

Kent Island Annual Report – 2007

Changing of the Guard

I know you will join me in welcoming Damon Gannon as the new director of the Bowdoin Scientific Station at Kent Island. Damon is a marine vertebrate ecologist and he knows a thing or two about field stations. Damon has worked at some of the best-known field stations in the country, including the Manomet Bird Observatory, Woods Hole, Duke's Marine Lab, and Mote Marine Laboratory. Importantly, Damon spent three summers in the 1990's studying harbor porpoise ecology at the Grand Manan Whale and Seabird Research Station in North Head. He won't be surprised by the tide. Damon and his wife, Janet, will arrive in Brunswick in early May. The plan is for him to spend the summer on Kent Island learning the ropes, then take over all operations this fall. Damon's hiring is a real sign of Bowdoin's commitment to Kent Island.

Damon will bring a new perspective, a fresh approach. Kent Island has long been known for its ornithological research and Damon assures me he is committed to building on Kent Island's strengths. At the same time, Damon will pursue new opportunities for student research. Every year, we are intrigued by the seals on the Moustache, by the whales and dolphins around us. I look forward to Damon helping us see these wonders in new ways.

Damon becomes the eleventh director of the Bowdoin Scientific Station at Kent Island (for a complete list, see the addendum at the end of this report). I know this because Nat Wheelwright recently detailed Kent Island's history for the April issue of *Bowdoin Magazine* and for his inaugural talk as the Anne T. and Robert M. Bass Professor of Natural Sciences. *Good Gun Tales and the 73-Year History of the Bowdoin Scientific Station on Kent Island* was a celebration of Kent Island's rich history. Nat painted a delightful picture of the station's origins. Never before had I

seen the entire saga laid out before me. The talk and the preceding dinner, hosted by Bowdoin President Barry Mills, were well attended. From Bill Gross's sister, Louise Minot, to Bob Cunningham's sons, Peter and Jim, to Chuck Huntington and a small army of Kent Island alumni, the entire evening underlined the strength and depth of the community that is Kent Island.

Challenges

Mail Day on Kent Island. Everyone around the long table in the Dorm, intently writing the last words on the last letters to go to Grand Manan. Anyone have Canadian stamps? That evening, Marko drops the bag of mail on the table. It had traveled at *Ernest Joy* speed all the way from Seal Cove. Hannah sifts through each piece. "One for Amberlee, one for Stu..." Whatever you are doing, you stop and read your mail. The rest of the

formulate questions in science, and how to go about testing your hypotheses. Though I was sometimes overwhelmed, I appreciated the opportunity to design my entire project by myself, to struggle with the process... The experience

measures of reproductive effort (ptilochronology, weight, hatch date, hatching success).

For storm-petrel biologists, August and September are where it is at. Once hatched, the chick sits alone in the burrow for the next 65 days. Parents arrive sporadically for brief nocturnal feeding visits and chicks that start out as 7g peepers balloon to as much as 110g (over twice an adult's weight). This makes it an excellent time to gauge parental effort (how much food do they bring?) and to investigate the effects of weight gain on an array of parameters related to chick health and survival.

This August and September, Mark Haussmann and I continued our investigation of telomeres and longevity. We monitored chick growth patterns and manipulated feeding rates. We then took blood samples at regular intervals to measure oxidative stress and telomere change with time. It was a real team effort from late July to late September. Jesse Rosenbluth (Kenyon '07) took much of August, with my help for a few days and then Hannah's help for a week. Mark Haussmann managed an August and a September expedition on chick patrol, even though that meant leaving wife Emily and new arrival, May, at home with the in-laws. That's dedication. All of this work produced a pile of blood samples to be analyzed back at the lab. That work is ongoing. In our final year of funding, 2008, we will focus on heritability issues.

Don Dearborn (Bucknell University) had spent a few weeks in June and July on the island studying gulls (see below), but returned in September as part of Team Telomere. He figured that since we were manipulating chick growth to look at the physiological basis of aging, he would see how it affected their ability to solve spatial cognition tasks. Don is nothing if not creative and resourceful. With the help of Andrea Gager (scheduled to be island chef in 2008), Don

It would be even cooler if the blood samples reveal something about what the red color signals. Shaina Stewart (Kenyon '09) spent a week on Kent Island in early June helping locate nests, then spent the fall analyzing the blood samples collected by Liz and Carrie for signals of oxidative stress. Alas, no correlation has been found thus far.

• Barnacles

Barnacle World belonged to Carrie Jane Roble ('08). Working with Jon Allen (Doherty Marine Biology Postdoctoral Scholar and soon to be on the faculty at Randolph-Macon College), Carrie decided to investigate settling patterns of barnacles along the Kent Island coast. Do barnacle larvae settle randomly, or is the timing and subsequent survival affected by exposure to wave action? With Jon's help, Carrie set up her initial study plots in areas of varying exposure – the South End, East Side, and the tranquil West Side facing Sheep Island.

The first surprise was that barnacles on Kent Island settle much later than those near Brunswick. Jon left by June 1 and there were no settlers in sight. Carrie could find almost no juvenile barnacles on the rocks in any of her three study sites into early June. She decided to look in the water column. With Mark Murray's help Carrie took plankton tows in the *Ernest Joy* offshore from her study sites for seven days. With the aid of a dissecting scope she found her reluctant larvae, and with each tow their numbers increased. By June 9th, settling had begun on the West Side. Settlement in the exposed Southern and Eastern sides of the island lagged about two weeks behind.

Carrie spent a fair amount of time crawling among the rocks of the inter-tidal. It prompted her to think about the Dog Whelk (*nucella lapillus*), a barnacle's main worry. Do whelks have discriminate tastes, with respect to size? Do they eat the big settlers first? To answer these questions, she placed rocks in small enclosures in the inter-tidal along the West Beach. Recently settled barnacles of all sizes covered each rock. She put a single whelk in each enclosure. She let the whelk graze, then checked to see what was left

on the rock. Turns out that whelks are the Godzillas of the barnacle world, they will eat any juvenile barnacle they encounter, regardless of size.

• Snowshoe Hares

Are they gone?

The last hare seen on Kent Island was found dead and in a trap when I arrived at the end of May. In yet another display of her versatility, Hannah Harwood was this year's Bunny Jihad Leader. Fraser Shephard of Grand Manan, long time friend of Kent Island, donated 29 of his wooden traps for the effort. With our 11 wire traps, that gave Hannah 40 to deploy: 31 on Kent and 9 on Hay. Nat, for whom Bunny Jihad has become an obsession, helped with the initial placement during his visit in early June. From then on, Hannah checked the traps every 3-4 days. As the summer wore on, she would move them as yet another area came up dry. She even distributed apples leading to the traps like Hansel and Gretel's bread crumbs and hung pungent apple bait bags in the trees to lure them in. Once or twice, there would be a hint of a hare, conflicting signs – was that a fresh hare dropping in one of Kendra's plots, or just an old one wet from the rains? Had Carrie and Liz seen fresh hare droppings in the South, or the leavings of a particularly weak muskrat? Hannah rushed out to check on every report and to surround the area with traps and apples. Nada. Niente. Nichts. False alarms? By the end of the summer, Hannah was discouraged. She wondered if she had not done this properly. Twenty-four hundred trap-days and not a single hare seen. I'd say Hannah had done just fine. Hard to prove a negative, isn't it? All we know for sure was that we had no confirmed evidence of hares. All we know for sure is that by late July and into September you could find seedlings everywhere; a sight unseen for fifty years.

They found not a single hare track in the snow.
Not a one.

Are they gone? Ask me next year at this time.

- **Forest Ecology – Effect of the Hares**

How have the forests on Kent Island changed since the hares were introduced? How will they change once the hares are gone? These were Anna Bender's questions. No detailed data exist on forest ecology pre-snowshoe hare infestation, but Anna, working with Nat Wheelwright, decided to document and describe the state of the forest ecology at the time of the hares' (knock on wood) eradication.

With Nat's assistance, Anna created 3 plots in each of the island's 5 forest types (white birch, mountain ash, mixed forest, white spruce, and balsam fir). In each plot, she recorded the percent herbaceous vegetative cover at ground, lower canopy, and higher canopy levels. She recorded the # seedlings and seedling heights by species, as well as tree DBH and status (alive, dying, or dead) of the nearest ten trees to each m

Her thoughts about fire come in part from a controlled burn John suggested. In late July, when the grass was sufficiently dry, Kendra, Ross Mauck and I burned a 10m by 10m plot among the tall grass south of Nat's sparrow study grid. She and John will plant seeds there this spring, in a variety of densities, to determine optimal seed density for re-forestation. For my money, the burn was a high point of the summer.

- **Lichen World**

From the moment Bier Kraichak ('08) arrived on Kent Island, he was struck by the old-man beard (*Usnea* spp.) hanging from every tree. Bier spent this summer getting to know the lichens of Kent Island more intimately than anyone had

weather reports. The Kent Island Weather Station at Fog Heaven has come to the rescue and is now serving the fishing community in its stead. Some tidbits from this winter: the coldest temperature occurred on January 3 at 11AM (3.9°F), the wind hit 55.6 mph December 16 at 7:30PM (out of the southwest, of course).

Swimming was a semi-regular undertaking in June. June! What does that tell you about our weather this summer? By the usual metrics, June wasn't extraordinary: we had the normal one day over 70°F and the mean daily high temperature was 58.7 °F, very near the 60 year mean of 58.1°F

creativity, and never-ending good cheer, Hannah Harwood and Amberlee Gustafson served up a diverse, interesting, and delicious dinner six nights a week - for vegetarians and carnivores alike. Bier remembers them as “extraordinary, too-delicious-to-be-true, gone-in-20-minutes dinners by our great cooks.” I agree. I don’t think they repeated a meal before July. Amberlee always seemed to have a new Indian dish that both satisfied and edified. Store-bought bread just wasn’t in the cards this year. Fresh baked bread was *de rigueur*. Hard to get better than steaming hot bread, fresh out of the oven, after a full day in the field.

there was Dance Your Pants Off Sundays, which certainly qualified as exercise.

Kendra brought her guitar to the island, along with lots of talent. She could be found many an evening writing songs in the Dingleberry. Amberlee played outdoors, for the birds to enjoy, while Marko's virtuosity was, as always, appreciated by all. Hannah and the Dastards, the island's short-lived rock band, had Carrie on flute, Genie Wheelwright on harmonica and Mark Haussmann on vocals. The band broke up by mid-June amid squabbles about division of royalties, record labels, and the fact that Mark and Genie had to leave the island.

- **Historical Addenda (courtesy of N.T. Wheelwright)**

- **BSS Directors**

Years	Director
1935-38	Bill Gross (Bowdoin '37; Harvard graduate student)
1939	Charles Ruckstuhl (MIT graduate student)
1940-41	James Blunt (Bowdoin '40)
1942-45	None (no summer program because of WWII)
1946-49	Raymond Payntor (Bowdoin '47; Yale graduate student)
1950-51	Al Barnes ('49)
1952	Edgar Folk (professor, Bowdoin Biology Dept.)