England Wild Flower Society collected seeds of common plant species at the Bates-Morse Mountain Conservation Area during the 2013 fall season. The New England Wild Flower Society is a regional, non-profit, plant conservation organization that recently initiated a project to collect seeds from common, native plant species throughout New England. The plants grown from these New England seeds will be available for use in restoration projects at local, state and federal sites, and for retail sales that support and fund plant conservation efforts. No more than 20% of the seed produced by a given population was collected.
Sea Level Rise and Marsh Migration: The Phippsburg Conservation Commission (with assistance from the BMMCA director), applied for technical assistance from The Department of Agriculture, Conservation and Forestry for “Climate Adaptation Planning” in 2012. As a result, Phippsburg received interactive maps showing impacts of sea level rise and storm surge on town roads and buildings in 2013. Liz Herz (Maine state planner), Steve Walker (Maine Coast Heritage Trust), and Pete Slovinsky (Maine Geological Services), produced the GIS data layers used to display Phippsburg under various coastal scenarios, and presented the data at a public meeting attended by town officials, planners and interested citizens. The Phippsburg Conservation Commission has since discussed how to further educate the Phippsburg community regarding coastal impacts. Two Bates students and Shortridge summer residents, Mark McCauley and Nicholas Stewart, will work with the Commission to present the maps to the broader public and to articulate potential adaptation strategies (see note below).

Public Use

During the gate-keeping season (April through November), 18,802 visitors came to BMMCA—an average of 104 people per day, and an increase of nearly 45% since 2009. Approximately 20% of the visitors were newcomers. The parking lot was filled to capacity on 44 days of the season. The previous year, the lot was full on 30 occasions.

Despite the significant number of visitors, the conservation area’s environmental integrity appears to be uncompromised. The hard surface road (the remains of a WWII military road) between the gatehouse and the beach insures little human impact due to trail use. In addition, nearly all visitors are respectful of conservation rules and remain off the sand dunes and unauthorized trails, and a sense of sanctuary continues to be a notable asset experienced by visitors to BMMCA.

BMMCA News and Events

Annual Beach Clean-up: Twenty Bates alumni volunteered to clean Seawall Beach and to establish staked fence lines to delineate Piping Plover nesting areas on April 19th. All agreed that it was a productive day, with 50-60 traps removed from the beach and all of the fencing completed.
**Reunion Walk:** Twenty three Bates alumni joined Laura Sewall for an annual Bates Reunion walk and picnic at Morse Mountain in June, during the Bates Reunion week-end in June.

**Summer Research Apprenticeship:** A grant of $3500, funded by the Dean of Faculty’s Office, will support Mark McCauley ’17 as a Summer Fellow. Mark will participate in the Shortridge Summer Residency for 6 weeks and work with a second student, Nicholas Stewart ’17, to research land use law for the purpose of recommending potential adaptation strategies for vulnerable coastal zones. Their work will be presented to town officials and used to inform and strengthen a National Science Foundation Coastal SEES proposal in October.

**Gift to Town of Phippsburg:** Logan Greenblatt ’14, Shortridge Artist-in-Residence, Summer 2013, gave a large scale photograph of Popham Village to the town of Phippsburg. Missy York (Lakeside Framing) gifted the cost of framing the photograph. A second photograph of the Shortridge property was given to the Bates Environmental Studies Department, for Hedge Hall. Logan donated three additional large scale photographs of Phippsburg to The Shortridge Coastal Center.

**Bridge repair:** The “troll” bridge crossing the upper northern end of the Sprague Marsh was substantially repaired in November. Although previous bridge repair work had been completed in 2007, the planking had rotted to such an extent that a large truck had a front tire break through the upper planks.

**Piping Plover “taking”:** Under the Endangered Species Act, Piping Plovers are federally protected. Following a Plover “taking” on Pine Point Beach—in which a chick was killed by an unleashed dog in August 2013—the US Fish and Wildlife Services charged the Town of Scarborough $12,000 for the offense, with the understanding that the fine would be reduced to $500 if the Town adopted a strict ordinance requiring dogs to be leashed while on the beach during the Plover nesting season. The Town Council, however, recommended a more stringent “leash law” in which dogs must be leashed on all
public property. Due to a great deal of protest from residents, the issue remains unresolved. The final resolution will presumably have significant implications for all Maine beach owners and beach managers.

**Conferences attended by BMMCA Director:** The Renewable Natural Resources Foundation Congress on Coastal Resilience and Risk, Washington D.C.; Climate Solutions, Augusta, ME; New England Estuarine Research Society, Salem, MA; The Maine Rivers Conference on the Kennebec; Waterville, ME.

**Gulf of Maine Field Station Directors meet:** Bowdoin College sponsored a two day meeting of field station directors from around the Gulf Of Maine. All directors presented an overview of active research programs at their stations. A mission statement was drafted, articulating the intention for collaboration in the interest of gaining regional perspectives on environmental change:

> Our network of Gulf of Maine field stations cultivates a community where students, educators, and scientists collaborate, discover, and work together to promote the role of place-based science in our changing world. We build research capacity and facilitate integrative approaches that span geographic and historic scales. The network leverages citizen observations, student research, and trans-disciplinary expertise to predict and communicate the potential impacts of environmental change on human and natural systems in the Gulf of Maine.

**Worth Noting**

**Payment in Lieu of Taxes:** Bates College made an annual payment in lieu of taxes, in the amount of $12,299.12, for the 2013-2014 tax year. This is consistent with the Letter of Agreement, dated March, 2006, between the Town of Phippsburg and Bates College. The agreement assures a 3.5% payment increase each year.

**Boundary line Agreement:** Two boundary lines (running from the top of Morse Mountain and the Eyrie driveway to the east and west) were discussed among stakeholders, agreed upon, and officially de-
lineated by a surveyor. The survey clarified the line to which Morse River Associates is able to clear trees for a view. Bates College paid 1/3 of the expense.

**Donations to BMMCA:** Cards requesting donations for stewardship, management and research, and placed at the BMMCA gatehouse in early July, yielded one contribution of $50.

**Coyote hunting with dogs:** Hunting is allowed at BMMCA, however not with dogs. Hunting with dogs has occurred on at least three occasions during winter months. In 2013, hunters were reminded, in person, that dogs are not allowed at BMMCA in any season. Because the “No Dog” restriction is posted, hunting with dogs at BMMCA constitutes a civil trespass. Truck licenses were recorded. A second offense will constitute a criminal trespass.

**Looking Forward**

The public use of Bates-Morse Mountain continues to grow, apparently along with the public’s appreciation of a place that is uniquely protected for its environmental values and our collective knowledge of salt marsh functions, dune migration and coastal change. Bates-Morse Mountain offers both “the great outdoors” and the opportunity for relevant environmental research and education. Looking forward, my hope is to further establish BMMCA and Shortridge as a field site that can contribute to the regional and national dialogue on coastal change, and to further cultivate public awareness of the importance of conservation, adaptation and ecological integrity.