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Extinction risk of specialist marsh birds as sea levels rise

Interim Report

Data were collected from May 8 through July 31, 2017 at Hammonasset Beach State Park and East River Preserve, CT. Nest searching occurred every 1-3 weeks. In total, 64 nests were found and monitored every 2-5 days (23 Willet, 14 Clapper Rail, 25 Saltmarsh Sparrow, 2 Seaside Sparrow). Upon finding a nest, I recorded 14 different nest structure measurements. During nest checks, I recorded 15 pieces of information and I measured eggs in four different ways twice during incubation. After nests failed, I recorded 17 different nest site measurements. For nearly every nest, I collected vegetation data at a random location. Finally, I obtained 21 hours of nest videos during the egg or chick stages for all species. Most video was taken at night during the week of the new or full moon in June and July.

The data collected this summer is an excellent start to my dissertation work. The nest structure and egg measurement data provide the ground work for next summer's nest flooding experiments. The camera component of my project was a great success; infrared radiation using modified cameras allow video capture of bird behavior during night nest flooding. Preliminary review of the video suggests that adults across species are mostly absent during nest flooding. Sparrow chicks seem to readily climb up vegetation to avoid drowning, but the success of this likely varies with age. This provides an excellent basis for future experiments I will complete to determine whether these species may be able to adapt to sea level rise.

Table 1. Expenses covered by award.

Cost	Item(s)	Rationale
\$1,757.02	10 GhostStop POV Video Cameras	To obtain night video footage at flooded nests.
\$478.84	10 GhostStop camera power packs and 4 IR lights	External batteries to extend footage. 6 IR lights to replace broken lights.
\$238.64	Micro SD Cards	To place in video cameras.
\$19.88	SD Card Reader	To read micro SD cards in video cameras.
\$50.13	Battery pack containers	Tupperware to hold external battery packs above video cameras.
\$28.97	2 smart weigh digital pocket scale and calibration weight	Scales to weigh eggs.
\$33.98	USB adaptor	Adaptor to computer.
\$45.06	IR Cut Block Filter	To obtain daylight videos with normal color.
\$15.99	GoPro Mount	Fitted to cameras.

\$24.82	Batteries	For GPS unit and IR lights.
\$72.17	Drill bits, fasteners, velcro, etc.	To modify cameras for external battery.
\$130.45	Staples printed datasheets	Datasheets.
\$19.26	Small zip lock bags, memory card adapter	To take field samples.
\$8.50	Sharpie markers and writing pad	To write on nest flags.
\$1.47	Poster board	For nest cover photos/analysis.
\$26.13	Duct tape, velcro wrap	For camera set up.
\$700.00	Field Housing	Coastal housing required for fieldwork
\$1,345.00	Gasoline	Traveled to and from field sites 4-6 days/week over 3 months. Reimbursement at \$.54 rate.
\$4,996.31	Total	