The Pink Sands of Hammonasset State Park.

Hammonasset State Park has almost two miles of sandy beach (see Figure 1). It is oriented northwest/southeast and waves that hit the beach tend to move sand toward the east. This can be seen at the jetties at both ends of the beach. At Meigs Point sand has piled up on its western side but a sand-starved shoreline is on its eastern side. The sand is somewhat coarser at the east end of the beach compared to the west end. In addition, the sand in the west end tends to have concentrations of garnet along the upper shore face. At times the concentrations of garnet result in the beach having an intense pink color (see Figure 2).

Figure 1. Air photo taken during the early summer, 2010. This is the western end of beach where upper beach face has a distinct pinkish hue because of the garnet concentrations on the surface. Notice off-shore sand bars.

The Hammonasset Sand

The sand at Hammonasset Beach is eroding (CTGEOSURVEY, 2007) and it has been replenished numerous times as part of a beach stabilization program that began in 1954 (Patton and Kent, 1992). Thus, the origins of the sand is unknown. Part of the sand was pumped onshore from submerged sand deposits off shore. It is likely that all the sand was ultimately

derived from deposits from streams that occurred as the glaciers were melting at the end of the last ice age.

Note that the upper part of the beach is finer grained than the surf (wave) zone and may have pink sand on its surface and layers of pink sand just below the surface (see Figure 2). In some places a black mineral(s) will be mixed in with the pink. The pink sand is composed of abundant grains of garnet, some of it very clear and gem-quality (except for its tiny size). The black mineral is magnetite (and/or possibly ilmenite) (Figure 3). Both of these black minerals are magnetic, which you can prove to yourself by taking along a small magnet and running it through the sand. Children love this fun activity, especially if you collect the minerals and place them on a piece of paper. These black grains can be made to “dance” on the paper by moving the magnet around under the paper. During some conditions black streaks will form by the same process in the swash zone.

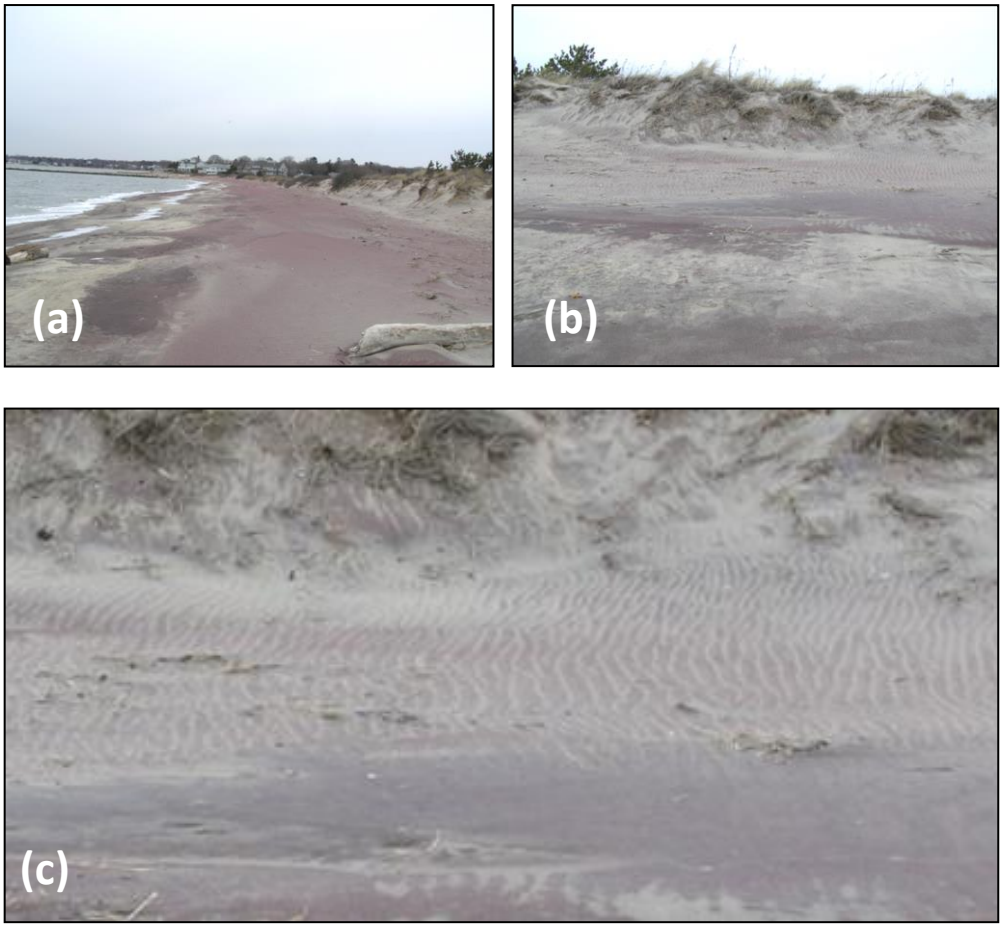

Figure 2. West end of Hammonasset Beach in April 2007. Garnet-rich sand covers the beach. (a) Looking west along-shore toward the jetty at western boundary of Hammonasset State Park. (b) Looking onshore toward the sand dunes near location in (a). (c) Detail of garnet concentration. Notice the windblown ripples below the dune line. The crests of the ripples are composed of lighter colored quartz and feldspar grains that are lighter in weight. When the wind blows, the lighter grains get blown away and the heavier grains are left, forming a coating on top of the beach.

The garnet and magnetite are concentrated because they are denser than most of the sand grains on the beach. For the same size sand grain, garnet and the black minerals are heavier. Heavy mineral concentrations (pink and black) occur where less dense (lighter) sand grains blow or wash away, leaving more dense (heavier) sand grains behind. Storm waves deposit both light and heavy minerals together. After the storm, the wind and less energetic waves remove the lighter minerals, leaving a concentration of the heavier, harder to move mineral grains (Figure 2c). The same process occurs at most Connecticut beaches (see CTGEOSURVEY, 2008, activity 3). The same process can occur in river currents or water waves (particularly in the swash zone). This is the same method that forms gem concentrations on some African beaches. Many of the gold deposits out west are found in stream gravels where the lighter quartz and feldspar grains were washed away, leaving heavier gold nuggets behind. They are referred to as *placer deposits* (pronounce that with a long "A" as in "plastic" rather than the short "A" in "place").

Figure 3. A close up of the individual grains on the beach from one of the dunes. Notice the lighter and darker grains. The red/pink grains are the garnets.

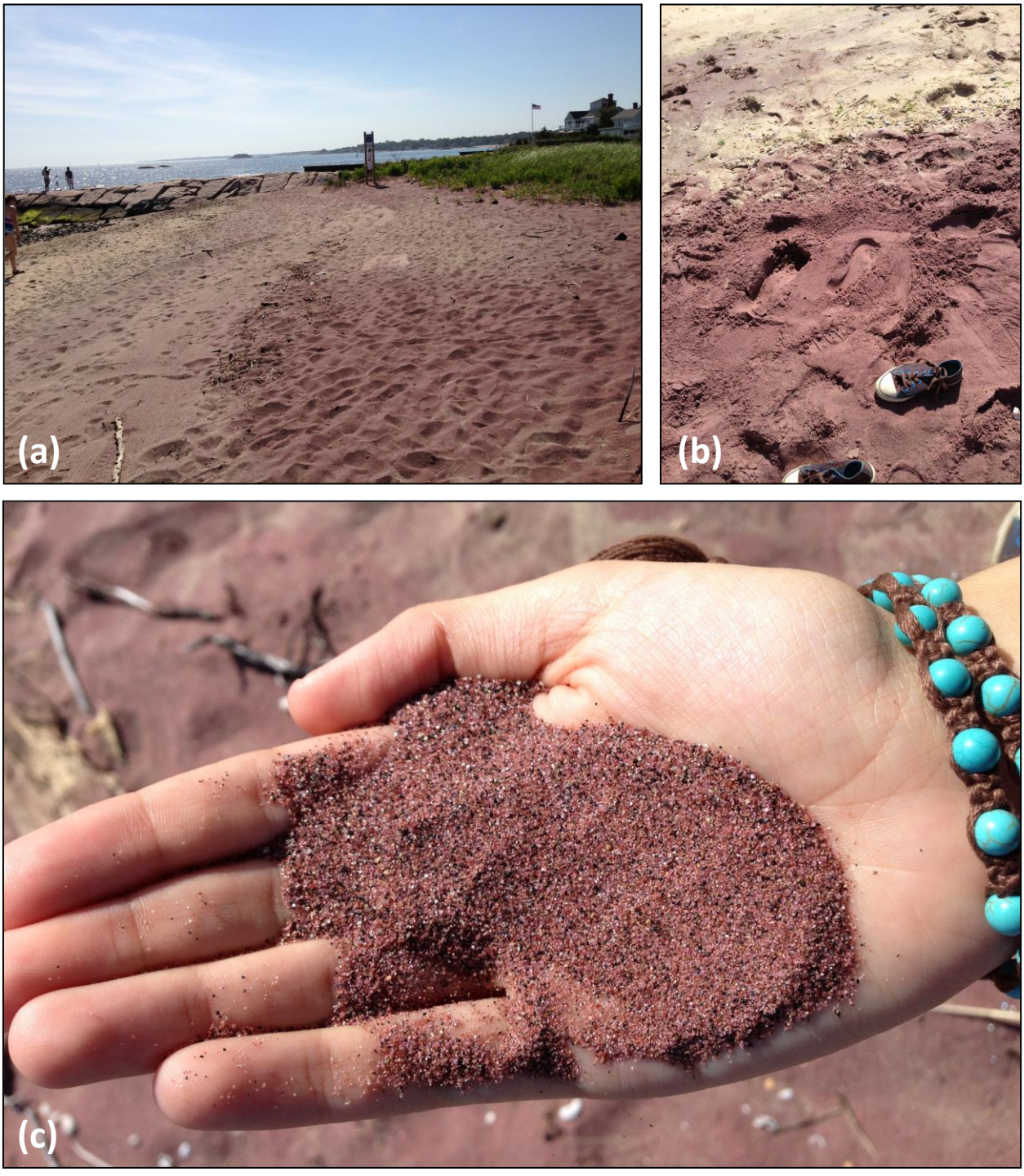

Figure 4. (a) The best location to find the pink sands, especially during the busy summer months. (b, c) Note the striking color contrast when compared to "normal" sand with lower garnet counts. The grains are mostly garnet at this end of the beach and are finer grained; shoes for scale.

Hammonasset Beach is a long beach (almost 2 miles), so it is important to note where the best pink sand is (depending on what time of year that you go, the areas with heavy beachgoer traffic may not show the pink sand well due to mixing). If you do not want to walk a distance on beach, park as close to the campground as possible. The entrance that is closest to the best pink sand is near the “Camp Store” in the vicinity of the long pier that people may be fishing off of (Figures 5,6). This is approximately 2000 feet west of the snack shack at “West Beach”.

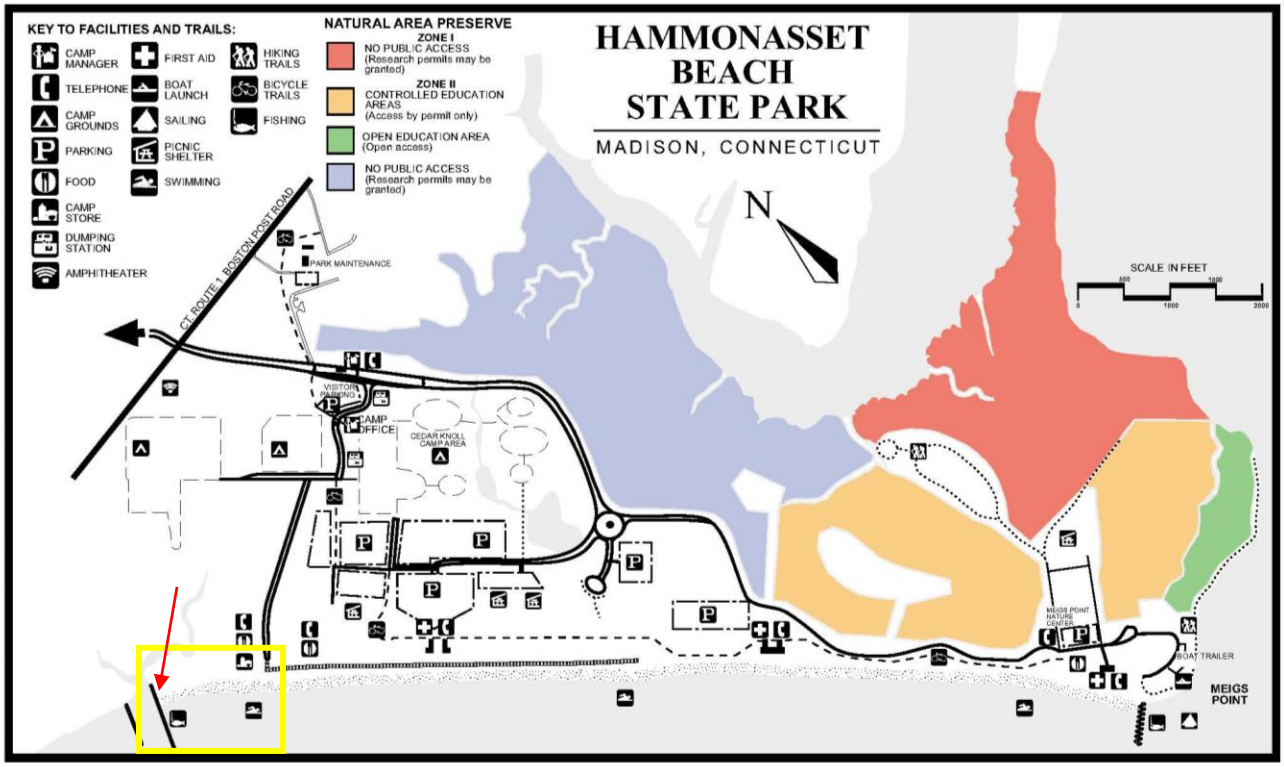

Figure 5. A map of the park. The best pink sand is found anytime of the year in the yellow box just west of the “Camp Store” (in the upper-right corner of the yellow box) and right before the pier (indicated by red arrow). For reference, the West Beach snack stand is just outside the upper-right corner of the yellow box.

Figure 6. A west-facing view of the beach just past the snack stand. Note the sand has a pink tint to it, but the garnets are better showcased at the furthest end of the beach.

Directions

N 41.268453º,-72.55896º. *From the north/Hartford*: take I-91 south to Route 9 south. Off Route 9, take Exit 9. Turn right (south) onto Route 81; continue down Route 81 until you run into I-95. Turn right onto I-95 south entrance ramp and go approximately 1 mile to Exit 62, then turn left off the exit. Head south 1 mile down Hammonasset connector, go straight through the light crossing Route 1 (Boston Post Road) into the park. *From the south area*: take I-95 north, Exit 62. Take a right off the exit ramp onto Hammonasset I-95 connector. Park entrance will be 1 mile ahead. *From the east area*: take I-395 south onto I-95 south, Exit 62. Take a left off the exit and go approximately 1 mile. Go straight through the traffic light crossing Route 1 (Boston Post Road). *From the west*: take I-95 north, Exit 62. Take a right off the exit and go approximately 1 mile. Go straight through the traffic light crossing Route 1 (Boston Post Road) into the park. It is suggested that visitors coming from all directions park in Lot B and use beach point 11 to access the beach and observe the garnets.

References

Patton, P.C., and Kent, J.M. *A Moveable Shore: The Fate of the Connecticut Coast.* National Audubon Soc and The Connecticut Dept. of Environmental Protection. 1992.

CTGEOSURVEY, 2007, Hammonasset Beach State Park: *Beach Migration at Hammonasset Beach.* <http://www.geocaching.com/seek/cache_details.aspx?wp=gc13etj>

CTGEOSURVEY, 2008. Bluff Point State Park and Coastal Preserve: *The changing beach at Bushy Point, Part II: Sand on the move!* <http://www.geocaching.com/seek/cache_details.aspx?wp=gc18v9d>

IMPORTANT: *Please do not collect the minerals. Collecting minerals is prohibited on state land. These minerals are for all of the citizens of Connecticut to enjoy. Please be considerate of others and take nothing but photos. Thank you for your cooperation!*

Garnet Trail funded through DEEP Greenways program (National Recreational Trails Program funding) to develop educational information on the Connecticut State Mineral, Almandine garnet. Locations chosen to promote a greater awareness of our State Mineral and showcase the variety of garnet occurrences on State Land.

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