TERRAPIN MONITORING AT THE PAUL S. SARBANES ECOSYSTEM RESTORATION PROJECT AT POPLAR ISLAND

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BACKGROUND

The Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island (Poplar Island) is a large-scale project that is using dredged material to restore Poplar Island in the Middle Chesapeake Bay. The island was greater than 400 hectares and contained uplands and high and low marshes as recently as 100 years ago; however, during the past 100 years, the island eroded and by 1996 only three small islands (<4 hectares) remained before the restoration project commenced. The project sponsors, the United States Army Corps of Engineers (USACE) and the Maryland Port Administration (MPA), are rebuilding and restoring Poplar Island to a size similar to what existed in the past. A series of stone-covered perimeter dikes facing the windward shores of Poplar Island were erected to prevent erosion. Dredged materials from the Chesapeake Bay Approach Channels to the Port of Baltimore and the Chesapeake and Delaware Canal are filling the areas within the dikes. The ultimate goals of the project are: to restore remote island habitat in the mid-Chesapeake Bay using clean dredged materials from the Chesapeake Bay Approach Channels to the Port of Baltimore; optimize site capacity for clean dredged materials while meeting the environmental restoration purpose of the project; and protect the environment around the restoration site. Ultimately, this restoration will benefit the wildlife that once existed on Poplar Island.

After completion of the perimeter dikes in 2002, diamondback terrapins, *Malaclemys terrapin,* began using the newly formed habitat as a nesting site (Roosenburg and Allman, 2003; Roosenburg and Sullivan, 2006; Roosenburg and Trimbath, 2010; Roosenburg et al., 2004; 2005; 2007; 2008; 2010; 2012; 2014; 2015). Prior to the restoration, the persistent erosion of Poplar and nearby islands had reduced the terrapin nesting and juvenile habitat in the Poplar Island archipelago. As a consequence, terrapin populations in the area likely declined due to emigration of adults and reduced recruitment (successful reproduction) because of limited high quality nesting habitat. By restoring the island and providing nesting and juvenile habitat, terrapin populations in the archipelago could increase. The newly restored wetlands could provide high quality juvenile habitat while the accessible sandy areas could provide nesting areas.

Poplar Island provides a unique opportunity to understand how large-scale ecological restoration projects affect terrapin populations and turtle populations in general. In 2002, a long-term terrapin monitoring program was initiated to document terrapin nesting on Poplar Island. By monitoring the terrapin population on Poplar Island, resource managers can learn how creating new terrapin nesting and juvenile habitat affects their populations. This information will contribute to understanding the ecological quality of the restored habitat on Poplar Island, as well as understanding how terrapins respond to large-scale restoration projects and, more specifically, island restoration projects. The results of terrapin nesting surveys and hatchling captures from 2004 – 2015 are summarized herein to identify how diamondback terrapins use habitat created by the restoration of Poplar Island and how it has changed during that time.

The 2015 Poplar Island Framework Monitoring Document (FMD; Maryland Environmental Service, 2014) identifies three reasons for terrapin monitoring:

1) Quantify the use of nesting and juvenile habitat by diamondback terrapins on Poplar Island, including the responses to change in habitat availability as the project

progresses.
2) Evaluate the suitability of terrapin nesting habitat by monitoring nest and hatchling viability, recruitment rates, and hatchling sex ratios.
3) Determine if the project affects terrapin population dynamics by increasing the available juvenile and nesting habitat on the island.

The terrapin's charismatic nature also makes it an excellent species to use as a tool for environmental outreach and education. Some of the terrapin hatchlings that originate on Poplar Island participate in an environmental education program in the Maryland schools through the Arlington Echo Outdoor Education Center (AE), Maryland Environmental Service (MES), and the National Aquarium in Baltimore (NAIB). These programs provide students with a scientifically-based learning experience that also allows Ohio University (OU) researchers to gather more detailed information on the nesting biology of terrapins, in addition to providing an outreach and education opportunity for the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island. As part of the terrapin research program at Poplar Island, OU researchers are collaborating with staff at AE, MES, and the NAIB to foster both a classroom and field experience that uses terrapins to teach environmental education and increase awareness for Poplar Island. The students raise the terrapins throughout their first winter, during which time they attain a body size that is comparable to 2 - 5 year old wild individuals, thus "headstarting" their growth. The specific goals of the terrapin outreach program are:

1) Provide up to 250 terrapin hatchlings yearly to AE, MES, and the NAIB to be raised in classrooms.
2) Obtain sex ratio data from the hatchlings as increased body size allows.
3) Provide Poplar Island Hatchling terrapins for the headstart – education – research outreach program.
4) Conduct a scientifically-based program to evaluate the effectiveness of headstarting.

METHODS

Specific details of differences in surveys and sampling techniques used during 2002–2015 can be found in Roosenburg et al. (2015). Since 2004, survey efforts to find nests have been consistent in the Notch, outside Cell 5, and outside Cell 3. Completion of the perimeter dike of Cell 6 in 2008 has eliminated nesting activity there, and the completion of Cells 4D, 3D, 1A, 1B, and 1C have resulted in nesting along the interior perimeter and cross dikes of these cells, therefore mandating surveys of these recently completed potential nesting areas. Details of the general survey methods and specific techniques employed during 2015 are described below.

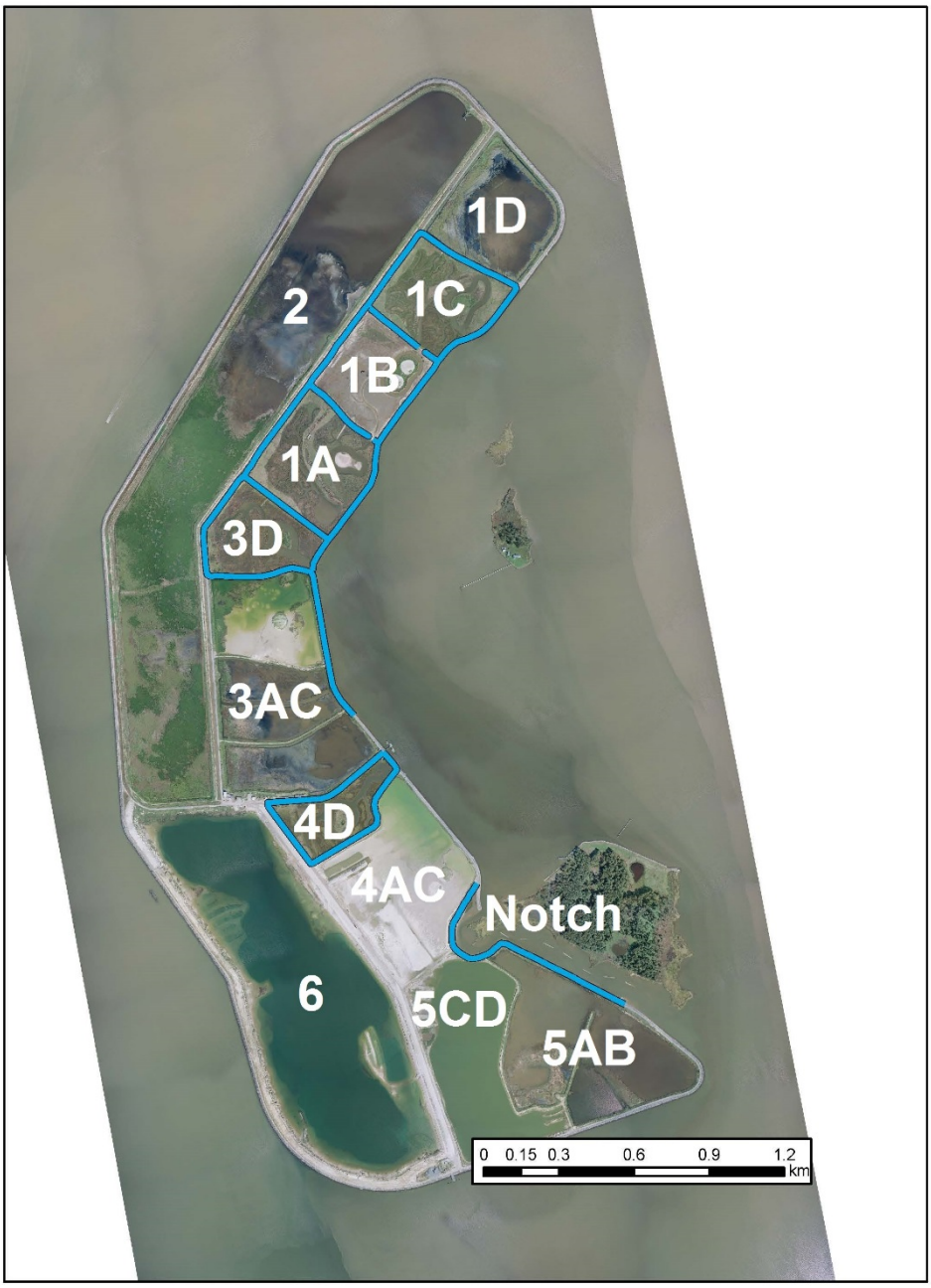

Figure 1. Map of Poplar Island with blue lines indicating areas surveyed for nesting activity daily by the research team.

Identification of terrapin nests: The first terrapin nest of the 2015 field season was located on 26 May 2015 and the last nest confirmed less than 24 hours old was found on 21 July 2015. OU researchers surveyed the following areas on Poplar Island daily (Monday – Friday): beaches in the Notch area (surrounding the northwestern tip of Coaches Island near Cell 4AC), areas between Coaches Island and Poplar Island (outside of Cell 5AB), the beach outside the dike near Cell 3AC in Poplar Harbor, and interior perimeter dikes of Cells 4D, 3D, 1A, 1B, and 1C (Figure 1). A geographic positioning system (GPS) recorded nest positions and survey flags identified

the specific nest locations on the island. Upon discovering a nest, researchers examined the eggs to determine the age of the nest. If the eggs were white and chalky, the nest was greater than 24 hours old and no further excavation was conducted because of increased risk of rupturing the allantois membrane and killing the embryo. Researchers excavated recent nests (less than 24 hours old; these nests were identified by a pinkish translucent appearance of the eggs) to count the eggs, and from 2004 through 2015 weigh the individual eggs on a portable jeweler's balance. Researchers marked nests with four 7.5 cm^2 survey flags, and beginning in 2005, laid a 30 cm by 30 cm, 1.25 cm^2 mesh rat wire on the sand over the nest to deter avian nest predators, primarily crows.

Monitoring nesting and hatching success: After 45 to 50 days of egg incubation, researchers placed an aluminum flashing ring around each nest to prevent emerging hatchlings from escaping. Anti-predator (1.25 cm^2) wire also was placed over the ring to prevent predation of emerging hatchlings within the ring. Beginning in late July, the researchers checked ringed nests at least once daily for emerged hatchlings. Researchers brought newly emerged hatchlings to the onsite storage shed where they measured and tagged the hatchlings.

Researchers excavated nests ten days after the last hatchling emerged. For each nest, they recorded the number of live hatchlings, dead hatchlings that remained buried, eggs with dead embryos, and eggs that showed no sign of development. To estimate hatching success, researchers compared the number of surviving hatchlings to the total number of eggs from only the nests that were excavated within 24 hours of oviposition, which provided an exact count of the number of eggs. Additionally, researchers determined if the nest was still active by looking for eggs that appeared healthy and had not completed development. The researchers allowed nests containing viable eggs or hatchlings that had not fully absorbed their yolk sac to continue to develop; however, researchers removed fully developed hatchlings from nests, further described in the next section.

Measuring, tagging, and release of hatchlings: Researchers brought all hatchlings back to the MES shed onsite where they placed them in plastic containers with water until they were processed (measured, notched, and tagged), usually within 24 hours of capture. Researchers marked hatchlings by notching with a scalpel the 9th right marginal scute and 2nd left marginal scute, establishing the cohort identification (ID) 9R2L for 2015 fall emerging hatchlings. OU personnel gave spring 2015 emerging hatchlings a different cohort ID of 2L9L (notching the 2nd left marginal scute and 9th left marginal scute) to distinguish fall 2015 from spring 2015 emerging hatchlings upon later recapture. Researchers implanted individually marked coded wire tags (CWTs, Northwest Marine Technologies®) in all hatchlings. The CWTs were placed subcutaneously in the right rear limb using a 25-gauge needle. The CWTs have high retention rates (Roosenburg and Allman, 2003) and researchers will be able to identify terrapins originating from Poplar Island for the lifetime of the turtle by detecting tag presence using a Northwest Marine Technologies® V-Detector.

Researchers measured plastron length, carapace length, width, and height (± 0.1 mm) with digital calipers, and mass (± 0.1 g) of all hatchlings with a jeweler's balance. Additionally, they checked for anomalous scute patterns and other developmental irregularities. Following tagging and measuring, researchers released all hatchlings in either Cell 1A, Cell 1B, or Cell 1C

in 2015. On several occasions, large numbers (>50) of hatchlings were simultaneously released but dispersed around the cell to minimize the risk of avian predation by gulls, cormorants or other wading birds.

Measuring, tagging, and release of juveniles and adults: All juvenile and adult turtles captured on the island were transported to the onsite shed for processing. Researchers recorded plastron length, carapace length, width, height, head width (±1 mm), and mass (±1 g) of all juveniles and adults. Passive Integrated Transponder (PIT, Biomark Inc.) tags were implanted in the right inguinal region in the loose skin anterior to the hind limb where it meets the plastron. Additionally, a monel tag (National Band and Tag Company) was placed in the 9th right marginal scute. The number sequence on the tag begins with the letters PI, identifying that this animal originated on Poplar Island.

Terrapin Education and Environmental Outreach Program: During 2015, 180 Poplar Island hatchlings were distributed to the terrapin education and environmental outreach programs at AE, the NAIB, and MES. In April 2016, researchers traveled to AE and the NAIB to implant PIT tags in 178 headstarted terrapins from the 2015 cohort. Researchers also measured, weighed, and determined the sex of all animals at this time. Sex was determined by examining the size of the tail relative to the body size, short stubby tails identify females, elongated tails males; individuals that were too small or ambiguous were classified as juveniles. From late May through July 2016, the 2015 headstarted terrapins were returned to Poplar Island and released.

Table 1. Summary of the diamondback terrapin nests found on Poplar Island and their fate from 2002 to 2015.

YEAR	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
TOTAL NESTS	68	67	182	282	191	225	218	189	166	211	200	174	165	181
NESTS THAT PRODUCED HATCHLINGS	38	50	129	176	112	166	180	145	125	180	138	150	131	110
NESTS THAT DID NOT SURVIVE	1	7	17	70	69	44	28	34	42	20	51	21	29	52
DEPREDATED (ROOTS OR ANIMAL)*	0	0	12	46	54	18	12	10	9	24/6	81/38	19/7	16/9	55/16
WASHED OUT**	1	6	3	11	13	2	6	3	4	3	4	5/2	22/8	10/0
UNDEVELOPED EGGS, WEAK SHELLED EGGS, OR DEAD EMBRYOS	0	1	0	12	1	19	10	12	11	5	6	7	4	12
DESTROYED BY ANOTHER TURTLE OR NEST WAS IN ROCKS	0	0	2	0	0	3	0	0	2	0	2	0	0	1
DESTROYED BY CONSTRUCTION	0	0	0	1	0	0	0	0	0	0	0	0	0	0
DEAD HATCHLINGS	0	0	0	0	1	2	0	2	6	3	0	6	2	7
FATE OF NEST UNKNOWN	29	10	36	36	10	19	10	10	17	9	7	0	5	9

***The first value listed is the total number of nests that experienced predation; the second value is the number of nests that were partially depredated. Fully depredated nest are the difference. **The first value indicates the total number of nests that experienced a wash out event; the second value identifies the number of nests that were washed out yet still produced hatchlings that emerged before or during the washout.**

Data Analysis and Processing: Researchers summarized and processed all data using Microsoft Excel® and Statistical Analysis System (SAS). Graphs were made using Sigmaplot®. Institutional Animal Care and Uses Committee at OU (IACUC) approved animal use protocols (IACUC protocol # 13-L-023) and the Maryland Department of Natural Resources (MD DNR) – Wildlife and Heritage Service issued and annually renewed Scientific Collecting Permit Number SCO-53958 to Willem M. Roosenburg (WMR).

RESULTS AND DISCUSSION

Nest and Hatchling Survivorship: During the 2015 terrapin nesting season, the researchers located 181 nests on Poplar Island (Figure 2, Table 1, Appendix 1). The nesting season began on 26 May and ended in late July when the last fresh nest (< 24 hours old) was found on 21 July. Of the 181 nests, 110 successfully produced hatchlings, 52 nests did not produce hatchlings, and the fate of nine nests could not be determined but are not counted in these 52. Nests considered successful included those from which either hatchlings were collected or in which thin, pliable eggshells were found that indicated hatchling emergence. One false nest was located in the Notch where a female distinctly nested, but no eggs were found in or around the apparent nesting cavity. Furthermore, 55 nests experienced predation of some or all of the eggs; 16 of those nests had eggs remaining after the predation occurred. Of the 16 nests that were partially destroyed,

Figure 2. Terrapin nesting locations on Poplar Island during 2015.

eight successfully produced some hatchlings; however, one of these nests was likely a double nest where two females had laid eggs in close proximity. In one fully depredated nest, a micro egg was found not eaten among the remaining shells of the other eggs. Four nests in 2015 had weak or thinly shelled eggs, and researchers were able to collect hatchlings from one. However, of the three nests with weak-shelled eggs that did not produce hatchlings, two were washed away by unusually high tides and the fate of one nest is undocumented. Forty-six nests were documented having at least one egg that did not successfully hatch. Ten nests outside of Cell 3 experienced a wash-out event due to abnormally high tides; none of these nests produced hatchlings before the event and no signs of emergence were found after flooding occurred.

Figure 3. Predation on diamondback terrapin nests by an Eastern Kingsnake (*Lampropeltis getula*) (top) and a Red Fox (*Vulpes Vulpes*) (bottom).

Researchers have averaged finding almost 200 terrapin nests per year on Poplar Island since 2004; similar to 2014, 2015 was a lower than average year deviating from the mean by 19 nests. The lower than average nest count in 2014 was attributed, in part, to the proliferation of trailing fuzzy bean (TFB), *Strophostyles helvola*, in the Notch; TFB overgrew the nesting beach late in the 2014 nesting seasons which reduced researchers' ability to find nests and potentially discouraged females from nesting because open, unvegetated areas are preferred (Roosenburg, 1996). Researchers made efforts in late May of 2015 to control TFB growth by rototilling the nesting beach in the Notch before the onset of the nesting season. Throughout the season, researchers continued to control TFB by extracting seedlings as an attempt to deplete the seedbank in the Notch and in Cell 5. Most of the effort was concentrated in the Notch where the greatest proportion of nests is found annually. These efforts were successful, and TFB did not prohibit terrapin nesting in open areas during the summer, however TFB control was not maintained into the fall when the plant produces seed. Although the abundance of TFB may have contributed to the lower than average number of nests located during the 2014 nesting season and the nest count increased from 2014 to 2015 by 16 nests, the increase cannot necessarily be attributed to TFB maintenance. More likely the increased nest count was a consequence of predation and the increased detectability of depredated nests. An additional factor contributing to the lower number of nests discovered in recent years is the increasing access to other portions of the island for female terrapins. Indeed, Figure 2

illustrates nesting on cross dikes and other areas accessible to terrapins, greatly increasing the search area and decreasing the research team's ability to locate nests. We suggest that the decrease in nests is due to newly arising challenges associated with finding nests and is not an actual decline in the terrapin nesting on Poplar Island.

During 2015, 55 nests were depredated and 39 of those were destroyed completely. Most depredated nests were found after predation had occurred, and the number of located nests that experienced some level of predation increased by 39 between 2014 and 2015. The increased predation might be a result of encroaching vegetation other than TFB on the nesting beaches in the Notch and outside of Cell 5. The proliferation of abundant marsh species such as *Spartina patens* (salt marsh hay) and *Panicum virgatum* (switchgrass) provides suitable habitat for Eastern Kingsnakes, *Lampropeltis getula*, a known terrapin nest predator on Poplar Island. Kingsnakes prefer densely vegetated habitat over open habitat when available (Wund et al. 2007), and the vegetation in the Notch and outside of Cell 5, particularly *Spartina patens*, has proliferated in recent years, creating a layer of dense vegetation over areas that were once open sand; the change in habitat structure may have resulted in an increase in habitat quality for kingsnakes as the dense layer of vegetation encourages their fossorial (burrowing or digging) behavior. Throughout the 2015 field season, five kingsnakes were captured on Poplar Island and one individual was captured twice. Researchers also captured and tagged one Black Ratsnake (*Pantherophis obsoletus*), a species which was documented preying on terrapin eggs on the island in 2014 (Roosenburg et al., 2015). Of the 55 destroyed nests documented, 27 were attributed to snakes but 11 nests had viable eggs remaining after the event. More suitable snake habitat adjacent to the remaining open nesting areas preferred by gravid female terrapins likely contributed to the increase in snake predation during 2015, specifically by kingsnakes. Wire mesh covers were installed over all known nest locations to prevent crow predation in 2015; however snakes can successfully navigate underneath the mesh to reach eggs in the nesting cavity.

An additional cause of increased predation during the 2015 nesting season was the presence of four Red foxes, *Vulpes vulpes*, on the island which crossed the frozen Poplar Sound to Poplar Island during the winter of 2015. Researchers definitively attributed 21 out of 55 full or partial predations to foxes based on the manner in which the nest was excavated. Many of these nests were found on the north end of Cell 4AC near the cross dike with Cell 4D where sand was stockpiled. Researchers surveyed the stockpiled sand in late July to look for evidence of terrapin nests. Six terrapin nests depredated by foxes were located on the stockpiles, one of which had intact eggs. Nests destroyed by foxes are distinguishable from snake predations; snakes burrow into nesting cavities, eat eggs whole and leave a neat entry hole to the cavity, whereas foxes dig into nests and chew the leathery eggs, leaving eggshells behind with clear teeth indentations (Figure 3). Furthermore, fox tracks are frequently found when the substrate surrounding the nest is compact. Although the foxes were effective nest predators, they uncovered nests in areas where previous nesting had not been documented (e.g. stockpiled sand in Cell 4C) and those nests likely would not have been discovered otherwise.

During 2015, nests were observed on cross dikes between Cells 3C and 3D, 1B and 1C, and 1C and 1D, most of which are completed cells (the exception being Cell 1D) on the northern half of the island (Figure 2).

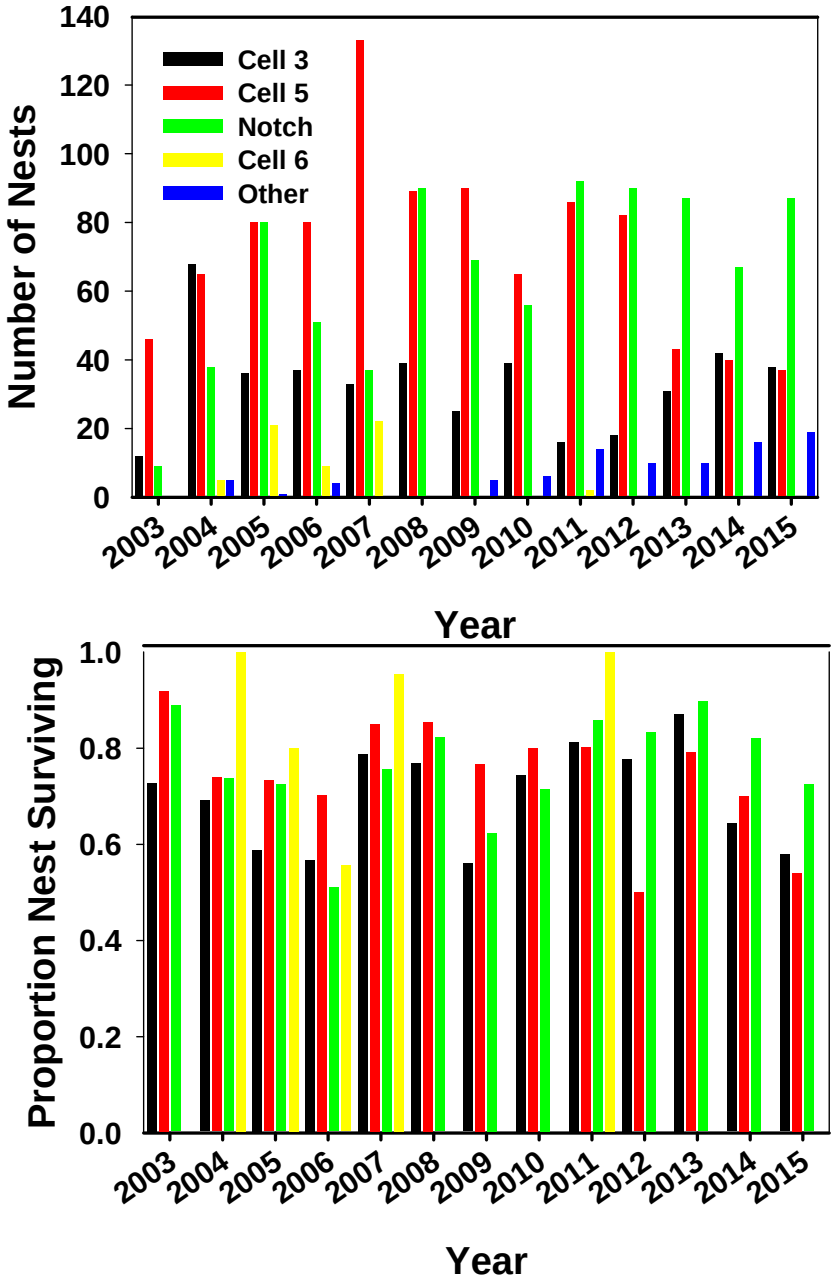

Figure 4. The number of nests in each of the major nesting areas from 2003-2015 (top graph) and the proportion of nests surviving (bottom graph).

MES rototilled the cross dikes between Cell 1A and Cell 1B and between Cell 1B and Cell 1C in an attempt to create attractive nesting habitat. Areas with dense vegetation typically support fewer terrapin nests in the Chesapeake Bay region (Roosenburg, 1996) and pose a threat to terrapin nests because the roots of grasses can either entangle hatchlings or prey directly on the eggs (Stegmann et al., 1988). No nests were discovered on the cross dike between Cells 1A and 1B and only two were found on the Cell 1B /1C cross dike. Although few nests were found, it is probable that more nesting occurred and went undetected due to the texture of the substrate on both cross dikes. Rototilling successfully reduced vegetation growth, however the disturbance made detecting terrapin tracks and other signs of nesting challenging. Researchers cannot rule out that females are nesting in other open areas that have not yet been discovered by the research team.

Although nesting is expanding across the island (Figure 2), it remains diffuse in the island interior, whereas the Cell 3 areas outside the perimeter dike and the Notch and Cell 5 where the perimeter dike is made of sand and thus accessible to terrapins remain the areas with

highest nesting density (Figure 4). This persistent observation suggests that available nesting habitat visible and accessible from the exterior of the island constitutes the most highly used and preferred. It is important to note that nesting is also encouraged in these areas as a result of the fences that have been in place since 2003. The fences constrain nesting to these areas and prevent female terrapins from accessing roads and areas under construction on the island.

Overall nest survival rates declined to 0.608 (Figure 4) throughout the island. Nest survival has been declining since 2013 in all areas of the island (Figure 4). The decline in nest survival is caused primarily by increased predation of nests by both King Snakes and foxes. However, the decrease in survival is also affected by our ability to detect nests. Intact nests in areas with dense vegetation are easy to overlook and thus frequently are undetected, but depredated nests are conspicuous (Figure 3) and thus are easy to detect; researchers discovered 16 nests in Cell 4AC after the nesting season that were depredated by foxes. Thus, the decrease in nest survival is skewed by these depredated nests, whereas the increase in predation in Cell 5 and the Notch more accurately reflect the impact of the introduction of foxes to Poplar Island. Mean within nest survivorship (proportion of eggs surviving within nest for which all eggs are known and their fate can be accurately determined including depredated nests) was 0.627 during 2015. This is similar to 2014 and 2013, where mean within nest survivorship was 0.623 and 0.555 respectively, but well above the low observed in 2010 of 0.429. The fluctuation in survivorship among years is most likely due to the fluctuation of temperature and rainfall among years in which hotter, dryer summers reduced survivorship within nests, and wetter summers had higher survivorship. The 2010 nesting season was the hottest and driest on record, while 2013-2015 had considerably more rainfall events during the summer incubation periods. During hot and dry conditions soil water potentials drop and eggs can desiccate and die as a consequence. Three nests were discovered where all eggs initially within the clutch were dead and intact upon excavation, an indication of failure to develop. This phenomenon can be caused by over-heating, dehydration, or infertility. Vegetation on the nesting beaches can also increase within nest mortality by dehydrating eggs or penetrating the shell. Vegetation can dehydrate turtle eggs by competing for soil moisture; plants can tolerate lower soil water

Table 2. Average and standard error of clutch size, clutch mass, and egg mass from 2004-2015 on Poplar Island.

Year	Clutch Size	Clutch Mass (g)	Egg Mass (g)
2004	13.68 (0.379)	127.55 (4.372)	9.80 (0.110)
2005	13.62 (0.245)	133.11 (2.541)	9.92 (0.087)
2006	13.48 (0.248)	133.28 (2.570)	9.97 (0.081)
2007	13.11 (0.241)	127.4 (2.502)	9.86 (0.086)
2008	12.90 (0.260)	128.0 (2.890)	10.06 (0.092)
2009	13.85 (0.242)	137.1 (2.335)	10.02 (0.091)
2010	13.33 (0.364)	133.1 (3.850)	10.10 (0.198)
2011	14.08 (0.290)	131.5 (2.688)	9.46 (0.142)
2012	13.67 (0.309)	131.7 (3.697)	10.13 (0.162)
2013	12.95 (0.268)	124.7 (2.796)	9.74 (0.129)
2014	13.38 (0.341)	130.0 (3.306)	9.86 (0.125)
2015	12.86 (0.328)	129.3 (3.053)	9.88 (0.133)

potentials than eggs, and the roots are able to encase eggs and draw the moisture from them (Stegmann et al., 1988). Increasing vegetation cover in the Notch and Cell 5 may be responsible for more nest mortality in the future if growth is left unhindered.

Researchers described four nests with thin-shelled eggs on Poplar Island in 2015 and one nest with a similar condition in 2014. One clutch that contained some thin-shelled eggs produced hatchlings; two nests only had some thin-shelled eggs, and the remaining nest contained all thin-shelled eggs. The viability of these three nests is unknown because two were washed away by unusually high tides and the fate of one went undescribed (unknown). In previous years, OU researchers have noted other nests in which all of the eggs have thin shells; these eggs are frequently broken during oviposition and seldom hatch. The cause of the thin-shelled eggs is unknown at this time, but it is not unique to Poplar Island. Thin-shelled eggs have also been observed in the Patuxent River terrapin population (Roosenburg, personal observation). Two possible causes that remain to be evaluated include a toxicological effect by a factor ubiquitous in the Chesapeake Bay, or a resource limitation making the females unable to sequester sufficient amounts of calcium to shell the eggs.

Reproductive Output: Clutch size (Analysis of Variance; ANOVA, $F_{11,1132} = 1.62$, $P > 0.08$) and clutch mass (ANOVA, $F_{11,1132} = 1.39$, $P > 0.17$) did not differ among years. Average egg mass varies from 9.46 to 10.13 g and did differ among years (ANOVA, $F_{11,1132} = 2.16$, $P < 0.014$; Table 2). Average clutch size varies by nearly one egg among years ranging from a low of 12.86 to a high of 14.08, but this difference is not significant. Interestingly, total clutch mass remains very consistent, differing less than the average weight of a single egg. This consistency in total clutch mass suggests that females fine tune their total reproductive output but that number of eggs per clutch or egg size can be more plastic than total clutch mass. Researchers can only speculate what may be driving the variation in reproductive output observed among years but suggest two potential causes. The first is underlying environmental variation (e.g. temperature or resources) that may result in different allocation strategies that determine the number and size of eggs and the total clutch mass. As the number of terrapins continues to increase in the archipelago, competition for food may be intensifying and thus having an indirect effect on the reproductive characteristics as resources become limited. A study investigating environmental correlates of reproductive characteristics could reveal significant patterns associated with environmental variation, resource availability, and competitive interactions. Second, there may be changes in the demographic structure in the Poplar Island terrapin population such that the strong recruitment driven by the creation of new and (relatively) predator-free nesting habitat has resulted in a greater number of younger females. Younger females may have different reproductive characteristics than the older females that dominated the population in the early years of the project. Additionally, younger females may be more variable in egg production. Being able to identify clutches of known-aged females could address these questions. Monitoring during 2015 recorded one ‘micro egg’ in a single fully depredated nest. The micro egg was observed to be white, translucent, and misshapen. Micro eggs may be produced by younger females or perhaps by headstarted individuals that may be at the appropriate size of maturity but physiologically are not yet mature. Continued monitoring of terrapin reproductive biology on Poplar Island will be important in determining the underlying causal factors of variation in reproductive output.

Hatchlings: Researchers captured 701 hatchlings during the 2015 nesting season. Seven hatchlings were documented as dead before or shortly after processing, and one died after being tagged, notched, and held overnight. Approximately 515 hatchlings were released onto Poplar Island and 180 terrapins were collected and distributed to schools participating in the headstart program, 178 survived. Twenty-four hatchlings were collected from 'emergent nests' or nests that were discovered post-nesting season; all other hatchlings were captured in the rings surrounding the nests. Researchers found 23 nests after 21 July 2015 through 18 March 2016 that were discovered either after hatchlings emerged or predators had excavated the nests and left egg shells. Hatchling carapace length and mass were similar among all years of the study (Table 3). Since 2002, 15,029 hatchings have been captured, tagged, and notched on Poplar Island (Table 3). One hatchling Eastern Mud Turtle, *Kinosternon subrubrum*, was also collected, processed, and released. The mud turtle nest was found outside of Cell 5, and this is the first year this species has been detected breeding on Poplar Island.

Hatchling recruitment decreased by 185 hatchlings from 2014 to 2015, reflecting the decrease in nest survival, particularly in the Notch and Cell 5 in 2015 due to high rates of predation by snakes and foxes (Figure 4). Predation by mice decreased recruitment in 2012, but recruitment increased in 2013 when mouse predation was nearly absent. Mouse predation went undetected in both 2014 and 2015. All other nesting areas had nest survival rates that were comparable to previous years.

The relationship between average clutch egg mass and average clutch hatchling mass (HM = EM*0.604 + 1.512; $r^2 = 0.588$) suggests that incubation conditions were closer to average temperature and rainfall during 2014. Only during the summers of 2008 and 2010, when incubation conditions were dryer and warmer than average due to lower rainfall and higher temperatures, did the relationship between egg and hatchling mass differ as indicated by a heterogeneity of slopes (ANCOVA; $F_{11, 420} = 4.08$;

Table 3. Number of hatchlings, mean and standard error of carapace length, and mean and standard error of mass of terrapin hatchlings caught on Poplar Island from 2002-2015.

Year	Number of Hatchlings	Mean Carapace Length (mm)	Mean Mass (g)
2002	565	31.28 (1.61)	7.52 (0.96)
2003	387	31.13 (1.50)	7.50 (0.99)
2004	1,337	31.57 (1.47)	7.61 (0.89)
2005	1,526	30.98 (1.94)	7.45 (1.10)
2006	855	30.95 (1.71)	7.38 (1.01)
2007	1,616	31.26 (1.72)	7.50 (0.91)
2008	1,443	31.03 (1.34)	7.42 (0.14)
2009	1,430	30.99 (1.83)	7.33 (0.99)
2010	785	30.45 (0.06)	7.38 (0.04)
2011	1,382	30.41 (2.02)	7.40 (1.15)
2012	961	30.83 (2.26)	7.37 (1.30)
2013	1,155	30.65 (0.06)	7.21 (0.03)
2014	886	30.60 (0.08)	7.20 (0.05)
2015	701	30.92 (0.07)	7.12 (0.04)
Total	15029		

P < 0.0001), resulting in larger eggs producing smaller than normal hatchlings (Figure 5). These findings suggest that hatchling size is affected by both egg size and the environmental conditions experienced during incubation.

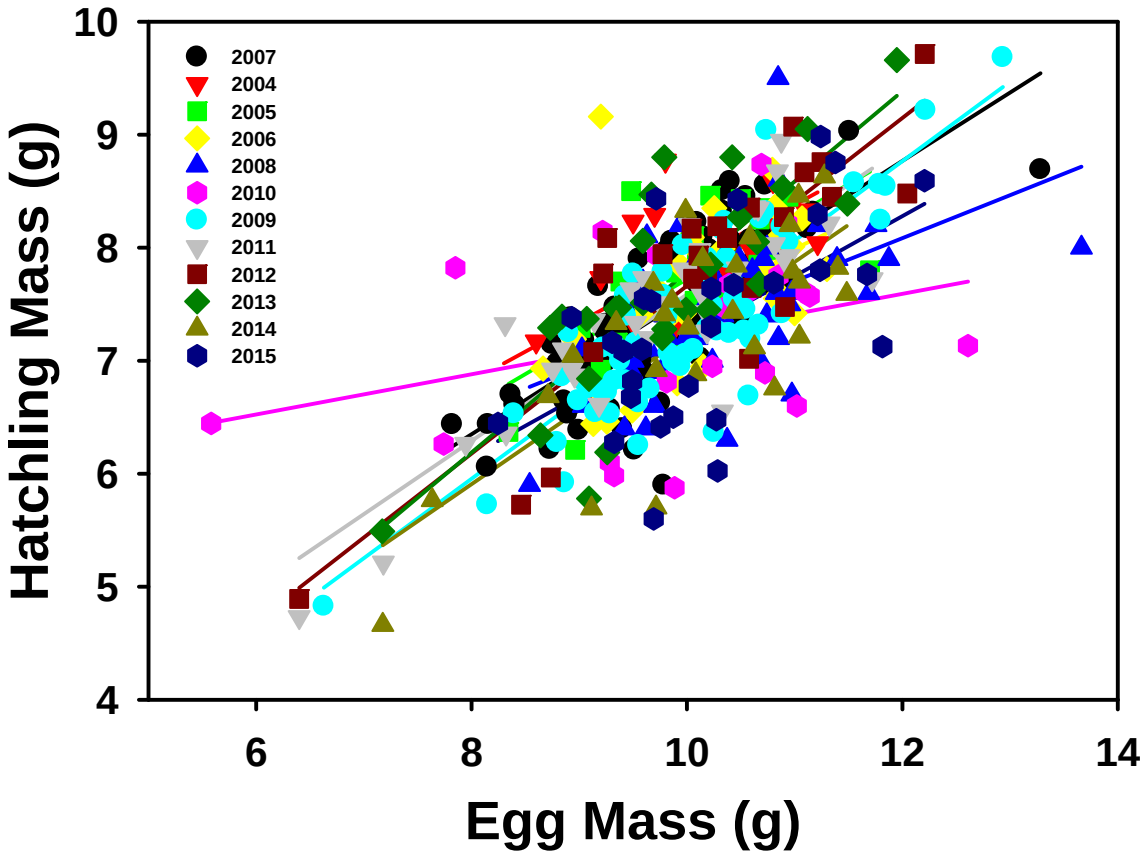

Figure 5. The relationship between average egg mass by clutch and average hatchling mass by clutch for twelve years on Poplar Island. The relationship is similar for all years except 2010 when the slope of the relationship decreased substantially.

Overwintering: OU researchers left 50 nests to overwinter during the winter of 2015 - 2016. The decision to leave a nest to overwinter is dependent upon their emergence status before 1 October; all nests that have not yet produced hatchlings as of 1 October are left to overwinter even if some hatchling emergence occurs during the last month of the field season. Of these 50 nests, 17 successfully produced 128 terrapin hatchlings that were collected and processed on 18 March 2016; one overwintering nest produced a surprise Eastern Mud Turtle hatchling, and no traces of a terrapin nest were excavated. The fate of 15 nests could not be determined based on the data collected or could not be located in the spring; an additional 13 nests had egg shells that indicated emergence of the nest but no hatchlings were recovered (also counted as unknown emergence time), however, we are uncertain whether these hatchlings emerged and escaped from these nests in the fall or spring, and they are not considered in calculating successful overwintering nests. Frequently, wind-blown sand accumulates in the nest rings which allows the hatchlings to escape after emergence and thus we cannot determine exactly when emergence

Table 4. Nest fate and overwintering percentages of the Cell 5 and Notch nests during the 2006 – 2015 nesting seasons on Poplar Island.

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
TOTAL NESTS - NOTCH & OUTSIDE OF CELL 5	146	170	183	159	124	178	172	130	107	124
DEPREDATED AND FAILED NESTS	47 (32.2%)	18 (10.6 %)	17 (9.3%)	12 (7.5%)	4 (3.2%)	15 (8.4%)	46 (26.7%)	15 (11.5%)	11 (10.3%)	43 (34.7%)
FALL EMERGING NESTS	49 (33.6%)	92 (54.1%	113 (61.7%)	68 (42.8%)	77 (62.1%)	134 (75.3%)	62 (36.0%)	66 (50.8%)	62 (57.9%)	52 (41.9%)
NESTS OVER-WINTERING	44 (30.1%)	60 (35.3%)	44 (24.0%)	74 (46.5%)	21 (16.9%)	22 (12.4%)	40 (23.3%)	49 (37.7%)	41 (38.3%)	17 (13.7%)
SPRING EMERGING NESTS	33 (22.6%)	50 (29.4%)	40 (21.9%)	66 (41.5%)	21 (16.9%)	22 (12.4%)	40 (23.3%)	45 (34.6%)	41 (38.3%)	17 (13.7%)
OVERWINTERING NESTS THAT DID NOT EMERGE	6 13.6%	4 (2.4%)	4 (2.2%)	8 (5.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	4 (3.1%)	0 (0.0%)	0 (0.0%)
NESTS WITH UNKNOWN FATE OR EMERGENCE TIME	11 (7.5%)	6 (3.5%)	9 (4.9%)	5 (3.1%)	5 (4.0%)	7 (3.9%)	25 (14.5%)	0 (0.0%)	10 (9.3%)	29 (23.4%)
BOTH FALL & SPRING EMERGING NESTS	1 (0.7%)	0 (0%)	1 (0.5%)	4 (2.5%)	4 (3.2%)	4 (2.2%)	12 (7.0%)	1 (0.8%)	7 (6.5%)	1 (0.8%)

occurred but are confident that the nest emerged, thus they are considered successful nests. Furthermore, one nest produced hatchlings in both the fall and spring. Among the nests left to overwinter that failed to produced hatchlings, one nest experienced predation by roots in which all eggs were found dead and encased in vegetation and two nests unsuccessfully developed and contained all dead eggs in the spring. During the spring of 2016, OU researchers excavated all nests left to overwinter in a single event (18 March 2016) due to the constraints of the academic year. Unfortunately, 32 of the overwintering hatchlings died between the time they were processed and before they were released. We are uncertain what caused the mortality but believe that it had to do with the environmental conditions under which the hatchlings were being held. To prevent this a standing protocol will be adopted that releases hatchlings as soon as possible to eliminate this mortality. Because our recapture rates of spring hatchlings is higher than fall hatchlings we feel confident that the mortality that occurred was a one-time event associated with retaining the hatchlings.

Researchers also PIT tagged terrapins that were part of the AE, NAIB, and MES headstart programs. Researchers tagged and processed 178 terrapins in early April 2016 (Appendix 3) and during May, June, and July of 2016 these headstarted turtles were transported to Poplar Island and released into the completed wetland cells. Two hatchlings died during the rearing phase of the project.

Highlights of the 2015 Field Season: A number of interesting observations occurred during the 2015 field season on Poplar Island. First and foremost, observed predation events were at their highest since the beginning of terrapin work on Poplar Island. The increase was due, in part, to the presence of four Red Foxes on Poplar Island that were able to cross the frozen Poplar Sound during the previous winter; furthermore, it is likely that habitat quality is improving for Eastern Kingsnakes, a known terrapin nest predator, in the Notch and Cell 5 where the vegetation is encroaching on the once-clear nesting beaches. Second, OU researchers successfully reduced the TFB in the Notch; rototilling and weeding efforts prevented the vine from over-growing and going to seed as it had during the 2014 field season. Third, the sand cross dikes between Cells 1A/1B and Cells 1B/1C were once again rototilled by MES personnel to reduce vegetation and promote terrapin nesting. Contrary to our predictions when rototilling began in 2014, terrapin nesting did not increase in these open sandy areas. Fourth, researchers recaptured 39 headstart individuals and 82 hatchlings that were originally marked on Poplar Island as hatchlings emerging from nests. This is part of the mark-recapture research on Poplar Island conducted by Ohio University that documents headstart survival and monitors terrapin population size and dynamics within the archipelago. These findings, along with those of previous years of naturally released hatchlings and headstarts remaining and reproducing on Poplar Island, suggest a growing and successful terrapin population on Poplar Island. Fifth, researchers built a terrapin nursery behind and visible from the tour trailer. The nursery was populated with terrapin nests that were placed in areas still used or under construction. The nursery ensured the successful development of these nests and provided an excellent educational opportunity for visitors to the island. Furthermore, high capture rates of both headstarts and marked hatchlings on Poplar Island suggest that there is high site fidelity among different cohorts (individuals that have the same hatch year). Lastly, OU researchers discovered a hatchling Eastern Mud Turtle on Poplar Island while excavating overwintering nests in the spring of 2016; this is the first evidence of recruitment of this species on the island.

SUMMARY

Terrapin nesting was lower than average during 2015 and nest survival declined in the major nesting areas when compared to 2014 (Figure 4). Predation on terrapin nests has increased on Poplar Island relative to years in the past, however nest survivorship on Poplar Island remains high when compared to the Patuxent River population on the mainland (Roosenburg, 1991) where predation by raccoons and foxes, the primary nest predators, has been documented destroying up to 95% of terrapin nests in a given season (Roosenburg, 1994). Although raccoons remain absent from Poplar Island, four foxes immigrated to Poplar Island and were present during the 2015 field season. The foxes, in addition to Eastern Kingsnakes, contributed to higher predation rates, but the increase is not enough to cause concern for the success of terrapin nesting on the island yet. The number of nests found annually suggests that 70-125 adult females are using Poplar Island for nesting. This estimate is based on a maximum reproductive output of three clutches per year per female which has been observed in the Patuxent River Population (Roosenburg and Dunham, 1997).

The sand stockpile in Cell 4AC and its erosion by wind has created high quality (open sandy) nesting habitat in the Notch since 2011. The deposit of sand formed a large sand dune in the Notch that continues to attract terrapins to nest; in fact 16 nests destroyed by foxes were

discovered there. Furthermore, windblown erosion created open sandy areas in Cell 4D and the Notch that were previously overgrown with vegetation. Indeed, Figure 2 illustrates the high nesting density in the Notch, which has increased, and a concomitant decrease in the number of nests in the heavily vegetated area outside Cell 5. The targeting of vegetation-free areas by nesting females indicates the need to maintain open nesting habitat throughout the island to provide high quality habitat on Poplar Island. This conclusion also was supported by the vegetation removal experiment conducted in 2012 (Clowes 2013) that demonstrated that terrapins placed more nests in the open cleared areas than in the control areas. Researchers are concerned by the increasing vegetation outside Cell 5 and in the Notch, and the dramatic decrease in nesting observed outside Cell 5 in recent years (Figure 4).

During 2015, researchers conducted daily (Monday-Friday) surveys of the nesting areas in the Notch, outside Cell 5, and outside Cell 3, in addition to daily surveys in Cell 4D, Cell 3D, and Cells 1A, 1B, and 1C. This was possible because one researcher was dedicated full-time to locating terrapin nests and four other OU researchers assisted throughout the nesting season. The researchers discovered 15 nests in the fall by noting hatchlings emerging after the nesting season had ended, and confirmed the nest with the presence of egg shells. Many of these nests were probably laid during the weekends of the nesting season when researchers could not complete nesting surveys.

Raccoons, foxes, and otters are known terrapin nest predators that have not had an impact on nest survivorship on Poplar Island until 2015, when four foxes crossed the frozen channel to Poplar. Fortunately, the foxes did not depredate terrapin nests at the rates observed on the mainland. The Fish and Wildlife Service is currently working to remove the foxes from the system, and at least two individuals were eradicated during the 2015 field season. The small number, and in years past, absence of efficient nest and adult predators on Poplar Island generated nest and adult survivorship rates that remain higher compared to similar nesting areas with efficient predators. As was similarly observed in 2002 through 2014 (Roosenburg and Allman, 2003; Roosenburg and Sullivan, 2006; Roosenburg and Trimbath, 2010; Roosenburg et al., 2004; 2005; 2007; 2008; 2014a; 2014b; 2015), the nest survivorship and hatchling recruitment on Poplar Island continues to be higher relative to mainland populations.

During the 2015 field season 701 hatchlings were caught on Poplar Island. Hatchlings started to emerge on 27 July 2015, and the overwintering hatchlings were excavated on 18 March 2016. Researchers released hatchlings into Cells 1A, 1B, and 1C; many of the hatchlings released in September and October 2015 clearly preferred to stay on land as opposed to remaining in the water. This trend in terrestrial habitat selection is supported by other studies on terrapin hatchlings and juveniles (Roosenburg et al. 1999; Draud et al. 2004). Terrapin hatchlings hibernate underground as opposed to underwater like adult terrapins (Draud et al. 2004); hibernating in water may be more physiologically costly than hibernating on land.

During the winter of 2015 – 2016, 17 nests overwintered successfully. The recovery of 128 hatchlings from overwintering nests confirms overwintering as a successful strategy used by some terrapin hatchlings. However, the spring hatchling count was lower than previous years and individuals were only retrieved from 17 nests. Fifty nests had not emerged at all or had partially emerged by 1 November 2015 and thus were left to overwinter. Twenty nests did not produce

hatchlings, and among those nests two contained all dead eggs, suggesting that they did not develop successfully, and one nest was destroyed by roots. Thirteen nests excavated in the spring contained egg shells from emerged hatchlings yet no hatchlings were recovered in the ring or nesting cavity. We are certain that these nests emerged, however because it is impossible to determine whether these individuals hatched in the fall or the spring, their nests are not included in overwintering statistics but are counted as successful in the nest count. Continued studies of overwintering and spring emergence will be conducted to better understand the effects of overwintering on the terrapin's fitness, life cycle, and natural history. Poplar Island offers a wonderful opportunity to study overwintering terrapins because of the large number of nests that survive predation.

The educational program conducted in collaboration with the AE Outdoor Education Center, the NAIB, and MES successfully headstarted 178 terrapins. Students increased the size of the hatchlings they raised to sizes characteristic of two to five year-old terrapins in the wild. An experimental opportunity was offered to teachers in 2015, and participating teachers reared two turtles in their classroom, maintaining different water temperatures (24 and 28 C) in separate aquaria. We have incorporated this optional experiment into the headstart program to enhance the STEM educational experience. Based on the initial success of this experimental approach we are planning on continuing the experiment in the coming years. Prior to release in the spring, all headstarts were PIT tagged to determine the fate of these individuals in the future through the continued mark-recapture study on Poplar Island. During the summers of 2008–2015, mark-recapture efforts in the Poplar Island Harbor and the area between Poplar and Coaches Islands have relocated several headstart and natural release hatchlings. The preliminary results indicate that some terrapins from the island are staying within the archipelago and surviving. In 2012, the first gravid adult female originally marked as a hatchling on Poplar Island in 2004 was recaptured. In 2013, the return of four more gravid adults originating on Poplar Island was recorded. Two individuals were marked as hatchlings and released, while the other two individuals were part of the headstarting program. During 2014 and 2015, we continued to recapture second generation Poplar Island terrapins both from natural recruitment and those accelerated through the headstart program. One female headstart of reproductive age was recaptured in 2015.

The initial success of terrapin nesting on Poplar Island indicates that similar projects also can create suitable terrapin nesting habitat. Although measures are taken on Poplar Island to protect nests, similar habitat creation projects should have high nest success until raccoons or foxes colonize the project. Throughout their range, terrapin populations are threatened by loss of nesting habitat to development and shoreline stabilization (Roosenburg, 1991; Seigel and Gibbons, 1995). Projects such as the Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island combine the beneficial use of dredged materials with ecological restoration, and can create habitat similar to what has been lost to erosion, subsidence and shoreline hardening. With proper management, areas like Poplar Island may become areas of concentration for species such as terrapins, thus functioning as source populations for the recovery of terrapins throughout the Chesapeake Bay and throughout the span of their range.

The Poplar Island FMD identifies three goals for the terrapin monitoring program. The first purpose is to monitor terrapin nesting activity and habitat use to quantify terrapin activity on

Poplar Island. The current monitoring program is detailing widespread use of the island by terrapins, evidenced by a comparable number of nests found relative to mainland sites in the Patuxent River as well as the recovery of several marked individuals in the mark-recapture study. The second purpose is to determine the suitability of the habitat for terrapin nesting. The high nest success and hatching rates on Poplar Island indicate that the island provides high quality terrapin nesting habitat, albeit limited in availability because of the rock perimeter dike around most of the island. The third purpose is to determine if the project is affecting terrapin population dynamics. During 2015, OU researchers continued the intensive trapping in developed wetland cells and recaptured large numbers of both headstart and wild hatchlings that originated from Poplar Island. Furthermore, the discovery of nests and nesting females on the dikes around developed wetland cells indicates that terrapins are using this newly created habitat, although this nesting habitat is not used as densely as those sites on the exterior portions of the perimeter dike.

The Poplar Island FMD also identifies three hypotheses for the terrapin monitoring program. Hypothesis one is that there will be no change in the number of terrapin nests or the habitat used from year to year. During 2015, researchers discovered 181 nests, which is a decline from the mean of 200 nests per year (2004 - 2014). Researchers suspect that the decline is due to a decrease in detectability of nests because of increasing vegetation on Poplar Island and females spreading to undiscovered areas to nest. The increasing vegetation on Poplar Island and its influence on nest detectability make it difficult to evaluate the actual trend in nest numbers. However, the consistent increases in terrapin population size through mark-recapture indicates that the terrapin population on the PIERP is growing (Roosenburg personal observation) and that access to the island interior creates diffuse nesting in vegetated ares which is difficult to detect for both researchers and predators. Hypothesis two states that nest survivorship, hatchling survivorship, and sex ratio will not differ between Poplar Island and reference sites. This hypothesis is rejected as nest success and hatchling survivorship is much higher on Poplar Island because of the lack of major nest predators, and the sex ratio of hatchlings on Poplar Island is highly female biased (9:1) relative to the Patuxent River population where the sex ratio is 2:1 female biased (Roosenburg et al, 1997). Hypothesis three states that there will be no change in terrapin population size on Poplar Island; particularly within cells from the time the cells are filled, throughout wetland development, and after completion and breach of the retaining dike. This hypothesis remains untested statistically as researchers gather more data to explicitly test this hypothesis, however since the start of the mark recapture study researchers have been obtaining high captures of juvenile cohorts that has increased in successive years suggesting a growing population.

RECOMMENDATIONS

Terrapin nesting is spreading on Poplar Island as completion of wetland cells creates both access and availability of nesting habitat. Continued nesting on the dikes of Cells 3D, 4D, 1A, 1B, and 1C indicates that female terrapins are entering wetlands and using them as access routes to nesting areas in the island interior. Researchers have frequently noted terrapins inside the wetland Cells 4D and 3D. Although the dikes around the new wetland cells, in particular Cells 3D, 1A, 1B, and 1C are sufficiently elevated for terrapin nesting, nesting activity potentially could increase if elevated (+1 m above mean high tide) so that terrapins could visually locate open sandy areas from the adjacent water. The tilling of the dikes between Cells 1A/B and 1B/C

created potential nesting areas strategically near inlets and open water within the cells. Because these sites were not heavily used by nesting terrapins as was hoped, researchers suggest that the tilling discontinue unless vegetation becomes too dense to accommodate nesting. The highest density nesting areas remain outside Cell 3, Cell 5, and the Notch, suggesting that areas on the exterior of the island are more attractive nesting sites and open areas should be maintained there.

Because the nesting area outside Cell 3AC is small and the vegetation continues to increase in the Notch and outside Cell 5, the amount of high quality nesting habitat on the outside of the perimeter dike is decreasing. The continued decrease in nesting activity outside Cell 5 may be a direct consequence of the increasing density and stature of the vegetation, particularly switchgrass and salt marsh hay in recent years. Researchers suggest the continued control of TFB using targeted rototilling and hand pulling. Maintaining the existing open areas will be particularly important to sustaining terrapin nesting activity on the island. Researchers plan to continue manual and mechanical control of TFB in the Notch and outside Cell 5 in 2016.

The northeast expansion of Poplar Island provides an additional opportunity to create more terrapin nesting habitat along the exterior dike in the sheltered areas of Poplar Harbor between Poplar Island and Jefferson Island. In particular, areas built to the northeast of Jefferson Island would be ideal for creating terrapin nesting habitat. The creation of these nesting areas could offset the loss of nesting habitat that has occurred on the outside of Cell 3AC in recent years. Although this area is proposed to be an upland cell, the creation of offshore bulkheads and backfilling of sand as illustrated in Figure 7 could provide a large amount of terrapin nesting habitat. Building structures such as those illustrated in Figure 7 on the outside of the barrier dike would preclude the need to build additional fencing to prevent turtles from getting into the cells under construction. Furthermore, nesting areas without marsh and beach grasses could be provided for terrapin nesting habitat within the cells under construction. Terrapins avoid nesting in areas with dense vegetation (Roosenburg 1996), so providing open, sandy areas on the seaward side of the dikes should reduce efforts by terrapins to enter cells under construction to find suitable, open areas for nesting.

Figure 6. Shoreline stabilization and the creation of terrapin nesting habitat in Calvert County, Maryland – Red dots indicate terrapin nests.

The colonization of Poplar Island by foxes and the resulting increase in terrapin nest predation indicates the need to minimize the impact of these predators. Researchers support the continued efforts by USFWS to remove the foxes which will be paramount to the continued high terrapin recruitment. Minimizing raccoon and fox populations will maintain the high nest survivorship observed in 2002 through 2015. Crow predation is minimized on the island by the placement of screens over the nests. We suggest that protective measure to minimize crow predation continues as long as nests are marked with survey flags that are recognized by crows to reveal nests. A sustained program to eliminate mammalian predators and prevent avian predation will facilitate continued terrapin nesting success on Poplar Island.

Researchers also recommend the continuation of terrapin nesting monitoring on Poplar Island. With the near completion of Cells 3A and 3C researchers anticipate that terrapins will begin to nest on these cross dikes. The cross dike between Cell 3C and 3D is already frequently used by nesting females and additional access routes through Cell 3C is likely to increase nesting there. With the near completion of grading in Cell 5AB an opportunity exists to develop more nesting habitat on the exterior dike between the two inlets that will open into the waterway between Poplar and Coaches Island (Figure 7). Removing the road surface and replacing with sand in combination with vegetation control in this area would be an excellent experiment on a large scale to test the creation of nesting habitat as was demonstrated in the small scale experiment (Clowes 2013).

Finally, researchers recommend the continuation of the headstart education program. The terrapin is an excellent ambassador for the island because of its charismatic nature, but also because the project has successfully created habitat for this species. Thus the terrapin education program is an extremely effective mechanism to teach about Poplar Island and its environmental restoration. The message that terrapins provide is not only absorbed by K–12 students, but by all visitors to the island, and therefore is an invaluable tool to promote the restoration effort at Poplar Island. These recommendations offered by OU will contribute to the continuing and increasing understanding of the effect of Poplar Island's restoration on terrapin populations and their use as ambassadors for Poplar Island.

Figure 7. Recommendation for potential terrapin nesting areas in Cell 5AB. The Blue lines identify breaches that will provide water flow into the wetland cell while the red box identifies the potential nesting area to be created by removing road surface and replacing with sand to be elevated (± 2m) above mean high water.

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LITERATURE CITED

Clowes, E. L. 2013. Influences of vegetation on Northern Diamondback Terrapin (*Malaclemys terrapin terrapin)* nest site selection. Honors Tutorial College Thesis Ohio University. Athens, Ohio. USA

Draud, M., M. Bossert, and S. Zimnavoda. 2004. Predation on Hatchling and Juvenile Diamondback Terrapins (*Malaclemys terrapin*) by the Norway Rat (*Rattus norvegicus*). Journal of Herpetology 38:467-470.

Paul S. Sarbanes Ecosystem Restoration Project at Poplar Island: Monitoring Framework. 2014. Maryland Environmental Services. Millersville MD. 16 pages.

Roosenburg, W. M. 1991. The diamondback terrapin: Habitat requirements, population dynamics, and opportunities for conservation. In: A. Chaney and J.A. Mihursky eds. *New Perspectives in the Chesapeake System: A Research and Management and Partnership. Proceedings of a Conference.* Chesapeake Research Consortium Pub. No 137. Solomons, Md. pp. 237 - 234.

Roosenburg, W. M. 1994 Nesting habitat requirements of the diamondback terrapin: a geographic comparison. Wetland Journal 6(2):8-11.

Roosenburg, W. M. 1996. Maternal condition and nest site choice: an alternative for the maintenance of environmental sex determination. Am. Zool. 36:157-168.

Roosenburg, W. M. and P. E. Allman. 2003. Terrapin Monitoring at Poplar Island. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp. 13.

Roosenburg, W. M. and A. E. Dunham. 1997. Allocation of reproductive output: Egg and clutch-size variation in the diamondback terrapin. Copeia 1997:290-297.

Roosenburg, W. M. and S. Sullivan. 2006. Terrapin Monitoring at Poplar Island - 2005. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp. 54.

Roosenburg, W. M. and R. Trimbath. 2010. Terrapin Monitoring at Poplar Island - 2008. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp. 54.

Roosenburg, W. M., R. Dunn, and N. L Smeenk. 2010. Terrapin Monitoring at Poplar Island - 2009. Final Report Submitted to the Army Corps of Engineers, Baltimore Office, Baltimore, MD pp. 23.

Roosenburg, W. M., K. L. Haley, and S. McGuire. 1999. Habitat Selection and Movements of Diamondback Terrapins, *Malaclemys terrapin*, in a Maryland Estuary. Chelonian Conservation and Biology 3: 425-429.

Roosenburg, W. M., M. Heckman, and L.G. Graham. 2008. Terrapin Monitoring at Poplar Island - 2007. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp.45.

Roosenburg, W. M., S. R. Kitson, R. Harding, and A. F. Tokash. 2015. Terrapin Monitoring at Poplar Island - 2014. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp. 65.

Roosenburg, W. M., E. Matthews, and L.G. Graham. 2007. Terrapin Monitoring at Poplar Island - 2006. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp.45.

Roosenburg, W. M., T. A. Radzio and P. E. Allman. 2004. Terrapin Monitoring at Poplar Island - 2003. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp. 41.

Roosenburg, W. M., T. A. Radzio and D. Spontak. 2005. Terrapin Monitoring at Poplar Island - 2004. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp. 26.

Roosenburg, W. M., L. Smith and P. E. Converse. 2012. Terrapin Monitoring at Poplar Island - 2011. Final Report submitted to the Army Corps of Engineers, Baltimore District. Baltimore, MD. pp. 50.

Roosenburg, W. M., D. M. Spontak, S. P. Sullivan, E. L. Mathews, M. L. Heckman, R. J. Trimbath, R P. Dunn, E. A. Dustman, L. Smith, and L.J. Graham. 2014. Nesting Habitat Creation Enhances Recruitment in a Predator Free Environment: *Malaclemys* Nesting at the Paul S. Sarbanes Ecosystem Restoration Project. Restoration Ecology 22:815-823.

Seigel, R. A. and Gibbons, J. W. 1995. Workshop on the ecology, status, and management of the

diamondback terrapin (*Malaclemys terrapin*), Savannah River Ecology Laboratory, 2 August 1994: final results and recommendations. Chelonian Conservation and Biology 1:240-243.

Stegmann, E. W., R. B. Primack, and G. S. Ellmore. 1988. Absorption of nutrient exudates from terrapin eggs by roots of *Ammophila breviligulata* (Gramineae). Canadian Journal of Botany. 66:714-718.

Wund, M. A., M. E. Torocco, R. T. Zappalorti, and H.K. Reinert. 2007. Activity Ranges and Habitat Use of *Lampropeltis getula getula* (Eastern Kingsnakes). Northeastern Naturalist. 14:343-360.

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
1	26-May-15	38.76084	76.38003	3	no	14	152.2	10.87	Fall	8	Total collected = 8
2	26-May-15	38.76077	76.37997	3	no	15	183.1	12.21	Fall	14	Moved to nursery 8-Jul (tide coming in), 1 dead egg. Total collected = 14
3	26-May-15	38.76079	76.38000	3	no	11	123.6	11.24	Fall	8	24-Jun ants in nest. Total collected = 8
4	26-May-15	38.75075	76.37014	5	no	14	129.9	9.28	Spring	7	Left to overwinter, 18-Mar: Logger, empty egg shells. Total collected = 7
5	27-May-15	38.76059	76.37987	3	no	11	114.5	10.41			Washed away by tide, no eggs remain
6	27-May-15	38.76064	76.37992	3	no	14	141.4	10.10	Fall	5	Total collected = 5
7	27-May-15	38.76071	76.37997	3	no	12	134.9	11.24	Fall	12	Total collected = 12
8	27-May-15	38.76077	76.38002	3	no	16	154.7	9.67	Fall	12	Total collected = 12
9	27-May-15	38.76083	76.38002	3	no	12	143.1	11.93	Fall	4	4 eggs weak-shelled. Total collected = 4
10	27-May-15	38.76094	76.38010	3	no				Fall	9	Old nest, did not dig up. Total collected = 9
11	27-May-15	38.76502	76.38463	3CD	no	15	153.4	10.23	Fall	13	Moved to hatchery. Total collected = 13
12	27-May-15	38.76482	76.38454	3CD	no	8	85.8	10.73	Fall	1	Moved to hatchery. Total collected = 1
13	27-May-15	38.75241	76.37462	Notch	no	14	165.4	11.81	Spring	12	Left to overwinter, 18-Mar: Lots of egg shell fragments, logger. Total collected = 12
14	27-May-15	38.75215	76.37467	Notch	yes; full	11	118.7	10.79			Full fox predation
15	27-May-15	38.75095	76.37056	5	yes; partial	14	127.1	9.08			Partial predation by kingsnake, at least 2 eggs remain. Left to overwinter, 18-Mar: Logger. Total collected = 0
16	27-May-15	38.75003	76.36845	5	no	14	157.0	11.21	Spring	9	Left to overwinter, 18-Mar: Logger. Total collected = 9
17	27-May-15	38.74947	76.36693	5	no	13	136.1	10.47	Fall	13	Total collected = 13
18	28-May-15	38.75201	76.37470	Notch	no	13	118.2	9.09	Fall	6	Left to overwinter, 18-Mar: Fragments, empty eggs, logger. Total collected = 6
19	28-May-15	38.75271	76.37440	Notch	no	19	216.2	11.38	Fall	15	Total collected = 15
20	28-May-15	38.75291	76.37423	Notch	no	13	132.9	10.22	Spring	8	Left to overwinter, 18-Mar: Logger. Total collected = 8
21	28-May-15	38.75287	76.37425	Notch	no	16	126.7	7.92			Left to overwinter, 18-Mar: Logger. Total collected = 0
22	28-May-15	38.75182	76.37471	Notch	no	15	147.7	9.85			Left to overwinter, 18-Mar: Logger, nothing else found. Total collected = 0

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
23	28-May-15	38.76081	76.38003	3	no	14	136.0	9.71	Fall	12	Moved to nursery 8-Jul (tide coming in). Total collected = 12
24	28-May-15	38.76063	76.37996	3	no	11	104.4	9.49	Fall	11	Total collected = 11
25	28-May-15	38.77610	76.37413	1CD	no	2					Moved to hatchery; Fate of nest undocumented (unknown)
26	29-May-15	38.76092	76.38007	3	no	10	89.3	8.93	Fall	10	Total collected = 10
27	29-May-15	38.75214	76.37471	Notch	no	9	82.5	9.17			Left to overwinter, 18-Mar: 1 empty shell. Total collected = 0
28	29-May-15	38.77353	76.37692	1BC	yes; full						Nest may have been ground up by tiller, predation possibly occurred after tiller, divet found with broken egg and yolk fragments
29	1-Jun-15	38.75265	76.37446	Notch	no				Fall	6	Old nest, did not dig up. Total collected = 6
30	1-Jun-15	38.75247	76.45600	Notch	no	12	125.9	10.49			Left to overwinter, 18-Mar: Lots of empty fragments and logger. Total collected = 0
31	1-Jun-15	38.75132	76.37146	5	no				Fall	9	Old nest, did not dig up. Total collected = 9
32	1-Jun-15	38.74982	76.36789	5	no				Fall	10	Old nest, did not dig up. Total collected = 10
33	1-Jun-15	38.75354	76.37373	Notch	yes; partial						Partial predation, 1 egg remaining, excavate by 1-Nov; Fate of nest undocumented (unknown)
34	8-Jun-15	38.75245	76.37459	Notch	no				Spring	12	Old nest, did not dig up; Left to overwinter, 18-Mar: shell fragments. Total collected = 12
35	8-Jun-15	38.75188	76.37469	Notch	no						False nest
36	8-Jun-15	38.75127	76.37143	5	no	15	110.0	7.33	Spring	10	Left to overwinter, excavated 18-Mar. Total collected = 10
37	8-Jun-15	38.75125	76.37137	5	no						Dimpled eggs, one egg broken, stopped digging; Left to overwinter, 18-Mar: 2+ eggs and possible double egg dead upon excavation. Total collected = 0
38	8-Jun-15	38.75090	76.37057	5	no				Spring	1	Old nest, did not dig up; Left to overwinter, 18-Mar: 1 empty shell. Total collected = 1
39	8-Jun-15	38.75055	76.36970	5	yes; full						Full predation by kingsnake

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
40	8-Jun-15	38.74964	76.36729	5	yes; partial	3					Depredated nest, 3 eggs remaining, 8 egg shells found depredated; Left to overwinter, 18-Mar: Nothing else found. Total collected = 0
41	10-Jun-15	38.75529	76.37963	4D	yes; full						Full fox predation
42	10-Jun-15	38.75145	76.37328	Notch	yes; full						Full predation, 9 egg shells found
43	11-Jun-15	38.75274	76.37436	Notch	no	17	183.7	10.81	Spring	14	Left to overwinter, 18-Mar: 2 emerged, egg shell fragments. Total collected = 14
44	11-Jun-15	38.74982	76.36784	5	no	14	103.7	7.41			Left to overwinter, 18-Mar: Possibly 2 empty shells, logger. Total collected = 0
45	12-Jun-15	38.76060	76.37989	3	no	13	127.0	10.58			1 broken egg, weak-shelled eggs, storm exposed nest and partially destroyed it, eggs remain; 29-Jun - complete wash out, nest gone
46	12-Jun-15	38.76069	76.37995	3	no	11	128.4	11.67	Fall	8	Nest undercut but intact 29-Jun, moved to nursery 8-Jul (due to erosion). Total collected = 8
47	12-Jun-15	38.76073	76.37997	3	no	12	124.3	10.36			Complete wash out, no eggs found, temp logger not found
48	12-Jun-15	38.76089	76.38009	3	no	14	148.1	10.58			Dug due to incoming hurricane, all dead eggs
49	12-Jun-15	38.76093	76.38009	3	no	12	98.9	10.99			4 weak-shelled eggs, 3 eggs not weighed (partially collapsed); Fate of nest undocumented (unknown)
50	12-Jun-15	38.75078	76.37015	5	yes; partial	14	142.2	10.16	Spring	1	Partial predation by kingsnake 16-Jun; Left to overwinter, 18-Mar: Nothing else found. Total collected = 1
51	12-Jun-15	38.75128	76.37142	5	no	11	94.1	8.55	Fall	10	Total collected = 10
52	12-Jun-15	38.75307	76.37413	Notch	no	19	152.8	8.04	Fall	11	Total collected = 11
53	15-Jun-15	38.75174	76.37468	Notch	no	15	127.1	8.47	Spring	1	Left to overwinter, 18-Mar: 2+ looked like they hatched. Total collected = 1
54	15-Jun-15	38.75174	76.37468	Notch	no	13	132.8	10.22	Fall	6	Total collected = 6

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
55	15-Jun-15	38.75167	76.37463	Notch	no	18	179.1	9.95			One egg damaged in excavation, weight still recorded, but egg discarded (9.4 g), 17 viable eggs left; Left to overwinter, 18-Mar: Excavated. Total collected = 0
56	15-Jun-15	38.75224	76.37467	Notch	no				Fall	17	Old nest, did not dig up. Total collected = 17
57	15-Jun-15	38.75264	76.37439	Notch	no				Fall	4	Old nest, did not dig up; Left to overwinter, 18-Mar: 6+ emerged, more fragments. Total collected = 4
58	15-Jun-15	38.75264	76.37439	Notch	no						Old nest, did not dig up; Left to overwinter, 18-Mar: Lots of egg shell fragments. Total collected = 0
59	15-Jun-15	38.75263	76.37445	Notch	no	15	142.2	9.48		13	Total collected = 13
60	15-Jun-15	38.75281	76.37433	Notch	yes; full	14	134.7	9.62			Full predation by snake
61	15-Jun-15	38.75309	76.37414	Notch	no	8	87.6	10.95			Left to overwinter, 18-Mar: Logger and 1 emerged egg. Total collected = 0
62	15-Jun-15	38.75326	76.37396	Notch	no	18	161.8	8.99			Left to overwinter, 18-Mar: Logger and 4 emerged egg shells. Total collected = 0
63	15-Jun-15	38.75327	76.37395	Notch	no				Fall	14	Old nest, did not dig up, excavated on 11-Aug due to ants in emergence hole, 2 dead hatchlings. Total collected = 14
64	15-Jun-15	38.75334	76.37391	Notch	no	16	190.3	11.89			Left to overwinter, 18-Mar: Logger. Total collected = 0
65	15-Jun-15	38.75119	76.37342	Notch	yes; full						Full fox predation, 9 egg shells found
66	15-Jun-15	38.75165	76.37242	Notch	yes; partial	9	66.2	7.36	Spring	14	Kingsnake found depredating nest; Left to overwinter, 18-Mar: Probably 2 nests, logger. Total collected = 14
67	15-Jun-15	38.75118	76.37111	5	yes; partial				Spring		Old nest, did not dig up, partial snake predation 16-Jun; Left to overwinter, 18-Mar: Nothing else found. Total collected = 1
68	15-Jun-15	38.75032	76.36914	5	no						Old nest, did not dig up; Left to overwinter, 18-Mar: Nothing found - probably washed out. Total collected = 0
69	15-Jun-15	38.74961	76.36713	5	yes; full						Full fox predation

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
70	15-Jun-15	38.76096	76.38011	3	no				Fall	6	Old nest, did not dig, dead eggs found upon excavation. Total collected = 6
71	15-Jun-15	38.76090	76.38014	3	no	17	129.8	7.64			Fate of nest undocumented (unknown)
72	15-Jun-15	38.76480	76.38367	3CD	no	16	149.5	9.34	Fall	4	Moved to hatchery. Total collected = 4
73	16-Jun-15	38.75177	76.37468	Notch	no	13	133.7	10.28	Fall	8	Left to overwinter, 18-Mar: Empty shell fragments, logger. Total collected = 8
74	16-Jun-15	38.75163	76.37250	Notch	yes; full						Full fox predation, 7 broken eggs, some still contain yolk
75	16-Jun-15	38.75028	76.89900	5	no	14	131.7	9.41			Left to overwinter, 18-Mar: Started to develop but died. Total collected = 0
76	16-Jun-15	38.74980	76.36781	5	no	15	148.1	9.87	Fall	9	Total collected = 9
77	16-Jun-15	38.74978	76.77300	5	yes; partial				Fall	5	Old nest, did not dig up, partial predation by snake; Left to overwinter, 18-Mar: Only empty shells. Total collected = 5
78	16-Jun-15	38.74959	76.36706	5	yes; partial				Fall	1	Partially depredated by snake, old nest, did not dig up. Total collected = 1
79	16-Jun-15	38.76074	76.38003	3	no				Fall	5	Old nest, did not dig up. Total collected = 5
80	18-Jun-15	38.75115	76.37407	Notch	yes; full	13	111.9	8.61			Full snake predation on 29-Jun
81	18-Jun-15	38.75271	76.37441	Notch	no	14	127.0	9.07	Fall	16	Left to overwinter, 18-Mar: Excavated. Total collected = 16 (likely a double nest)
82	19-Jun-15	38.75154	76.37467	Notch	no	16	120.6	7.54	Fall	3	Total collected = 3
83	19-Jun-15	38.75282	76.37430	Notch	no	14	134.4	9.60	Fall	14	Total collected = 14
84	22-Jun-15	38.76049	76.37989	3	yes; full	13	111.3	8.56			Full snake predation 30-Jul
85	22-Jun-15	38.75186	76.37468	Notch	no	18	198.0	11.65			Left to overwinter, 18-Mar: 8 empty egg shells. Total collected = 0
86	22-Jun-15	38.75168	76.37466	Notch	no	13	86.0	6.62			Left to overwinter, 18-Mar: All eggs encased in vegetation, logger. Total collected = 0

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
87	22-Jun-15	38.75073	76.36983	5	yes; partial				Fall	1	Old nest, did not dig up, one egg remains after partial snake predation, excavated due to ants - egg dead. Left to overwinter, 18-Mar: Mud turtle nest discovered, no evidence of terrapin nest. Total collected = 1 mud turtle hatchling
88	22-Jun-15	38.75101	76.37068	5	yes; partial				Spring	7	Old nest, did not dig, partial snake predation; Left to overwinter, 18-Mar: 2 dead hatchlings. Total collected = 7
89	23-Jun-15	38.76096	76.38011	3	no	8	72.7	9.09	Fall	4	Total collected = 4
90	23-Jun-15	38.76057	76.37989	3	no						10 broken eggs found, nest destroyed with no signs of predation, laid near tide among rocks; Fate of nest unknown
91	23-Jun-15	38.77652	76.37487	1CD	no	12	128.1	10.68			Female found nesting (PI 0099); Fate of nest undocumented (unknown)
92	23-Jun-15	38.75188	76.37468	Notch	no	14	151.4	10.81	Fall/Spring	7	Left to overwinter, 18-Mar: empty shells. Total collected = 4
93	23-Jun-15	38.75187	76.37467	Notch	no	14	160.4	11.46			Left to overwinter, 18-Mar: 17 possible hatched eggs, logger. Total collected = 0
94	23-Jun-15	38.75168	76.37467	Notch	no	15	139.6	9.31	Fall	9	Total collected = 9
95	23-Jun-15	38.75129	76.37147	5	no	11	113.0	10.27	Fall	9	Total collected = 9
96	24-Jun-15	38.76067	76.37996	3	no						Old nest, did not dig, complete wash out - no eggs remain
97	24-Jun-15	38.76101	76.38012	3	no	14	155.5	11.96			1 broken egg, 3 weak-shelled eggs, washed away from hurricane
98	24-Jun-15	38.75230	76.37468	Notch	yes; partial	11	133.9	12.17			Partial snake predation, at least one egg remains; Fate of nest undocumented (unknown)
99	24-Jun-15	38.77352	76.37639	1BC	no	16	167.3	10.46			Fate of nest undocumented (unknown)
100	24-Jun-15	38.77612	76.37387	1CD	no	16	154.6	9.66			Fate of nest undocumented (unknown)
101	25-Jun-15	38.76068	76.37994	3	no	10	119.0	11.90	Fall	2	Moved to nursery 17-Jul, only four eggs remain. Total collected = 2

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
102	25-Jun-15	38.75286	76.37428	Notch	no	14	141.7	10.12	Fall	10	Female found nesting (PI 1268). Total collected = 10
103	25-Jun-15	38.75265	76.37445	Notch	no	11	126.5	11.50	Fall	10	Total collected = 10
104	25-Jun-15	38.75332	76.37392	Notch	no	16	150.0	10.00			One egg scratched open, taken out of nest, 15 viable eggs remain; Left to overwinter, 18-Mar: 5+ possible emerged egg shells. Total collected = 0
105	26-Jun-15	38.76056	76.37990	3	yes; full						Full fox predation, 2 eggs found near depredated nest
106	26-Jun-15	38.75265	76.37451	Notch	no	14	137.0	9.79	Fall	3	Total collected = 3
107	26-Jun-15	38.74997	76.36830	5	yes; partial	2					Partial fox predation, 2 eggs remain, 1 eggshell found; Left to overwinter, 18-Mar: 1-2 empty egg shells. Total collected = 0
108	29-Jun-15	38.76098	76.38012	3	no						Old nest, did not dig, washed out by hurricane
109	29-Jun-15	38.75330	76.37393	Notch	yes; full						Old nest, no dig, full snake predation 2-Jul
110	29-Jun-15	38.75256	76.37452	Notch	yes; partial						Partial snake predation, egg shells present, at least 4 eggs remain; Left to overwinter, 18-Mar: 2 empty shells. Total collected = 0
111	29-Jun-15	38.75245	76.37457	Notch	no				Fall	6	Old nest, did not dig; Left to overwinter, 18-Mar: 3 egg shells, more fragments. Total collected = 6
112	29-Jun-15	38.74953	76.36714	5	yes; full						Full snake predation
113	29-Jun-15	38.75156	76.37210	5	yes; full						Full snake predation
114	30-Jun-15	38.75814	76.37850	4D	yes; full						Old nest, did not dig, partial snake predation 1-Jul, full snake predation 7-Jul
115	30-Jun-15	38.77348	76.37699	1BC	no	16	153.3	9.58	Fall	13	Female found nesting (PI 0931). Total collected = 13
116	30-Jun-15	38.76084	76.38003	3	no	12	121.5	10.13	Fall	10	Total collected = 10
117	30-Jun-15	38.75097	76.37063	5	yes; full						Old nest, did not dig, full snake predation 2-Jul

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
118	30-Jun-15	38.75038	76.36920	5	yes; partial						Old nest, did not dig, partial snake predation - at least 3 eggs remain; Left to overwinter, 18-Mar: 2+ emerged shells. Total collected = 0
119	1-Jul-15	38.75146	76.37456	Notch	no						Old nest, did not dig, likely abandoned before completion, excavation hole and large dirt crescent present; Left to overwinter, 18-Mar: Excavated. Total collected = 0
120	1-Jul-15	38.75246	76.37457	Notch	no				Fall	9	Old nest, did not dig. Total collected = 9
121	2-Jul-15	38.75271	76.37442	Notch	no				Fall	17	Old nest, did not dig. Total collected = 17
122	6-Jul-15	38.75172	76.37470	Notch	no				Fall	12	Old nest, did not dig, predation attempted - did not reach eggs. Total collected = 12
123	6-Jul-15	38.76083	76.38003	3	no	11	90.7	8.25	Fall	9	Total collected = 9
124	6-Jul-15	38.75330	76.37393	Notch	yes; full						Overlapping Nest 109, full snake predation
125	7-Jul-15	38.75086	76.37039	5	yes; full						Full snake predation
126	7-Jul-15	38.75131	76.37435	Notch	yes; full						Old nest, did not dig, full snake predation 15-Jul
127	7-Jul-15	38.75204	76.37469	Notch	yes; full						Full snake predation
128	7-Jul-15	38.75339	76.37382	Notch	no				Fall	10	Old nest, did not dig. Total collected = 10
129	8-Jul-15	38.75183	76.37466	Notch	no				Fall	11	Old nest, did not dig. Total collected = 11
130	8-Jul-15	38.75373	76.37388	4/Notch	yes; full						Full fox predation, egg shells found
131	8-Jul-15	38.75373	76.37388	4/Notch	yes; full						Full fox predation, egg shells found
132	8-Jul-15	38.76069	76.37995	3	no						Old nest, did not dig, complete wash out
133	9-Jul-15	38.76070	76.37997	3	no	13	138.9	10.68			Complete wash out
134	9-Jul-15	38.76081	76.38009	3	no	12	120.2	10.02	Fall	8	Total collected = 8
135	9-Jul-15	38.76080	76.38000	3	yes; full						Full predation, egg shells found
136	9-Jul-15	38.75267	76.37442	Notch	no				Fall	13	Old nest, did not dig. Total collected = 13
137	9-Jul-15	38.75062	76.36973	5	no	8	53.2	6.65			Female found nesting (PI 2292), eggs have lots of dents; Left to overwinter, 18-Mar: Logger, all eggs dead. Total collected = 0
138	9-Jul-15	38.75037	76.36918	5	yes; full						Full snake predation, 2 egg fragments found
139	10-Jul-15	38.75383	76.37375	Notch	yes; full						Full fox predation, egg shells found

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
140	10-Jul-15	38.75234	76.37462	Notch	no	9	93.3	10.37	Spring	3	Left to overwinter, 18-Mar: Logger, egg shell fragments. Total collected = 3
141	10-Jul-15	38.75249	76.37456	Notch	no	11	106.6	9.69	Fall	9	Total collected = 9
142	13-Jul-15	38.75352	76.37375	Notch	yes; full						Full snake predation found 13-Jul
143	13-Jul-15	38.75319	76.37401	Notch	no				Fall	5	Old nest, did not dig, 4 dead hatchlings. Total collected = 5
144	13-Jul-15	38.75245	76.37461	Notch	no	9	93.9	10.43	Spring	6	Left to overwinter, 18-Mar: Logger, egg shell fragments. Total collected = 6
145	13-Jul-15	38.75209	76.37471	Notch	no	9	84.7	9.41	Fall	6	Total collected = 6
146	13-Jul-15	38.75152	76.37466	Notch	no	14	128.2	9.16	Fall	2	3 dead eggs. Total collected = 2
147	14-Jul-15	38.76085	76.38004	3	no	11	107.3	9.75	Fall	7	Total collected = 7
148	15-Jul-15	38.75014	76.36848	5	yes; full						Full snake predation
149	15-Jul-15	38.74978	76.36777	5	yes; full	13	108.0	8.31			Excavated due to ants, full ant predation, 6 dead hatchlings, remaining eggs dead
150	15-Jul-15	38.76071	76.37995	3	no	13	118.5	9.12			Complete wash out
151	17-Jul-15	38.75201	76.37467	Notch	no	11	111.6	10.15	Fall	6	Total collected = 6
152	20-Jul-15	38.75230	76.37467	Notch	no						Old nest, did not dig; Left to overwinter, 18-Mar: 1 hatched, egg shell fragments. Total collected = 0
153	20-Jul-15	38.75228	76.37465	Notch	no				Spring	10	Old nest, did not dig; Left to overwinter, 18-Mar: Lots of small egg shell fragments. Total collected = 10
154	20-Jul-15	38.75115	76.37354	Notch	yes; full						Full fox predation, 12 egg shells found
155	20-Jul-15	38.76097	76.38100	3	no				Fall	9	Old nest, did not dig. Total collected = 9
156	20-Jul-15	38.75503	76.37976	4C	yes; full						Full fox predation, 13 egg shells found
157	20-Jul-15	38.75525	76.37894	4C	yes; full						Full fox predation found, old egg shells found
158	21-Jul-15	38.75193	76.37468	Notch	yes; partial	14	111.9	9.33	Spring	9	Partial fox predation, several punctured eggs in nest 21-Jul; Left to overwinter, 18-Mar: 7 empty egg shells. Total collected = 9
159	21-Jul-15	38.75376	76.37398	4C	yes; full						Full fox predation, approximately 15 egg shells found
160	21-Jul-15	38.75379	76.37394	4C	yes; full						Full fox predation, 8 egg shells found

Terrapin Nests

Nest #	Date Found	Latitude	Longitude	Cell #	Predation	Clutch Size	Total Mass (g)	Average Mass (g)	Emergence	Number of Hatchlings	Comments
161	21-Jul-15	38.75387	76.37391	4C	yes; partial				Fall	2	Partial fox predation, 10 egg shells found, 2 eggs left. Total collected = 2
162	21-Jul-15	38.75387	76.37391	4C	yes; full						Full fox predation, 6 egg shells found
163	21-Jul-15	38.75242	76.37454	Notch	yes; full						Full fox predation, 3 egg shells exposed, micro-egg found in nest
164	22-Jul-15	38.75172	76.37467	Notch	yes; full						Full snake predation, snake 'tracks' found
165	22-Jul-15	38.75052	76.36953	5	yes; full						Full fox predation, 3 egg shells found
166	22-Jul-15	38.74950	76.36705	5	yes; full						Full fox predation, 4 egg shells found
167	5-Aug-15	38.75250	76.37458	Notch					Fall		Emerged nest: 5 egg shells found, 1 dead egg
168	10-Aug-15	38.76055	76.37987	3					Fall	3	Emergent nest: Approximately 8 egg shells, 2 dead eggs, 1 dead hatchlings, 3 live hatchlings
169	10-Aug-15	38.75179	76.37466	Notch					Fall		Emergent nest: 18 egg shells
170	10-Aug-15	38.75216	76.37468	Notch					Fall		Emergent nest: Approximately 12 egg shells, 1 dead hatchling
171	11-Aug-15	38.75305	76.37410	Notch					Fall	6	Emergent nest: Approximately 7 egg shells found, 6 hatchlings
172	11-Aug-15	38.75303	76.37412	Notch					Fall	3	Emergent nest: Approximately 9 egg shells, 3 hatchlings
173	11-Aug-15	38.75301	76.37414	Notch					Fall		Emergent nest: Approximately 6 egg shells
174	13-Aug-15	38.74931	76.36778	5					Fall	11	Emergent nest: 11 hatchlings
175	17-Aug-15	38.75298	76.37419	Notch					Fall	4	Emergent nest: 4 hatchlings
176	19-Aug-15	38.75275	76.37435	Notch					Fall		Emergent nest: Approximately 7 egg shells
177	19-Aug-15	38.75251	76.37450	Notch					Fall		Emergent nest: Approximately 10 egg shells
178	19-Aug-15	38.75251	76.37450	Notch					Fall		Emergent nest: Approximately 8 egg shells
179	21-Aug-15	38.75241	76.37459	Notch					Fall		Emergent nest: Approximately 10 egg shells
180	24-Aug-15	38.75180	76.37464	Notch					Fall		Emergent nest: Approximately 6 egg shells, 2 dead eggs
181	31-Aug-15	38.75140	76.37171	Notch					Fall		Emergent nest: Approximately 10 egg shells, 1 dead egg

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
27-Jul-15	05049	05050	9R2L	2	30.4	31.0	28.4	16.7	9.4	
28-Jul-15	05053		9R2L	2	30.3	32.9	28.6	17.8	7.2	
28-Jul-15	05054	05055	9R2L	2	31.5	33.1	29.4	17.8	7.9	ANO V3-V5
28-Jul-15	05056	05057	9R2L	2	30.0	32.7	29.1	18.1	7.6	
28-Jul-15	05058		9R2L	2	30.3	32.9	29.0	17.3	8.3	
28-Jul-15	05059	05060	9R2L	2	31.1	33.1	29.4	17.8	7.0	
29-Jul-15	05061	05062	9R2L	19	28.2	31.2	27.3	17.7	7.5	
29-Jul-15	05064	05065	9R2L	19	28.4	31.5	28.7	17.4	9.0	
29-Jul-15	05066	05067	9R2L	19	29.2	31.9	29.2	17.2	9.2	
29-Jul-15	05068		9R2L	19	29.2	31.6	29.2	17.1	9.3	
29-Jul-15	05069	05070	9R2L	19	27.2	29.9	26.9	15.8	8.0	
29-Jul-15	05071	05072	9R2L	19	29.3	32.5	28.6	17.4	9.5	
29-Jul-15	05075		9R2L	19	29.3	31.2	28.3	17.1	8.7	
29-Jul-15	05076	05077	9R2L	19	28.2	31.7	29.2	17.1	9.0	
29-Jul-15	05078	05079	9R2L	19	29.4	32.1	28.9	16.4	6.3	
29-Jul-15	05080		9R2L	2	31.9	32.9	29.5	16.9	9.5	
31-Jul-15	05081	05082	9R2L	2	30.3	32.4	28.0	17.3	8.8	
3-Aug-15	05085		9R2L	10	26.9	31.2	28.3	16.8	8.4	
3-Aug-15	05086	05087	9R2L	10	27.8	31.7	28.6	16.9	8.7	
3-Aug-15	05088	05089	9R2L	10	29.2	32.4	27.8	17.8	9.1	
3-Aug-15	05090		9R2L	10	28.3	32.4	28.1	16.9	8.8	
3-Aug-15	05091	05092	9R2L	10	28.4	32.4	28.0	17.2	8.5	ANO V1
3-Aug-15	05093	05094	9R2L	10	29.0	32.6	27.9	17.9	9.1	
3-Aug-15	05095		9R2L	1	27.9	31.1	27.2	17.0	8.1	
3-Aug-15	05096	05097	9R2L	1	29.1	31.8	28.1	17.1	8.4	ANO V1
3-Aug-15	05098	05099	9R2L	1	28.3	31.5	26.9	16.3	8.1	
3-Aug-15	05100		9R2L	1	27.7	30.5	27.1	16.9	8.1	
3-Aug-15	05101	05102	9R2L	1	28.4	31.2	27.5	15.9	8.1	
3-Aug-15	05103	05104	9R2L	1	28.5	31.5	27.8	17.2	8.3	
4-Aug-15	05105		9R2L	10	29.1	32.4	27.7	17.0	8.3	
4-Aug-15	05106	05107	9R2L	8	26.7	30.4	28.1	15.6	7.5	
4-Aug-15	05108	05109	9R2L	8	27.8	31.3	28.5	16.5	8.0	
4-Aug-15	05110		9R2L	1	30.0	32.5	27.4	16.7	8.1	
4-Aug-15	05111	05112	9R2L	1	28.4	32.4	28.1	16.9	8.6	
4-Aug-15	05113	05114	9R2L	9	27.6	29.8	25.9	16.1	6.8	
4-Aug-15	05115		9R2L	29	28.3	29.9	27.5	17.1	8.0	ANO V1-V5
4-Aug-15	05116	05117	9R2L	29	28.5	30.7	27.9	17.1	8.6	
4-Aug-15	05118	05119	9R2L	29	28.8	31.7	27.8	17.7	8.5	
4-Aug-15	05120		9R2L	29	29.1	29.5	27.9	17.5	8.4	ANO carapace
4-Aug-15	05121	05122	9R2L	29	30.0	32.0	29.0	17.6	9.1	
4-Aug-15	05123	05124	9R2L	26	28.8	32.0	28.3	15.9	7.6	
4-Aug-15	05125		9R2L	26	28.0	32.0	28.1	15.8	7.4	
4-Aug-15	05126	05127	9R2L	26	28.7	31.8	27.9	16.7	7.8	
4-Aug-15	05128	05129	9R2L	26	26.9	30.8	27.0	16.1	7.1	
4-Aug-15	05130		9R2L	26	26.5	31.4	27.3	16.4	7.6	
4-Aug-15	05132	05133	9R2L	26	26.9	30.7	28.2	15.6	7.2	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
4-Aug-15	05133	05134	9R2L	26	27.0	30.9	27.9	15.9	7.4	
4-Aug-15	05135		9R2L	26	26.4	30.8	27.1	16.3	7.2	
4-Aug-15	05136	05137	9R2L	26	26.7	30.2	27.6	16.2	6.9	
4-Aug-15	05138	05139	9R2L	2	31.1	33.8	29.5	17.6	9.4	
4-Aug-15	05140		9R2L	18	25.3	29.4	25.0	16.2	7.0	
4-Aug-15	05141	05142	9R2L	18	26.7	30.0	27.1	16.1	7.4	
4-Aug-15	05143	05144	9R2L	18	25.0	28.3	25.3	16.9	7.0	
4-Aug-15	05145		9R2L	18	25.4	28.6	25.2	16.3	6.9	
5-Aug-15	05146	05147	9R2L	9	26.1	28.7	24.1	15.8	6.3	
5-Aug-15	05148	05149	9R2L	19	29.8	33.6	30.9	16.9	9.4	
5-Aug-15	05150		9R2L	19	29.1	31.8	27.4	16.7	8.6	
5-Aug-15	05151	05152	9R2L	19	30.0	32.9	31.0	17.0	9.6	13 right marginals, crooked vertebrals
5-Aug-15	05153	05154	9R2L	8	27.9	30.7	27.7	15.5	7.0	
5-Aug-15	05155		9R2L	8	27.2	30.9	28.5	16.7	8.1	
5-Aug-15	05156	05157	9R2L	8	27.6	31.2	28.3	15.6	7.5	
5-Aug-15	05158	05159	9R2L	8	27.7	30.9	27.7	15.9	7.6	
5-Aug-15	05160		9R2L	8	27.1	30.9	27.0	15.5	6.9	
5-Aug-15	05161	05162	9R2L	8	26.2	30.6	26.4	15.3	6.8	26 marginals
5-Aug-15	05163	05164	9R2L	8	28.1	31.1	27.9	16.3	7.9	
5-Aug-15	05165		9R2L	8	28.2	30.6	28.2	15.8	7.6	
5-Aug-15	05166	05167	9R2L	8	28.3	31.7	28.0	16.1	7.9	26 marginals
5-Aug-15	05168	05169	9R2L	29	28.3	29.1	28.2	18.4	8.2	11 right marginals, ANO costals and vertebrals
6-Aug-15	05170		9R2L	7	27.9	32.4	29.4	17.3	8.9	
6-Aug-15	05171	05172	9R2L	7	28.9	33.6	30.5	16.5	9.3	
6-Aug-15	05173	05174	9R2L	7	28.5	33.7	30.5	16.6	8.8	
6-Aug-15	05175		9R2L	7	30.6	33.5	29.8	16.2	9.1	
6-Aug-15	05176	05177	9R2L	7	28.1	33.2	30.7	17.2	9.0	Weird shell, "sticky-outy"
6-Aug-15	05178	05179	9R2L	7	29.9	32.9	30.9	16.7	8.6	
6-Aug-15	05180		9R2L	7	29.0	33.7	30.4	17.2	9.3	
6-Aug-15	05181	05182	9R2L	7	29.4	33.8	30.7	16.4	9.0	
6-Aug-15	05183	05184	9R2L	7	28.4	32.4	29.9	16.8	8.9	
6-Aug-15	05185		9R2L	7	29.2	33.4	29.9	16.9	9.1	
6-Aug-15	05186	05187	9R2L	7	28.3	33.3	30.6	17.8	9.1	
6-Aug-15	05188	05189	9R2L	7	28.7	33.2	29.9	16.7	8.7	
6-Aug-15	05190		9R2L	24	26.4	30.0	26.2	16.1	6.6	ANO V5, 26 marginals, 5R costals
6-Aug-15	05191	05192	9R2L	24	26.4	30.6	27.1	15.9	6.6	
6-Aug-15	05196	05197	9R2L	24	27.1	31.7	28.9	16.5	7.5	
6-Aug-15	05195		9R2L	24	26.2	30.8	27.4	15.2	6.4	
6-Aug-15	05198		9R2L	24	26.5	30.6	29.2	16.0	7.1	
6-Aug-15	05199	05200	9R2L	24	27.4	31.6	27.8	15.9	6.8	
6-Aug-15	05201	05202	9R2L	24	27.5	29.9	27.1	16.2	6.9	
6-Aug-15	05203		9R2L	24	26.9	31.1	26.5	15.7	6.7	
6-Aug-15	05204	05205	9R2L	24	27.2	30.9	27.8	16.1	6.8	
6-Aug-15	05206	05207	9R2L	24	25.6	30.1	27.1	16.2	6.8	

Terrapihn Hatchlings

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
6-Aug-15	05208		9R2L	10	29.9	33.3	29.1	17.5	8.9	
6-Aug-15	05209	05210	9R2L	10	27.7	31.8	28.6	17.3	8.7	
6-Aug-15	05211	05212	9R2L	9	26.9	30.4	25.9	17.0	7.3	
6-Aug-15	05213		9R2L	19	29.6	33.7	30.5	16.8	9.1	
6-Aug-15	05214	05215	9R2L	19	30.6	33.0	30.0	17.9	9.1	
6-Aug-15	05216	05217	9R2L	19	29.7	32.8	28.8	17.6	9.0	
6-Aug-15	05218		9R2L	2	30.8	33.2	29.9	17.2	8.9	
6-Aug-15	05219	05220	9R2L	2	30.5	33.2	29.0	17.0	8.8	
6-Aug-15	05221	05222	9R2L	70	25.0	27.8	25.0	16.3	6.8	
6-Aug-15	05223		9R2L	70	25.4	28.9	26.4	16.4	7.4	
6-Aug-15	05224	05225	9R2L	70	24.0	27.6	26.0	17.1	7.0	
6-Aug-15				70	25.0	27.8	26.2	15.4		DEAD in ring, no DNA
6-Aug-15				70	22.0	26.4	24.8	14.5		DEAD in ring, no DNA
6-Aug-15				70	25.3	29.4	25.7	16.6		DEAD in ring, no DNA
6-Aug-15	05226	05227	9R2L	57	22.9	27.4	24.9	14.6	5.6	26 marginals
6-Aug-15	05228	05229	9R2L	57	23.7	27.9	25.4	15.5	6.3	26 marginals
6-Aug-15	05230		9R2L	57	22.5	26.1	24.5	14.9	6.0	26 marginals
6-Aug-15	05231	05232	9R2L	57	24.1	27.1	25.2	14.6	6.2	
6-Aug-15				8						Did not process turtle…it escaped
10-Aug-15	05233	05234	9R2L	32	26.5	30.3	27.0	16.7	7.7	
10-Aug-15	05235		9R2L	32	27.1	31.7	27.5	17.3	8.4	
10-Aug-15	05236	05237	9R2L	32	26.3	30.1	25.9	16.9	7.6	
10-Aug-15	05238	05239	9R2L	32	26.9	30.0	25.8	17.6	8.0	
10-Aug-15	05240		9R2L	32	27.1	31.5	26.5	17.5	8.1	
10-Aug-15	05241	05242	9R2L	32	25.0	29.7	26.9	16.4	7.6	
10-Aug-15	05243	05244	9R2L	32	25.3	28.9	26.5	16.8	7.8	
10-Aug-15	05245		9R2L	32	25.7	28.7	25.7	16.5	7.5	
10-Aug-15	05246	05247	9R2L	168	25.9	29.6	25.3	17.0	7.6	
10-Aug-15	05248	05249	9R2L	168	26.4	29.6	26.9	16.5	7.6	
10-Aug-15	05250		9R2L	168	25.6	29.6	26.4	16.6	7.6	
10-Aug-15	05251	05252	9R2L	24	26.1	29.8	26.8	16.6	6.8	
10-Aug-15	05253	05254	9R2L	26	27.1	31.6	28.7	16.0	7.6	
10-Aug-15	05255		9R2L	9	27.3	30.0	27.0	16.5	7.3	
10-Aug-15	05256	05257	9R2L	18	28.2	31.4	27.6	16.1	7.4	
10-Aug-15	05258	05259	9R2L	18	25.1	29.4	26.2	16.6	7.5	
10-Aug-15	05260		9R2L	2	30.3	32.4	30.2	17.0	9.4	
10-Aug-15	05261	05262	9R2L	2	28.8	32.0	29.6	17.1	9.0	
10-Aug-15	05263	05264	9R2L	11	26.6	30.9	28.5	16.2	7.3	
10-Aug-15	05265		9R2L	11	26.8	29.0	27.7	15.7	7.4	
10-Aug-15	05266	05267	9R2L	11	26.7	29.0	26.6	16.1	6.4	
10-Aug-15	05268	05269	9R2L	11	27.8	31.3	28.4	15.9	7.6	
10-Aug-15	05270		9R2L	11	27.6	32.3	28.8	16.6	7.7	
10-Aug-15	05271	05272	9R2L	11	28.3	31.3	28.1	16.7	7.6	
10-Aug-15	05273	05274	9R2L	11	27.1	30.7	28.8	15.2	7.4	
10-Aug-15	05275		9R2L	11	27.2	30.9	28.9	16.6	7.8	
10-Aug-15	05276	05277	9R2L	11	27.1	30.8	29.5	16.6	7.8	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
10-Aug-15				32						DEAD, no DNA collected
11-Aug-15	05278	05279	9R2L	2	32.6	32.5	28.5	17.7	9.1	
11-Aug-15	05280		9R2L	63	23.4	27.1	24.9	15.7	5.9	
11-Aug-15	05281	05282	9R2L	63	25.2	29.2	27.4	16.0	7.4	
11-Aug-15	05283	05284	9R2L	63	24.0	29.2	27.5	16.3	7.9	
11-Aug-15	05285	05286	9R2L	63	26.9	30.3	27.9	16.5	7.5	
11-Aug-15	05287		9R2L	63	24.7	27.6	26.9	16.9	7.5	
11-Aug-15	05288	05289	9R2L	63	24.4	27.6	26.7	17.1	7.8	
11-Aug-15	05290		9R2L	63	25.3	28.3	26.2	16.7	7.3	
11-Aug-15	05291	05292	9R2L	63	26.1	26.4	27.1	16.8	7.2	
11-Aug-15	05293	05294	9R2L	63	24.7	25.3	26.3	16.8	7.7	
11-Aug-15	05295		9R2L	63	25.6	26.2	26.4	16.1	7.7	
11-Aug-15	05296	05297	9R2L	63	25.7	27.1	25.8	16.2	7.0	
11-Aug-15	05298	05299	9R2L	63	26.2	27.3	26.0	17.0	7.0	
11-Aug-15	05300		9R2L	63	24.9	26.2	26.3	16.1	7.0	Died 12 August 2015
11-Aug-15				63						DEAD, no DNA
12-Aug-15	05301	05302	9R2L	32	24.2	25.1	22.3	18.1	6.1	
12-Aug-15	05303	05304	9R2L	52	25.1	26.8	23.4	16.2	6.3	
12-Aug-15	05305		9R2L	52	25.3	27.1	23.1	15.9	6.8	
12-Aug-15	05306	05307	9R2L	52	26.0	28.0	22.9	16.8	7.0	
12-Aug-15	05308	05309	9R2L	52	25.6	27.3	24.3	16.1	5.9	
12-Aug-15	05310		9R2L	52	24.9	27.9	23.7	15.4	6.5	
12-Aug-15	05311	05312	9R2L	52	25.7	28.1	24.6	16.3	7.1	
12-Aug-15	05313	05314	9R2L	52	26.1	28.3	25.0	16.3	6.3	
12-Aug-15	05315		9R2L	52	25.5	27.4	23.0	15.8	6.9	
12-Aug-15	05316	05317	9R2L	52	24.9	26.3	24.0	16.7	7.4	
12-Aug-15	05318	05319	9R2L	52	25.7	27.2	23.1	15.5	6.5	
12-Aug-15	05320		9R2L	52	25.8	27.9	22.1	15.9	6.6	
12-Aug-15	05321	05232	9R2L	79	23.4	24.9	21.4	15.3	6.0	
12-Aug-15	05323	05324	9R2L	79	22.8	25.3	21.5	16.0	6.1	
12-Aug-15	05325		9R2L	79	23.7	25.7	22.0	15.6	6.1	
12-Aug-15	05326	05327	9R2L	79	24.1	26.0	22.2	15.4	6.3	
12-Aug-15	05328	05329	9R2L	79	23.3	25.0	21.6	14.9	5.9	
13-Aug-15	05330		9R2L	6	30.5	31.1	28.5	16.8	9.5	
13-Aug-15	05331	05332	9R2L	6	30.3	32.9	27.6	17.7	8.1	
13-Aug-15	05333	05334	9R2L	6	30.3	32.9	29.0	17.3	8.3	
13-Aug-15	05335		9R2L	6	31.9	32.9	29.5	17.9	9.5	
13-Aug-15	05336	05337	9R2L	6	31.5	33.1	29.4	17.8	7.9	
13-Aug-15	05338	05339	9R2L	161	26.8	31.3	28.4	16.7	8.5	
13-Aug-15	05340		9R2L	161	27.8	31.7	28.6	16.9	8.6	
14-Aug-15	05341	05342	9R2L	23	28.3	31.3	27.3	17.2	8.3	
14-Aug-15	05343	05344	9R2L	23	28.5	31.6	27.6	17.2	8.5	
14-Aug-15	05345		9R2L	23	29.3	31.9	27.5	17.3	7.9	
14-Aug-15	05346	05347	9R2L	23	29.5	31.4	26.9	17.5	9.0	
14-Aug-15	05348	05349	9R2L	23	27.6	29.9	28.0	17.0	8.6	
14-Aug-15	05350		9R2L	23	29.4	31.2	27.9	17.9	8.1	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
14-Aug-15	05351	05352	9R2L	23	28.2	31.7	27.2	17.6	8.4	
14-Aug-15	05353	05354	9R2L	23	28.4	32.0	27.5	17.6	8.2	
14-Aug-15	05355		9R2L	23	29.4	32.9	28.1	17.7	8.5	
14-Aug-15	05356	05357	9R2L	23	29.2	30.9	27.3	17.3	8.6	
14-Aug-15	05358	05359	9R2L	23	29.0	32.1	27.0	17.7	9.0	
14-Aug-15	05360		9R2L	23	29.1	31.8	28.1	17.1	8.1	
17-Aug-15	05361	05362	9R2L	72	28.8	32.1	28.4	16.0	7.7	
17-Aug-15	05363	05364	9R2L	72	28.0	32.1	28.3	15.9	7.9	
17-Aug-15	05365		9R2L	72	28.7	32.0	28.4	16.3	8.1	
17-Aug-15	05366	05367	9R2L	72	26.9	29.3	28.4	17.3	7.9	
17-Aug-15	05368	05369	9R2L	78	26.9	29.5	28.3	17.1	7.6	
17-Aug-15	05370		9R2L	89	31.1	33.8	29.5	17.6	9.4	
17-Aug-15	05371	05372	9R2L	54	25.4	28.6	25.2	16.3	6.4	
17-Aug-15	05373	05374	9R2L	54	26.8	30.1	27.2	16.2	7.0	
17-Aug-15	05375		9R2L	54	25.0	28.3	25.5	16.9	7.3	
17-Aug-15	05376	05377	9R2L	54	30.3	32.4	28.1	17.7	8.4	
17-Aug-15	05378	05379	9R2L	54	30.1	32.8	29.2	18.0	7.9	
17-Aug-15	05380		9R2L	54	29.6	30.6	29.0	17.6	8.3	
18-Aug-15	05381	05382	9R2L	11	29.8	33.5	30.8	16.9	8.2	
18-Aug-15	05383	05384	9R2L	11	29.0	31.7	28.5	16.7	8.5	
18-Aug-15	05385		9R2L	11	30.1	32.5	31.0	17.3	8.2	
18-Aug-15	05386	05387	9R2L	3	27.8	30.6	27.7	15.8	8.2	
18-Aug-15	05388	05389	9R2L	3	27.3	30.8	28.6	16.5	8.3	
18-Aug-15	05390		9R2L	3	27.5	31.1	27.7	15.6	8.6	
18-Aug-15	05391	05392	9R2L	3	27.6	30.8	27.0	15.8	7.9	
18-Aug-15	05393	05394	9R2L	3	27.1	30.7	28.2	15.3	7.0	
18-Aug-15	05395		9R2L	3	26.2	31.0	27.9	16.3	8.2	
18-Aug-15	05396	05397	9R2L	3	28.1	30.3	26.3	15.8	6.9	
18-Aug-15	05398	05399	9R2L	3	28.3	29.9	27.2	17.3	7.3	
18-Aug-15	05400		9R2L	89	29.9	33.5	30.5	16.2	8.0	
18-Aug-15	05401	05402	9R2L	89	29.4	33.2	30.5	16.6	8.2	
18-Aug-15	05403	05404	9R2L	89	28.3	32.9	29.9	17.0	6.7	
18-Aug-15	05405		9R2L	171	28.9	33.7	26.2	16.9	5.9	
18-Aug-15	05406	05407	9R2L	171	28.3	32.4	30.7	15.9	8.0	
18-Aug-15	05408	05409	9R2L	171	28.7	33.2	29.7	16.6	6.6	
18-Aug-15	05411	05412	9R2L	171	27.9	30.0	30.9	16.6	7.7	
18-Aug-15	05413	05414	9R2L	171	28.9	32.4	29.9	16.3	7.5	
18-Aug-15	05415		9R2L	171	29.2	33.2	29.4	15.9	7.3	
24-Aug-15	05416	05417	9R2L	46	27.5	30.7	27.1	16.5	7.3	
24-Aug-15	05418	05419	9R2L	46	27.3	30.9	26.3	16.7	7.5	
24-Aug-15	05420		9R2L	46	27.4	31.0	25.9	16.7	7.3	
24-Aug-15	05421	05422	9R2L	46	28.0	30.6	26.5	15.9	7.4	
24-Aug-15	05423	05424	9R2L	56	27.2	30.5	26.8	17.0	7.7	
24-Aug-15	05425		9R2L	56	28.3	31.5	26.9	16.4	8.1	
24-Aug-15	05426	05427	9R2L	56	29.1	31.8	28.0	17.3	8.4	
24-Aug-15	05428	05249	9R2L	56	27.9	31.1	27.3	17.0	8.3	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
24-Aug-15	05430		9R2L	56	29.0	32.6	27.8	17.9	7.9	
24-Aug-15	05431	05432	9R2L	56	28.3	32.4	28.1	17.3	8.0	
24-Aug-15	05433	05434	9R2L	56	26.9	32.4	27.8	16.9	8.2	
24-Aug-15	05435		9R2L	56	27.8	32.7	26.6	17.7	8.6	
24-Aug-15	05436	05437	9R2L	56	31.5	31.2	28.3	16.6	8.4	
24-Aug-15	05438	05439	9R2L	56	31.9	31.6	26.4	16.3	8.0	
24-Aug-15	05440		9R2L	56	29.4	32.4	25.6	16.2	6.9	
24-Aug-15	05441	05442	9R2L	56	28.2	30.3	26.0	16.7	7.3	
24-Aug-15	05443	05444	9R2L	56	30.3	30.7	24.9	17.0	7.9	
24-Aug-15	05445		9R2L	56	28.2	30.3	30.0	16.1	6.4	
24-Aug-15	05446	05447	9R2L	56	31.5	31.5	29.2	15.9	8.1	
24-Aug-15	05448	05449	9R2L	56	31.1	31.9	27.8	16.3	6.5	
24-Aug-15	05450		9R2L	56						DIED
24-Aug-15	05451	05452	9R2L	172	28.4	30.3	29.2	17.1	8.6	
24-Aug-15	05453	05454	9R2L	172	28.2	31.3	27.8	15.8	7.2	
24-Aug-15	05455		9R2L	172	29.3	30.5	29.0	16.5	7.5	
25-Aug-15	05456	05457	9R2L	94	28.6	32.0	29.5	16.6	7.7	
25-Aug-15	05458	05459	9R2L	94	27.9	31.5	28.7	17.2	6.2	
25-Aug-15	05460		9R2L	94	29.0	31.5	29.3	15.8	7.3	
25-Aug-15	05461	05462	9R2L	94	30.1	31.7	29.4	16.3	7.5	
25-Aug-15	05463	05464	9R2L	94	29.6	29.9	29.0	15.5	8.0	
25-Aug-15	05465		9R2L	94	29.6	31.6	28.6	17.1	6.4	
25-Aug-15	05466	05467	9R2L	94	28.3	31.3	28.7	16.4	6.9	
25-Aug-15	05468	05469	9R2L	94	28.7	30.4	29.5	16.6	7.3	
25-Aug-15				94						DEAD, did not measure
26-Aug-15	05470		9R2L	59	27.1	30.1	26.3	15.3	7.3	
26-Aug-15	05471	05472	9R2L	59	27.2	30.6	26.5	15.7	6.4	
26-Aug-15	05473	05474	9R2L	59	26.7	31.0	26.5	17.3	7.2	
26-Aug-15	05475		9R2L	59	27.8	30.7	27.2	16.4	6.5	
26-Aug-15	05476	05477	9R2L	59	26.6	29.6	26.4	15.5	6.6	
26-Aug-15	05478	05479	9R2L	59	28.7	28.9	27.3	16.6	6.5	
26-Aug-15	05480		9R2L	59	27.3	29.8	26.5	16.9	6.8	
26-Aug-15	05481	05482	9R2L	59	25.1	29.6	27.4	17.1	6.9	
26-Aug-15	05483	05484	9R2L	59	26.4	30.1	27.1	15.3	6.2	
26-Aug-15	05485		9R2L	59	27.4	29.5	26.6	15.8	7.1	
26-Aug-15	05486	05487	9R2L	59	28.3	30.1	25.9	17.3	6.3	
26-Aug-15	05488	05489	9R2L	59	27.6	29.5	26.3	17.7	6.4	
26-Aug-15	05490		9R2L	59	26.4	31.3	25.8	17.7	6.6	
26-Aug-15	05491	05492	9R2L	76	27.6	30.3	27.0	16.6	6.6	
26-Aug-15	05493	05494	9R2L	76	26.7	29.3	26.3	16.5	6.5	
26-Aug-15	05495		9R2L	76	28.0	29.7	26.5	15.4	6.1	
26-Aug-15	05496	05497	9R2L	76	26.9	28.9	27.5	16.3	7.1	
26-Aug-15	05498	05499	9R2L	76	29.6	30.1	27.4	16.8	7.2	
26-Aug-15	05500		9R2L	76	27.4	30.4	27.6	15.8	5.9	
26-Aug-15	05501	05502	9R2L	76	26.4	31.8	26.5	17.3	5.8	
26-Aug-15	05503	05504	9R2L	76	27.3	29.6	24.9	15.5	7.0	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
26-Aug-15	05505		9R2L	76	26.8	30.6	26.3	16.4	6.3	
27-Aug-15	05506	05507	9R2L	51	29.1	31.4	26.7	16.1	5.9	
27-Aug-15	05508	05509	9R2L	51	27.4	30.3	25.9	15.3	6.4	
27-Aug-15	05510		9R2L	51	26.3	30.2	26.8	15.1	5.8	
27-Aug-15	05511	05512	9R2L	51	27.4	31.6	26.9	15.3	6.6	
27-Aug-15	05513		9R2L	51	26.6	29.6	25.8	17.2	7.0	
27-Aug-15	05514	05515	9R2L	51	26.6	30.1	25.6	17.1	6.1	
27-Aug-15	05516	05517	9R2L	51	26.9	28.4	26.6	15.9	6.5	
27-Aug-15	05518	05519	9R2L	51	25.9	30.2	27.6	16.4	5.7	
27-Aug-15	05520	05521	9R2L	51	25.2	29.6	24.1	17.3	7.3	
27-Aug-15	05522		9R2L	51	23.4	27.4	23.1	17.4	7.8	
28-Aug-15	05523	05524	9R2L	11	32.6	34.5	22.6	16.6	7.4	
28-Aug-15	05525		9R2L	116	27.1	29.2	22.8	15.5	6.2	
28-Aug-15	05526	05527	9R2L	116	27.2	29.5	23.1	17.8	7.5	
28-Aug-15	05528	05529	9R2L	116	27.3	28.6	24.5	15.7	6.3	
28-Aug-15	05530		9R2L	116	26.4	28.4	25.6	15.3	7.2	
28-Aug-15	05531	05532	9R2L	116	25.9	27.6	24.8	15.5	7.6	
28-Aug-15	05533	05534	9R2L	116	25.0	27.8	25.1	16.9	7.8	
28-Aug-15	05535		9R2L	116	26.9	28.3	23.6	17.7	6.7	
28-Aug-15	05536	05537	9R2L	116	27.3	30.3	24.7	15.2	6.5	
28-Aug-15	05538	05539	9R2L	116	28.8	29.5	23.2	16.3	7.9	
28-Aug-15	05540		9R2L	116	27.6	29.7	25.6	16.6	6.1	
28-Aug-15	05541	05542	9R2L	103	28.3	31.0	27.7	17.8	6.0	
28-Aug-15	05543	05544	9R2L	103	27.1	30.8	24.3	15.8	6.3	
28-Aug-15	05545		9R2L	103	26.9	29.7	23.9	17.2	6.2	
28-Aug-15	05546	05547	9R2L	103	25.6	30.3	24.0	15.1	7.0	
28-Aug-15	05548	05549	9R2L	103	27.1	29.6	26.3	15.1	6.3	
28-Aug-15	05550		9R2L	103	25.2	29.2	27.6	16.3	7.5	
28-Aug-15	05551	05552	9R2L	103	26.4	28.5	26.1	15.4	7.7	
28-Aug-15	05553	05554	9R2L	103	28.2	30.1	25.6	15.7	7.8	
28-Aug-15	05555		9R2L	103	27.1	29.4	27.0	17.6	6.9	
28-Aug-15	05556	05557	9R2L	103	30.3	31.5	26.4	16.3	6.0	
28-Aug-15	05572		9R2L	115	26.9	28.7	26.3	16.6	6.1	
28-Aug-15	05573	05574	9R2L	115	27.5	29.1	26.4	17.9	7.3	
28-Aug-15	05575	05576	9R2L	115	28.7	30.2	25.9	16.0	7.4	
28-Aug-15	05577		9R2L	115	26.4	28.4	26.3	17.4	7.6	
28-Aug-15	05578	05579	9R2L	115	27.3	29.9	25.9	15.6	6.8	
28-Aug-15	05580	05581	9R2L	115	28.4	30.2	26.4	16.3	6.9	
1-Sep-15	05582		9R2L	115	28.3	29.5	27.3	17.5	7.3	
1-Sep-15	05583	05584	9R2L	115	27.5	30.3	26.4	17.7	6.9	
1-Sep-15	05585	05586	9R2L	115	27.1	30.7	27.5	18.2	7.3	
1-Sep-15	05587		9R2L	115	28.1	29.2	27.2	16.8	7.2	
1-Sep-15	05588	05589	9R2L	115	27.7	30.1	26.9	17.3	7.4	
1-Sep-15	05590	05591	9R2L	115	27.9	31.0	27.6	16.5	6.5	
1-Sep-15	05592		9R2L	115	28.0	30.6	26.8	17.4	7.6	
1-Sep-15	05593	05594	9R2L	106	30.2	32.4	29.1	18.4	8.3	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
1-Sep-15	05595	05596	9R2L	106	30.7	32.1	28.5	18.2	7.2	
1-Sep-15	05597		9R2L	106	31.0	33.6	29.3	18.6	7.4	
3-Sep-15	05553	05554	9R2L	174	27.6	29.3	26.5	16.5	6.8	
3-Sep-15	05555		9R2L	174	26.7	28.4	25.3	16.3	6.7	
3-Sep-15	05556	05557	9R2L	174	26.3	29.5	24.8	15.8	6.7	
3-Sep-15	05558	05559	9R2L	174	26.6	29.6	25.3	16.2	6.6	
3-Sep-15	05560		9R2L	174	26.8	28.7	25.8	15.5	6.3	
3-Sep-15	05561	05562	9R2L	174	27.3	29.9	25.1	15.3	5.9	
3-Sep-15	05563	05564	9R2L	174	27.8	29.8	26.2	15.8	7.0	
3-Sep-15	05565		9R2L	174	26.5	28.2	25.0	16.1	6.2	
3-Sep-15	05566	05567	9R2L	174	27.0	29.3	25.8	16.3	6.8	
3-Sep-15	05568	05569	9R2L	174	27.8	29.5	26.4	15.8	6.4	
3-Sep-15	05570	05571	9R2L	174	26.9	29.1	24.2	16.7	6.5	
4-Sep-15	05598	05599	9R2L	83	30.3	32.3	29.5	17.1	7.2	
4-Sep-15	05600	05601	9R2L	83	30.6	32.8	29.7	17.7	7.2	
4-Sep-15	05602		9R2L	83	31.2	33.1	28.9	17.8	7.2	
4-Sep-15	05603	05604	9R2L	83	30.2	32.5	29.5	18.1	7.7	
4-Sep-15	05605	05606	9R2L	83	31.5	33.8	30.3	18.3	7.6	
4-Sep-15	05607	05608	9R2L	83	30.4	32.6	29.8	17.6	7.8	
4-Sep-15	05609		9R2L	83	30.8	32.7	28.9	18.6	7.1	
4-Sep-15	05610	05611	9R2L	83	31.2	33.0	30.6	18.7	7.9	
4-Sep-15	05612	05613	9R2L	83	30.4	32.3	29.4	18.6	7.6	
4-Sep-15	05614		9R2L	83	29.9	32.6	29.1	17.5	8.3	
4-Sep-15	05615	05616	9R2L	83	30.6	33.8	28.3	17.7	8.0	
4-Sep-15	05617	05618	9R2L	83	31.2	32.9	29.0	18.3	7.4	
4-Sep-15	05619		9R2L	83	30.8	33.0	28.6	17.1	7.6	
4-Sep-15	05620	05621	9R2L	83	30.4	32.7	29.7	17.4	7.1	
4-Sep-15	05622	05623	9R2L	121	27.5	29.7	25.4	16.5	7.0	
4-Sep-15	05624		9R2L	121	26.3	29.3	24.3	16.8	6.8	
4-Sep-15	05625	05626	9R2L	121	27.2	29.6	25.8	15.9	6.6	
4-Sep-15	05627	05628	9R2L	121	27.8	29.5	25.9	16.6	6.4	
4-Sep-15	05629		9R2L	121	26.9	28.2	25.1	16.5	7.2	
4-Sep-15	05630	05631	9R2L	121	27.6	28.8	24.3	15.7	6.3	
4-Sep-15	05632	05633	9R2L	121	26.7	29.1	24.2	16.3	7.2	
4-Sep-15	05634		9R2L	121	27.3	28.9	25.8	15.9	6.6	
4-Sep-15	05635	05636	9R2L	121	26.5	29.3	25.6	16.8	7.4	
7-Sep-15	05637	05638	9R2L	121	26.6	28.7	24.7	16.4	6.8	
7-Sep-15	05639		9R2L	121	26.1	28.1	25.7	15.7	7.1	
7-Sep-15	05640	05641	9R2L	121	27.2	29.1	24.3	16.3	6.4	
7-Sep-15	05642	05643	9R2L	121	26.3	28.5	25.8	16.2	7.3	
7-Sep-15	05644		9R2L	121	26.8	28.7	25.9	15.9	6.2	
7-Sep-15	05645	05646	9R2L	121	26.3	28.3	24.6	16.0	6.3	
7-Sep-15	05647	05648	9R2L	155	28.2	30.3	27.6	16.6	6.8	
7-Sep-15	05649		9R2L	155	29.1	30.4	27.8	16.8	7.1	
7-Sep-15	05650	05651	9R2L	155	28.7	31.5	27.4	17.1	7.3	
7-Sep-15	05652	05653	9R2L	155	29.0	30.8	28.2	16.7	6.7	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
7-Sep-15	05654		9R2L	155	28.0	31.3	26.1	17.0	7.0	
7-Sep-15	05655	05656	9R2L	155	28.4	30.7	27.4	17.3	7.1	
7-Sep-15	05657	05658	9R2L	155	28.7	30.5	27.8	17.4	7.3	
7-Sep-15	05659		9R2L	155	29.3	31.7	27.0	16.9	7.4	
7-Sep-15	05660	05661	9R2L	155	28.5	30.2	28.1	17.0	7.8	
8-Sep-15	05662	05663	9R2L	122	28.3	29.9	26.8	16.6	6.8	
8-Sep-15	05664		9R2L	122	27.9	29.6	27.1	16.1	6.1	
8-Sep-15	05665	05666	9R2L	122	28.6	29.1	26.3	17.0	5.9	
8-Sep-15	05667	05668	9R2L	122	28.0	30.1	26.5	16.4	6.3	
8-Sep-15	05669		9R2L	122	27.4	29.8	25.9	16.8	6.6	
8-Sep-15	05670	05671	9R2L	122	28.2	30.4	26.3	17.1	6.5	
8-Sep-15	05672	05673	9R2L	122	28.8	30.5	25.8	16.3	6.5	
8-Sep-15	05674		9R2L	122	27.2	29.6	26.7	16.5	6.6	
8-Sep-15	05675	05676	9R2L	122	28.6	30.2	26.1	17.0	6.8	
8-Sep-15	05677	05678	9R2L	122	28.9	29.9	26.9	16.9	7.0	
9-Sep-15	05679		9R2L	122	28.9	30.3	26.0	16.8	6.4	
9-Sep-15	05680	05681	9R2L	122	28.3	30.1	25.8	16.1	6.1	
9-Sep-15	05682	05683	9R2L	146	25.3	27.4	24.8	15.8	5.9	
9-Sep-15	05684		9R2L	134	29.6	31.6	28.4	16.3	6.5	
9-Sep-15	05685	05686	9R2L	134	29.1	31.8	28.3	16.6	6.8	
9-Sep-15	05687	05688	9R2L	134	30.0	32.1	29.1	15.6	7.3	
9-Sep-15	05689		9R2L	146	25.8	27.9	24.9	16.3	6.2	
9-Sep-15	05690	05691	9R2L	134	29.7	31.3	28.7	16.5	6.4	
9-Sep-15	05692	05693	9R2L	134	29.5	31.2	27.9	15.4	7.1	
9-Sep-15	05694		9R2L	134	31.0	33.4	28.5	16.8	6.3	
9-Sep-15	05695	05696	9R2L	134	30.3	32.6	28.7	16.1	6.8	
9-Sep-15	05697	05698	9R2L	134	29.2	31.8	28.3	15.2	7.0	
9-Sep-15	05699		9R2L	77	31.5	32.8	28.8	16.2	7.2	
9-Sep-15	05700	05701	9R2L	77	31.9	32.9	28.4	15.1	6.8	
9-Sep-15	05702	05703	9R2L	77	32.0	33.0	29.9	16.3	6.4	
9-Sep-15	05704		9R2L	77	31.1	32.8	29.6	16.6	6.1	
10-Sep-15	05705	05706	9R2L	77	31.6	32.7	29.7	17.0	6.0	
10-Sep-15	05707	05708	9R2L	147	28.4	29.9	27.3	16.3	7.0	
10-Sep-15	05709		9R2L	147	28.7	29.8	27.6	16.8	6.1	
10-Sep-15	05710	05711	9R2L	147	28.2	29.1	27.9	15.9	6.5	
14-Sep-15	05712	05713	9R2L	147	27.9	29.2	26.8	16.1	6.3	
14-Sep-15	05714		9R2L	147	28.3	30.1	28.0	15.9	6.0	
14-Sep-15	05715	05716	9R2L	147	28.6	30.5	28.1	16.2	6.2	
14-Sep-15	05717	05718	9R2L	147	29.0	31.4	28.5	16.6	6.8	
14-Sep-15	05719		9R2L	95	30.3	32.3	28.3	16.3	6.3	
14-Sep-15	05720	05721	9R2L	95	31.2	32.6	28.6	15.9	7.0	
14-Sep-15	05722	05723	9R2L	95	30.3	32.0	29.7	15.9	6.6	
14-Sep-15	05724		9R2L	95	30.6	32.4	28.8	16.3	6.6	
14-Sep-15	05725	05726	9R2L	95	31.2	32.6	29.3	16.2	6.1	
14-Sep-15	05727	05728	9R2L	95	30.8	32.8	29.5	16.6	5.9	
14-Sep-15	05729		9R2L	95	30.0	31.8	29.1	15.8	6.4	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
14-Sep-15	05730	05731	9R2L	95	30.7	31.9	29.6	15.9	6.6	
14-Sep-15	05732	05733	9R2L	95	31.3	32.3	29.9	16.0	6.8	
14-Sep-15	05734		9R2L	12	27.3	29.1	25.4	14.3	5.6	
14-Sep-15	05735	05736	9R2L	143	29.4	31.6	28.4	15.8	6.1	
14-Sep-15	05737	05738	9R2L	143	29.1	31.2	28.7	15.7	6.3	
14-Sep-15	05739		9R2L	143	29.5	31.3	29.0	15.3	6.2	
14-Sep-15	05740	05741	9R2L	143	29.9	31.5	28.1	15.9	6.6	
14-Sep-15	05742	05743	9R2L	143	29.6	32.3	28.3	15.6	6.7	
14-Sep-15	05744		9R2L	111	31.2	32.1	29.8	16.1	6.8	
14-Sep-15	05745	05746	9R2L	111	31.6	31.7	30.3	16.3	7.2	
14-Sep-15	05747	05748	9R2L	111	31.8	32.3	29.7	15.8	7.1	
14-Sep-15	05749		9R2L	111	32.0	32.1	30.0	16.1	7.0	
14-Sep-15	05750	05751	9R2L	111	31.0	32.3	29.6	15.9	7.1	
14-Sep-15	05752	05753	9R2L	111	31.3	32.2	29.4	15.2	7.3	
15-Sep-15	05754		9R2L	136	29.6	31.3	28.3	16.3	6.1	
15-Sep-15	05755	05756	9R2L	136	29.0	31.4	27.4	15.3	6.0	
15-Sep-15	05757	05758	9R2L	136	29.4	31.2	27.6	15.7	6.5	
15-Sep-15	05759		9R2L	136	29.7	31.8	28.1	16.9	6.6	
15-Sep-15	05760	05761	9R2L	136	29.9	31.9	28.2	16.2	6.2	
15-Sep-15	05762	05763	9R2L	136	28.6	30.3	27.3	15.3	6.3	
15-Sep-15	05764		9R2L	136	29.3	30.7	28.1	15.3	6.2	
15-Sep-15	05765	05766	9R2L	136	29.5	30.8	28.0	15.3	5.9	
15-Sep-15	05767	05768	9R2L	136	28.7	30.6	27.6	15.1	6.4	
16-Sep-15	05769		9R2L	136	28.4	29.9	27.5	15.4	6.8	
16-Sep-15	05770	05771	9R2L	136	29.0	30.7	28.1	15.8	7.0	
16-Sep-15	05772	05773	9R2L	136	29.5	30.8	27.4	16.0	7.1	
16-Sep-15	05774		9R2L	136	28.5	31.3	27.3	15.9	6.3	
16-Sep-15	05775	05776	9R2L	81	30.3	31.4	28.6	15.9	6.8	
16-Sep-15	05777	05778	9R2L	81	30.6	31.7	29.2	16.0	7.1	
16-Sep-15	05779		9R2L	81	30.2	32.3	29.4	16.1	7.0	
16-Sep-15	05780	05781	9R2L	81	30.7	32.6	28.7	15.8	6.2	
16-Sep-15	05782	05783	9R2L	81	30.7	31.8	29.6	15.9	6.8	
16-Sep-15	05784		9R2L	81	31.2	32.7	28.9	16.3	5.9	
16-Sep-15	05785	05786	9R2L	81	30.1	31.8	29.2	16.4	6.3	
16-Sep-15	05787	05788	9R2L	81	30.8	31.9	29.3	16.5	6.9	
16-Sep-15	05789		9R2L	82	29.3	30.7	28.4	15.8	6.4	
16-Sep-15	05790	05791	9R2L	82	29.1	31.6	28.3	16.7	6.6	
16-Sep-15	05792	05793	9R2L	82	29.2	31.5	28.1	16.2	6.6	
16-Sep-15	05794		9R2L	128	28.3	30.3	27.5	16.4	6.7	
16-Sep-15	05795	05796	9R2L	128	29.1	30.5	27.7	16.9	6.9	
16-Sep-15	05797	05798	9R2L	128	28.4	30.4	27.3	15.9	5.9	
16-Sep-15	05799		9R2L	128	29.5	31.3	28.3	16.3	5.8	
18-Sep-15	05800	05801	9R2L	128	28.2	30.1	27.9	16.4	7.1	
18-Sep-15	05802	05803	9R2L	128	29.3	31.3	28.6	15.8	6.3	
18-Sep-15	05804		9R2L	128	29.4	31.8	28.4	16.5	6.2	
18-Sep-15	05805	05806	9R2L	128	29.6	31.9	28.2	15.6	6.4	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
18-Sep-15	05807	05808	9R2L	128	28.8	30.7	27.6	16.7	6.6	
18-Sep-15	05809		9R2L	128	29.7	31.6	28.1	16.8	6.1	
18-Sep-15	05810	05811	9R2L	101	30.3	31.9	29.8	16.3	7.0	
21-Sep-15	05812	05813	9R2L	101	28.2	29.1	27.4	15.8	6.0	
21-Sep-15	05814		9R2L	123	29.4	31.2	28.3	15.9	6.3	
21-Sep-15	05815	05816	9R2L	123	29.8	30.8	28.7	16.3	6.4	
21-Sep-15	05817	05818	9R2L	123	30.1	32.0	28.1	15.4	6.7	
21-Sep-15	05819		9R2L	123	29.4	31.6	28.6	15.4	6.2	
22-Sep-15	05820	05821	9R2L	123	29.6	30.8	28.7	15.6	7.0	
22-Sep-15	05822	05823	9R2L	123	30.7	31.9	28.4	15.7	6.3	
22-Sep-15	05824		9R2L	123	30.6	31.9	28.9	15.9	6.3	
22-Sep-15	05825	05826	9R2L	123	30.8	31.8	28.6	16.1	6.1	
22-Sep-15	05827	05828	9R2L	123	29.5	30.7	28.3	16.3	6.7	
22-Sep-15	05829		9R2L	102	27.3	28.6	25.4	14.1	5.9	
22-Sep-15	05830	05831	9R2L	102	27.2	28.4	25.9	13.9	5.3	
22-Sep-15	05832	05833	9R2L	102	26.3	28.5	24.3	14.2	5.8	
22-Sep-15	05834		9R2L	102	27.2	29.1	25.7	14.6	6.0	
22-Sep-15	05835	05836	9R2L	102	27.8	28.3	25.6	14.7	5.6	
22-Sep-15	05837	05838	9R2L	102	26.9	28.0	24.2	13.9	5.4	
22-Sep-15	05839		9R2L	102	27.4	28.1	24.8	15.0	6.0	
23-Sep-15	05840	05841	9R2L	102	27.6	28.2	25.1	14.2	5.9	
23-Sep-15	05842	05843	9R2L	102	27.9	28.5	24.3	14.7	5.5	
23-Sep-15	05844		9R2L	102	27.3	29.1	24.6	14.8	5.2	
23-Sep-15	05845	05846	9R2L	92	28.6	30.2	27.5	15.9	6.0	
23-Sep-15	05847	05848	9R2L	92	29.3	30.6	27.3	16.3	6.1	
23-Sep-15	05849		9R2L	92	29.5	30.9	26.9	15.8	6.1	
23-Sep-15	05850	05851	9R2L	175	30.6	31.4	28.2	15.7	6.1	
23-Sep-15	05852	05853	9R2L	175	30.2	31.7	28.3	16.0	5.3	
23-Sep-15	05854		9R2L	175	30.3	32.0	29.0	15.9	6.0	
23-Sep-15	05855	05856	9R2L	175	31.3	31.6	28.5	16.2	5.9	
25-Sep-15	05857	05858	9R2L	73	30.5	31.8	28.7	15.6	5.8	
25-Sep-15	05859		9R2L	73	30.4	32.4	28.0	15.3	5.8	
25-Sep-15	05860	05861	9R2L	73	30.1	31.3	28.3	16.0	5.4	
29-Sep-15	05862	05863	9R2L	73	30.4	31.2	29.6	15.3	6.3	
29-Sep-15	05864		9R2L	73	30.1	31.6	29.7	16.0	6.0	
29-Sep-15	05865	05866	9R2L	73	30.9	32.0	29.3	15.4	6.2	
29-Sep-15	05867	05868	9R2L	73	31.0	32.4	30.0	15.8	6.2	
30-Sep-15	05869		9R2L	73	30.6	31.9	29.2	15.1	6.5	
30-Sep-15	05870	05871	9R2L	81	29.6	30.3	28.2	15.8	6.3	
30-Sep-15	05872	05873	9R2L	81	28.3	30.7	27.3	16.0	7.0	
30-Sep-15	05874		9R2L	81	29.7	31.2	28.6	15.6	7.0	
30-Sep-15	05875	05876	9R2L	81	29.5	31.5	28.4	15.4	6.3	
1-Oct-15	05877	05878	9R2L	81	28.7	30.2	27.9	15.2	7.0	
1-Oct-15	05879		9R2L	81	28.2	31.0	27.6	15.8	6.8	
1-Oct-15	05880	05881	9R2L	81	29.6	30.4	28.2	16.1	6.9	
1-Oct-15	05882	05883	9R2L	81	29.5	30.6	28.5	15.3	6.6	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
1-Oct-15	05884		9R2L	129	31.2	32.3	29.6	15.6	7.0	
1-Oct-15	05885	05886	9R2L	129	30.9	32.7	29.1	16.2	7.1	
1-Oct-15	05887	05888	9R2L	129	31.6	33.4	30.0	16.4	7.4	
5-Oct-15	05889		9R2L	129	31.2	32.7	30.4	15.8	7.3	
5-Oct-15	05890	05891	9R2L	129	30.8	33.8	29.8	15.7	7.0	
5-Oct-15	05892	05893	9R2L	129	31.2	33.5	29.6	15.6	6.9	
5-Oct-15	05894		9R2L	129	30.7	32.4	29.1	16.3	7.1	
5-Oct-15	05895	05896	9R2L	129	30.9	33.6	28.3	15.9	7.0	
5-Oct-15	05897	05898	9R2L	129	31.4	32.8	29.2	15.0	7.0	
5-Oct-15	05899		9R2L	129	30.6	31.9	29.4	15.4	6.9	
5-Oct-15	05900	05901	9R2L	129	31.7	32.8	30.0	16.4	6.4	
5-Oct-15	05902	05903	9R2L	151	30.6	31.9	29.6	16.7	6.1	
5-Oct-15	05904		9R2L	151	29.4	30.8	27.2	15.5	7.1	
7-Oct-15	05905	05906	9R2L	151	29.9	31.3	28.1	16.0	6.3	
7-Oct-15	05907	05908	9R2L	151	30.7	32.0	27.6	15.1	6.7	
7-Oct-15	05909		9R2L	151	31.4	32.3	28.3	16.3	6.0	
7-Oct-15	05910	05911	9R2L	151	29.8	31.4	27.9	15.4	6.6	
9-Oct-15	05912	05913	9R2L	141	27.1	28.0	24.3	14.2	6.0	
9-Oct-15	05914		9R2L	141	26.9	28.3	24.0	14.6	5.9	
9-Oct-15	05915	05916	9R2L	141	27.3	28.5	24.2	14.3	5.1	
9-Oct-15	05917	05918	9R2L	141	27.0	29.0	23.9	14.0	5.2	
12-Oct-15	05919		9R2L	141	27.6	28.6	25.1	14.1	5.6	
12-Oct-15	05920	05921	9R2L	141	27.8	28.9	24.6	14.6	5.6	
12-Oct-15	05922	05923	9R2L	141	26.9	28.5	24.2	14.6	6.0	
12-Oct-15	05924		9R2L	141	27.4	29.3	23.8	14.5	5.3	
12-Oct-15	05925	05926	9R2L	141	27.2	28.9	24.7	14.3	5.7	
14-Oct-15	05927	05928	9R2L	145	29.6	31.3	26.2	16.3	6.3	
14-Oct-15	05929		9R2L	145	29.5	31.2	26.8	15.9	6.4	
14-Oct-15	05930	05931	9R2L	145	29.1	31.0	27.1	16.6	7.3	
14-Oct-15	05932	05933	9R2L	145	29.3	31.5	26.3	16.8	7.7	
14-Oct-15	05934		9R2L	145	28.9	30.7	25.9	16.5	7.9	
16-Oct-15	05935	05936	9R2L	145	29.4	31.9	26.7	16.6	6.9	
16-Oct-15	05937	05938	9R2L	121	31.5	33.6	30.7	16.6	6.5	
16-Oct-15	05939		9R2L	121	30.9	32.0	29.1	16.3	6.3	
16-Oct-15	05940	05941	9R2L	46	31.4	33.3	30.3	16.3	8.3	
19-Oct-15	05942	05943	9R2L	46	31.6	33.5	30.5	16.5	8.2	
19-Oct-15	05944		9R2L	46	32.7	34.0	30.9	16.4	8.0	
19-Oct-15	05945	05946	9R2L	46	32.5	34.1	31.0	16.7	8.1	
19-Oct-15	05947	05948	9R2L	31	30.7	32.2	29.4	15.7	7.7	
19-Oct-15	05949		9R2L	31	29.8	33.6	29.4	16.1	6.9	
19-Oct-15	05950	05951	9R2L	31	30.6	32.7	28.7	15.8	7.8	
19-Oct-15	05952	05953	9R2L	31	30.6	32.1	30.0	15.9	8.0	
19-Oct-15	05954		9R2L	31	31.1	33.5	29.6	15.8	7.9	
19-Oct-15	05955	05956	9R2L	31	30.3	33.8	28.5	15.4	7.9	
19-Oct-15	05957	05958	9R2L	31	29.7	32.6	28.2	15.1	7.7	
19-Oct-15	05959		9R2L	31	30.4	32.9	29.1	15.7	7.8	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
19-Oct-15	05960	05961	9R2L	31	31.2	33.4	27.4	16.1	7.7	
20-Oct-15	05962	05963	9R2L	17	32.6	34.6	30.7	17.9	8.7	
20-Oct-15	05964		9R2L	17	33.1	35.8	31.2	17.5	8.2	
20-Oct-15	05965	05966	9R2L	17	32.7	34.3	31.0	17.5	8.2	
20-Oct-15	05967	05968	9R2L	17	32.8	34.7	29.8	17.9	8.6	
20-Oct-15	05969		9R2L	17	31.9	33.2	29.6	17.0	9.0	
20-Oct-15	05970	05971	9R2L	17	32.6	35.6	31.7	16.9	8.6	
20-Oct-15	05972	05973	9R2L	17	32.9	34.8	30.3	17.4	8.3	
20-Oct-15	05974		9R2L	17	33.0	35.4	30.5	16.9	8.6	
20-Oct-15	05975	05976	9R2L	17	32.4	35.7	30.8	17.5	8.4	
20-Oct-15	05977	05978	9R2L	17	32.0	35.8	30.0	17.6	8.7	
20-Oct-15	05979		9R2L	17	31.7	33.6	29.4	17.5	8.0	
20-Oct-15	05980	05981	9R2L	17	33.8	35.9	30.8	17.3	8.1	
20-Oct-15	05982	05983	9R2L	120	29.6	30.3	26.5	15.3	6.3	
20-Oct-15	05984		9R2L	120	28.7	31.4	27.2	14.9	5.9	
20-Oct-15	05985	05986	9R2L	120	29.3	30.7	26.3	15.7	6.7	
20-Oct-15	05987	05988	9R2L	120	28.5	31.2	26.6	15.6	6.6	
20-Oct-15	05989		9R2L	120	28.7	31.1	27.1	14.9	6.2	
20-Oct-15	05990	05991	9R2L	120	29.3	31.0	26.5	15.0	6.7	
20-Oct-15	05992	05993	9R2L	120	28.6	30.3	26.7	15.3	6.3	
20-Oct-15	05994		9R2L	120	28.5	29.9	27.0	15.8	5.9	
20-Oct-15	05995	05996	9R2L	120	29.2	31.2	28.1	14.7	6.8	
20-Oct-15	05997	05998	9R2L	17	31.4	33.3	29.6	16.9	8.1	
18-Mar-16			2L9L	158	26.8	29.8	24.6	15.0	5.4	
18-Mar-16			2L9L	158	27.2	32.0	27.5	15.0	6.6	ANO V5
18-Mar-16			2L9L	158	27.5	32.3	26.7	15.5	6.8	
18-Mar-16			2L9L	158	24.7	28.7	24.9	14.8	5.4	ANO V5
18-Mar-16			2L9L	53	24.7	29.8	25.3	15.2	5.3	ANO V5
18-Mar-16			2L9L	16	28.8	33.3	29.3	17.0	8.5	
18-Mar-16			2L9L	16	29.2	34.1	29.5	16.8	8.7	
18-Mar-16			2L9L	16	28.4	33.2	29.2	16.4	8.3	
18-Mar-16			2L9L	16	29.0	32.9	29.4	16.9	8.5	
18-Mar-16			2L9L	16	28.6	33.2	28.2	16.5	8.4	
18-Mar-16			2L9L	16	27.9	33.3	28.6	16.6	8.1	
18-Mar-16			2L9L	16	28.2	32.2	28.9	16.7	8.5	
18-Mar-16			2L9L	43	28.7	31.5	27.2	17.0	7.9	
18-Mar-16			2L9L	43	27.7	30.9	25.8	16.4	7.0	
18-Mar-16			2L9L	43	28.6	31.5	27.3	15.8	7.8	ANO V5
18-Mar-16			2L9L	43	29.3	31.4	27.6	17.3	8.4	
18-Mar-16			2L9L	43	27.5	31.8	28.4	16.5	7.6	ANO V5
18-Mar-16			2L9L	43	29.4	33.0	29.0	16.8	8.1	
18-Mar-16			2L9L	43	27.9	31.1	26.6	16.6	7.9	
18-Mar-16			2L9L	43	29.6	32.4	27.6	17.0	8.0	
18-Mar-16			2L9L	43	27.6	30.9	26.8	16.7	7.2	
18-Mar-16			2L9L	43	27.4	30.7	27.0	15.9	7.1	
18-Mar-16			2L9L	43	28.0	31.2	26.5	17.2	7.5	13 marginals on R/ ANO V5

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
18-Mar-16			2L9L	43	28.2	30.5	26.7	16.4	7.4	ANO V5
18-Mar-16			2L9L	43	28.7	32.2	28.3	16.6	8.0	
18-Mar-16			2L9L	43	29.5	32.3	27.8	16.5	7.7	
18-Mar-16			2L9L	20	27.7	31.3	28.2	16.3	6.9	
18-Mar-16			2L9L	20	28.5	31.6	28.7	16.3	7.6	
18-Mar-16			2L9L	20	28.1	30.9	28.5	17.1	7.6	
18-Mar-16			2L9L	20	29.0	32.6	29.6	16.8	7.7	
18-Mar-16			2L9L	20	28.8	31.9	29.1	16.1	7.4	
18-Mar-16			2L9L	20	27.8	31.5	29.2	17.2	7.3	
18-Mar-16			2L9L	20	27.9	30.9	26.6	16.6	7.0	
18-Mar-16			2L9L	20	27.8	31.4	28.9	15.5	7.1	
18-Mar-16			2L9L	34	28.2	32.5	29.7	15.7	7.0	
18-Mar-16			2L9L	34	29.7	33.4	29.6	15.8	7.9	
18-Mar-16			2L9L	34	28.7	32.7	29.3	16.4	7.5	
18-Mar-16			2L9L	34	29.2	32.9	29.7	16.3	7.6	
18-Mar-16			2L9L	34	28.5	32.7	29.0	16.5	7.5	
18-Mar-16			2L9L	34	28.7	32.7	29.3	16.2	7.6	
18-Mar-16			2L9L	34	28.3	31.7	29.0	16.2	7.4	
18-Mar-16			2L9L	34	28.2	32.7	29.2	16.5	7.4	
18-Mar-16			2L9L	34	27.3	31.6	29.0	15.8	7.0	
18-Mar-16			2L9L	34	27.6	32.6	29.2	16.2	7.3	
18-Mar-16			2L9L	34	27.8	32.1	29.6	15.6	6.9	
18-Mar-16			2L9L	34	28.3	33.1	29.6	16.5	7.7	ANO C4 left
18-Mar-16			2L9L	13	27.9	31.0	28.6	16.2	7.4	
18-Mar-16			2L9L	13	27.9	32.3	29.8	16.5	7.7	
18-Mar-16			2L9L	13	26.5	30.9	28.3	15.8	7.0	
18-Mar-16			2L9L	13	26.8	31.0	28.6	15.6	6.7	
18-Mar-16			2L9L	13	26.7	30.6	29.0	15.9	6.8	
18-Mar-16			2L9L	13	26.9	30.7	27.9	15.2	6.1	
18-Mar-16			2L9L	13	26.9	31.5	28.4	15.9	7.4	
18-Mar-16			2L9L	13	27.8	31.6	28.4	16.1	7.2	
18-Mar-16			2L9L	13	28.0	31.2	28.9	15.9	7.0	
18-Mar-16			2L9L	13	27.2	31.8	30.0	15.6	7.4	
18-Mar-16			2L9L	13	27.3	31.6	29.2	16.3	7.2	
18-Mar-16			2L9L	13	28.3	31.7	29.0	16.0	7.6	ANO V4 V5
18-Mar-16			2L9L	158	29.6	33.8	29.8	6.8	8.9	13 marignals R
18-Mar-16			2L9L	158	27.5	30.8	26.5	N/A	N/A	Dropped in bucket while measuring
18-Mar-16			2L9L	158	24.8	28.3	24.1	14.6	5.2	
18-Mar-16			2L9L	158	25.4	30.0	25.9	15.8	5.8	
18-Mar-16			2L9L	158	25.1	29.4	25.3	15.6	6.0	
18-Mar-16			2L9L	140	26.1	28.7	25.0	14.9	5.1	
18-Mar-16			2L9L	140	27.7	31.5	27.3	16.1	6.3	
18-Mar-16			2L9L	140	26.2	30.7	26.7	15.4	5.8	
18-Mar-16	41701		2L9L	66	24.9	29.5	25.1	15.5	4.6	
18-Mar-16	41702	41703	2L9L	66	26.6	31.5	26.8	15.0	5.8	
18-Mar-16	41704	41705	2L9L	66	25.8	30.9	26.7	15.5	5.9	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
18-Mar-16	41706		2L9L	66	25.9	31.0	25.6	14.9	5.5	
18-Mar-16	41707	41708	2L9L	66	26.4	30.4	25.1	14.6	5.1	
18-Mar-16	41709	41710	2L9L	66	25.9	29.8	25.2	14.7	5.3	
18-Mar-16	41711		2L9L	66	25.6	30.1	25.3	15.4	5.3	
18-Mar-16	41712	41713	2L9L	66	25.6	29.4	25.2	14.8	5.3	
18-Mar-16	41714	41715	2L9L	66	26.6	30.6	26.0	15.0	5.5	
18-Mar-16	41716		2L9L	66	25.7	30.0	24.8	15.3	5.1	
18-Mar-16	41717	41718	2L9L	66	25.5	29.7	25.1	14.9	4.9	
18-Mar-16	41719	41720	2L9L	66	24.9	29.3	25.3	15.5	5.6	
18-Mar-16	41721	41722	2L9L	66	26.2	31.0	26.5	15.4	5.9	
18-Mar-16	41723		2L9L	66	26.5	30.6	25.9	15.3	5.6	
18-Mar-16	41724	41725	2L9L	153	25.3	29.2	26.1	15.2	6.1	
18-Mar-16	41726	41727	2L9L	153	29.9	33.2	28.6	16.2	8.0	
18-Mar-16	41728		2L9L	153	28.9	32.7	27.1	16.1	7.7	
18-Mar-16	41729	41730	2L9L	153	26.8	31.0	27.7	15.2	6.6	
18-Mar-16	41731	41732	2L9L	153	29.4	33.2	28.5	16.3	7.9	
18-Mar-16	41733		2L9L	153	27.3	31.2	27.9	15.1	7.0	
18-Mar-16	41734	41735	2L9L	153	29.7	33.3	28.3	16.4	8.1	
18-Mar-16	41736	41637	2L9L	153	26.0	30.1	26.6	15.0	6.2	
18-Mar-16	41738		2L9L	153	26.6	30.2	26.0	15.2	6.2	
18-Mar-16	41741	41742	2L9L	153	26.9	31.4	26.0	15.0	6.3	
18-Mar-16	41743		2L9L	88	27.6	31.1	28.3	16.2	7.4	
18-Mar-16	41744	41745	2L9L	88	28.1	32.0	28.3	16.2	7.1	
18-Mar-16	41746		2L9L	88	29.4	32.2	28.4	16.5	7.7	
18-Mar-16	41748		2L9L	88	29.7	32.5	29.4	17.0	8.1	
18-Mar-16	41749	41750	2L9L	88	29.1	32.2	28.5	16.9	7.7	
18-Mar-16	41751	41752	2L9L	88	32.4	27.8	27.8	16.4	7.7	
18-Mar-16	41753		2L9L	88	29.4	32.9	28.7	16.1	7.5	
18-Mar-16	41754	41755	2L9L	36	24.5	28.8	25.5	14.3	5.2	
18-Mar-16	41756	41757	2L9L	36	24.4	28.7	25.5	15.1	5.2	
18-Mar-16	41758		2L9L	36	23.7	28.5	25.9	14.5	5.2	
18-Mar-16	41759	41760	2L9L	36	23.9	29.1	26.0	15.2	5.8	
18-Mar-16	41761	41762	2L9L	36	22.8	27.4	24.5	14.2	4.6	
18-Mar-16	41763		2L9L	36	24.2	28.8	25.4	14.5	5.4	
18-Mar-16	41764	41765	2L9L	36	23.0	28.0	25.8	14.3	5.1	
18-Mar-16	41766	41767	2L9L	36	23.4	28.4	25.1	14.5	5.0	
18-Mar-16	41768		2L9L	36	24.4	27.9	24.9	14.6	5.1	
18-Mar-16	41769	41770	2L9L	36	23.2	28.1	24.7	14.6	5.0	
18-Mar-16	41773		2L9L	92	26.9	30.3	26.0	16.0	6.4	
18-Mar-16	41774	41775	2L9L	92	28.3	32.0	27.3	15.8	7.2	
18-Mar-16	41776	41777	2L9L	92	27.5	31.5	27.0	16.2	7.4	
18-Mar-16	41778		2L9L	92	26.3	29.9	26.9	16.3	6.6	
18-Mar-16	41779	41780	2L9L	16	28.9	33.2	28.8	16.5	8.1	
18-Mar-16	41781	41782	2L9L	16	27.9	32.7	28.4	16.4	7.6	26 marginals
18-Mar-16	41783		2L9L	38	25.7	30.2	28.0	16.2	7.0	
18-Mar-16	41784	41785	2L9L	4	29.7	25.8	25.6	15.3	5.8	

Date	ID1	ID2	Notch ID	Nest Number	Plastron Length	Carapace Length	Width	Height	Mass	Comments
18-Mar-16	41786	41787	2L9L	4	27.0	30.1	26.9	15.1	6.6	
18-Mar-16	41788		2L9L	4	26.6	29.6	27.1	15.5	6.4	
18-Mar-16	41789	41790	2L9L	4	26.9	30.4	27.2	15.7	6.4	
18-Mar-16	41791	41792	2L9L	4	27.0	30.1	27.0	15.7	6.6	
18-Mar-16	41793		2L9L	4	26.0	29.6	27.0	15.5	6.3	
18-Mar-16	41794	41795	2L9L	4	26.8	29.9	27.5	15.7	6.8	
18-Mar-16	41796	41797	2L9L	144	28.6	32.4	28.9	16.7	7.8	
18-Mar-16	41798		2L9L	144	30.1	33.3	29.8	16.9	8.4	
18-Mar-16	41799	41800	2L9L	144	27.2	30.5	27.4	15.2	6.5	
18-Mar-16	41801	41802	2L9L	144	30.0	32.8	29.9	16.5	8.3	
18-Mar-16	41803		2L9L	144	30.5	33.4	29.4	17.3	8.4	
18-Mar-16	41804	41805	2L9L	144	27.6	30.5	27.6	15.7	6.6	
18-Mar-16	41806	41807	2L9L	50	26.3	30.7	27.8	16.5	6.7	
18-Mar-16			2L9L	87	18.2	21.0	17.6	11.3	2.4	Mud turtle

Headstarts

Date	PIT	Sex	PL	CL	Width	Ht	Mass	DOB	School / Teacher	Comments
6-Apr-16	0A181C616D	F	105	122	100	48	315	2015	Washington Middle / Matt Kline	
6-Apr-16	0A181C614E	F	93	110	92	47	222	2015	Washington Middle / Matt Kline	
6-Apr-16	0A181C6177	J	63	78	64	32	78	2015	City Springs MS / Zach Carey	
6-Apr-16	0A181C614F	F	110	130	106	52	360	2015	Naval Academy / Kristy Woody	
6-Apr-16	0A181C616C	F	92	110	92	45	219	2015	Naval Academy / Kristy Woody	
6-Apr-16	0A181C6159	J	58	69	55	28	59	2015	Kent School / Pam Peringer	
6-Apr-16	0A181C614A	J	50	61	48	26	40	2015	Our Lady of Good Counsel / Sara Bechtal	
6-Apr-16	0A181C6208	J	63	74	63	31	72	2015	Pointers Run ES / C. Brown	Ano V4 + V5, plastron, 13 left marginal scutes
6-Apr-16	0A181C6154	J	68	76	64	33	81	2015	Conococheague ES ("Sunny")	
6-Apr-16	0A181C621E	J	78	90	75	35	124	2015	Fairview Outdoor School / Eddie Waldron	
6-Apr-16	0A181C615B	J	64	74	61	33	79	2015	St. Andrews / Kristen Werner	
6-Apr-16	0A181C620C	J	60	72	60	32	66	2015	City Neighbors Charter School / Peter Redgrave?	
6-Apr-16	0A181C6171	J	49	55	44	25	35	2015	Glenda HS? / Paul Regis	Ano V4 + V5
6-Apr-16	0A181C6170	J	68	80	66	33	91	2015	Lyme Kiln MS / B. Shiftlet	
6-Apr-16	0A181C621B	J	55	64	52	27	51	2015	School of Incarnation / Lisa Jaklitch	
6-Apr-16	0A181C6220	J	64	75	66	35	85	2015	Severn School ("Scales") / Heather Mayers?	
6-Apr-16	0A181C6175	J	60	69	58	32	65	2015	Kent County HS	
6-Apr-16	0A181C6158	J	66	77	62	32	76	2015	Montgomery Blair HS / Courtney Mason	
6-Apr-16	0A181C616F	F	92	106	89	47	213	2015	Green School of Baltimore / Lindsey Clokey	
6-Apr-16	0A181C620E	J	62	68	59	28	67	2015	Franklin MS ("Squirtle") / Bobby Leither?	Ano V2
6-Apr-16	0A181C616B	F	77	90	74	37	126	2015	Marriotts Ridge HS / Karen Luniewski	
6-Apr-16	0A181C6210	F	81	94	76	39	151	2015	Paint Branch HS ("Wasabi") / Karen Sordak	
6-Apr-16	0A181C6204	J	61	73	59	34	73	2015	Hamilton ES/MS / Scott Hartman	Ano V5
6-Apr-16	0A181C617E	F	97	113	96	45	266	2015	Sandy Spring Friends School / Kiki Vargas	Ano V4 + V5
6-Apr-16	0A181C6153	J	61	70	57	32	71	2015	Sudbrook Magnet MS ("Cosmo") / Mick Cauley	Ano V5
6-Apr-16	0A181C6203	J	60	72	57	31	67	2015	Wilde Lake MS / Doug Spicher	
6-Apr-16	0A181C617D	M?	80	95	77	37	130	2015	Nothern MS / O'Donnell	
6-Apr-16	0A181C615C	J	71	83	68	37	100	2015	Calvert HS ("Echo") / Chuck Gustin	
6-Apr-16	0A181C6164	J	67	80	64	33	84	2015	Bushy Park / Katie Murphy	
6-Apr-16	0A181C621D	J	78	93	79	41	144	2015	North Bethesda MS / Wolfierger	
6-Apr-16	0A181C6209	F	86	98	82	40	172	2015	North Bethesda MS / Wolfierger	
6-Apr-16	0A181C6213	J	78	90	74	38	130	2015	Beach Elementary ("Bubbles")	
6-Apr-16	0A181C6156	J	63	73	60	32	74	2015	Kent County HS	

Headstarts

Date	PIT	Sex	PL	CL	Width	Ht	Mass	DOB	School / Teacher	Comments
6-Apr-16	0A181C615A	J	57	64	51	29	51	2015	Calvert County School ("Haley") / Ms. Habert?	Ano V5
6-Apr-16	0A181C6173	J	55	68	56	29	58	2015	Patuxent Appeal Campus ("Bubbles") / Dechants	Ano V5
6-Apr-16	0A181C615D	J	71	81	66	34	93	2015	Huntington HS / Jamie Rowder	
6-Apr-16	0A181C6212	J	61	74	61	31	72	2015	Barstow Elementary / Mrs. Davis	
6-Apr-16	0A181C617E	F	87	103	85	42	181	2015	Sunderland ES ("Bubbles") / Laura White	
6-Apr-16	0A181C6149	J	68	80	64	33	88	2015	St. Leonard MS ("Diamond") / Jennifer Caran	
6-Apr-16	0A181C6161	F	92	106	86	46	209	2015	Calvert MS ("Delta") / Chuck Gustin	
6-Apr-16	0A181C6165	J	62	35	60	31	70	2015	Mill Creek MS ("Howard") / Mrs. Libby	
6-Apr-16	0A181C6217	F	85	96	78	40	151	2015	Huntington ES ("Terry") / Debby Cline	
6-Apr-16	0A181C621C	J	69	83	69	37	106	2015	Pine Grove MS / Mike Lashley	
6-Apr-16	0A181C6168	J	66	81	67	32	87	2015	Plum Point Elementary ("Bubbles") / Ms. Connelly	
6-Apr-16	0A181C6172	J	59	71	58	30	62	2015	Windy Hill Elementary ("Bubbles") / Harbaugh	
6-Apr-16	0A181C6214	J	61	75	62	31	71	2015	Mutual Elementary / Kristin Walker	
6-Apr-16	0A181C6202	J	63	78	61	31	78	2015	Dowell ES ("Squirtle")	
6-Apr-16	0A181C6218	J	66	74	61	33	74	2015	Mt. Harmony ("Squirt")	
6-Apr-16	0A181C620B	J	64	78	60	31	74	2015	Calven Elementary ("Bubbles") / Joelle Boggs	
6-Apr-16	0A181C6169	J	68	78	64	32	92	2015	Pine Grove MS / Mike Lashley	
6-Apr-16	0A181C6166	F	95	108	88	44	209	2015	Northern High ("Crush") / O'Donnell	
6-Apr-16	0A181C6953	J	69	81	65	34	94	2015	Gunston Day School / Vooris	
6-Apr-16	0A181C6226	J	53	59	50	28	45	2015	Easton ES / Ms. King	
6-Apr-16	0A181C6935	F	94	106	89	47	213	2015	Centerville MS ("Squirtle") / Ms. Bower	
6-Apr-16	0A181B2872	J	71	82	69	37	105	2015	Tilghman ES ("Diamond") / Assmussen	
6-Apr-16	0A181C6946	F	83	98	79	42	164	2015	Matapeake MS ("Shelldon") / Frederick	
6-Apr-16	0A181B2860	J	68	76	62	34	80	2015	Vienna ES ("Myrtle") / Holbrook	Ano V5
6-Apr-16	0A181C6959	J	51	61	48	27	41	2015	QACH / Mann	Ano V5
6-Apr-16	0A181C697C	J	56	65	53	31	52	2015	Hurlock ES ("Sammy") / Douglas	Ano V5
6-Apr-16	0A181C6A07	F	85	96	77	39	145	2015	SMMHS ("Dwane Wade") / Greer	
6-Apr-16	0A181C696C	F	94	102	84	45	199	2015	Graysonville ES ("Shelley") / Herekner	Ano V5
6-Apr-16	0A181C6948	F	91	102	84	52	203	2015	MES Poplar Island ("Terp")	
6-Apr-16	0A181B2833	F	82	92	76	41	139	2015	KIHS / Ritz/Sadowski	
6-Apr-16	0A181C693F	F	78	89	74	39	129	2015	South Dorchester ("Hershey") / Ruark	
6-Apr-16	0A181C6937	F	84	93	79	40	156	2015	Galena ES ("Pipsqueak") / Hodge	Ano V5
6-Apr-16	0A181B285A	F	78	86	74	39	121	2015	KIHS / Ritz/Sadowski	
6-Apr-16	0A181C6945	F	76	84	67	37	106	2015	Kennard ES / Brownley	

Headstarts

Date	PIT	Sex	PL	CL	Width	Ht	Mass	DOB	School / Teacher	Comments
6-Apr-16	0A181B2842	J	73	84	68	37	109	2015	Churchill ES ("Queen Elizabeth") / Taylor	
6-Apr-16	0A181C6966	J	81	91	75	40	138	2015	SMMHS ("Yeti") / Greer	
6-Apr-16	0A181C615E	J	48	58	49	25	36	2015	MES HQ	
6-Apr-16	0A181C6932	J	52	63	52	27	45	2015	MES HQ	
6-Apr-16	0A181B2843	J	50	57	49	27	38	2015	MES HQ	Ano V5
6-Apr-16	0A181B2845	J	58	68	55	30	54	2015	MES HQ	
6-Apr-16	0A181C6975	J	55	62	51	28	45	2015	MES HQ	
6-Apr-16	0A181C6947	J	53	63	51	28	45	2015	MES HQ	Ano V5
6-Apr-16	0A181C693D	J	55	67	50	29	49	2015	MES HQ	
6-Apr-16	0A181B283E	J	50	61	49	26	39	2015	MES HQ	
6-Apr-16	0A181C6949	J	56	63	53	29	55	2015	Churchill ES ("Squirt") / Taylor	
6-Apr-16	0A181C6968	M?	86	100	81	41	171	2015	South River / Martin	
6-Apr-16	0A181C616A	J	54	61	50	27	44	2015	Tracy's ES ("Mr. Squirt") / Greenwell	
6-Apr-16	0A181C6207	J	75	89	71	34	109	2015	Monarch Academy / Brandon	
6-Apr-16	0A181C6A02	J	91	104	86	46	192	2015	South River HS / Martin	
6-Apr-16	0A181C6939	J	81	95	80	40	145	2015	Overlook ("T-Wayne") / Schmidt	
6-Apr-16	0A181C696E	M?	92	107	86	45	199	2015	Van Bokkelen / Hammond/Rose	
6-Apr-16	0A181B2839	J	81	94	77	39	142	2015	Overlook ("Testudo") / McGowan	
6-Apr-16	0A181C697E	J	62	72	58	31	57	2015	Mead HS / Courtney	
6-Apr-16	0A181C6973	J	76	88	73	38	116	2015	Pershing Hill / Hardesty	
6-Apr-16	0A181C693B	J	71	81	67	32	90	2015	Overlook ("Tiny Tim") / McGowan	
6-Apr-16	0A181C6A13	J	83	98	80	40	157	2015	Saverna Park HS ("Xanada") / Hannahs	
6-Apr-16	0A181C693A	J	60	71	57	30	64	2015	SPMS / Shelleman	
6-Apr-16	0A181C6958	J	69	78	68	34	96	2015	Richard Henry Lee ("Rylee") / Seachak	
6-Apr-16	0A181B2904	J	84	99	83	41	170	2015	Shipley's Choice ("Wipeout") / Webb	
6-Apr-16	0A181C6A0E	J	66	76	62	33	76	2015	Overlook ES ("Squirtle") / Schmidt	
6-Apr-16	0A181C695E	F	90	103	84	42	180	2015	Saverna Park HS ("Testudo") / Hannahs	
6-Apr-16	0A181C6951	J	77	90	71	35	116	2015	Sunset ES / Spaulding	
6-Apr-16	0A181C6A0A	F	86	102	84	44	168	2015	Pershing Hill / Lively	
6-Apr-16	0A181C694D	J	79	91	73	40	133	2015	Shipley's Choice ("Snoopy") / Webb	13R marginals
6-Apr-16	0A181C6A04	J	70	79	63	34	89	2015	Southern MS ("Flip") / Harris	
6-Apr-16	0A181C694A	J	68	79	62	33	81	2015	Monarch Global ("Cookie") / Medeiros	
6-Apr-16	0A181C6970	J	67	79	65	34	90	2015	Oak Wood ES ("Shelley") / Brenner	
6-Apr-16	0A181C6A01	J	50	59	49	25	36	2015	Jessup ES ("Squirtle") / Kellett	

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6-Apr-16	0A181C6A12	F	87	102	84	43	175	2015	Davidsonville ES / Parret	
6-Apr-16	0A181B2873	F	79	93	73	39	137	2015	Davidsonville ES ("Olaf") / Hoff	
6-Apr-16	0A181C697B	J	94	110	89	45	212	2015	Arnold ES ("Sunny") / Hartman	
6-Apr-16	0A181B287F	F	96	114	90	46	239	2015	Arnold ES ("Flippers") / Hartman	
6-Apr-16	0A181C693C	F	102	118	96	48	247	2015	Brock Bridge ES / Emily D. Lawder	
6-Apr-16	0A181B2876	M	82	101	82	41	174	2015	Crofton Woods ES / Josalyn Brown	
6-Apr-16	0A181C694B	J	82	98	80	40	161	2015	Cape St. Claire / Dianne Velozo	
6-Apr-16	0A181C6174	J	66	80	69	35	97	2015	Chesapeake HS / Erin Pyan	
6-Apr-16	0A181C6934	J	59	70	58	31	65	2015	Croften ES / Jackie Russell	
6-Apr-16	0A181C6974	J	76	92	76	39	122	2015	Chesapeake Regional / Laura Maxwell	
6-Apr-16	0A181C6955	F	73	90	73	36	122	2015	Chesapeake MS / Nichole Wherre	
6-Apr-16	0A181B2855	M	86	101	82	41	151	2015	Chesapeake Regional / Laura Maxwell	13R marginals
6-Apr-16	0A181C620A	J	76	92	75	40	142	2015	Northeast HS / Dan Imwold	
6-Apr-16	0A181C6957	J	62	71	61	31	65	2015	Marley ES ("Bubbles") / S. Collins	
6-Apr-16	0A181C697A	J	62	73	59	31	73	2015	Piney Orchard / Heidi Beall	
6-Apr-16	0A181B2854	J	79	91	78	40	143	2015	Seven Oaks ("Dash") / Stacy Lynch	
6-Apr-16	0A181C694F	J	80	93	80	41	143	2015	Seven Oaks ("Diamond") / Stacy Lynch	
6-Apr-16	0A181C6964	J	58	69	52	29	56	2015	Piney Orchard ("Twix") / Heidi Beall	
6-Apr-16	0A181C6952	F	84	99	81	38	153	2015	Mead HS / Chaya Gioia	
6-Apr-16	0A181C696D	J	73	85	69	37	109	2015	Old Mill MS South / Patricia Moran	
6-Apr-16	0A181C695D	J	48	56	45	24	30	2015	Maryland City / E. Hossick	
6-Apr-16	0A181C6976	J	87	99	83	41	163	2015	Oak Hill / L. Bloomfield	
6-Apr-16	0A181C6940	J	81	94	78	41	136	2015	Park ES / Betzi Kline	
6-Apr-16	0A181C6A10	J	75	87	70	37	116	2015	Old Mill HS / Ms. Helms	
6-Apr-16	0A181C6963	J	78	90	73	38	132	2015	Odenton ("Wisher") / Ms. Morris	
6-Apr-16	0A181B2871	J	81	93	78	40	151	2015	Northeast HS / Dan Imwold	
6-Apr-16	0A181C6961	J	72	83	67	35	90	2015	Riviera Beach ("Pumpkin") / Peggy Flohr	
6-Apr-16	0A181C6176	M?	92	110	88	43	187	2015	Phoenix Academy / Bunker	13R marginals
6-Apr-16	0A181C897D	J	82	93	77	40	143	2015	Severna Park HS / Mrs. Greenlee	
6-Apr-16	0A181B2826	J	66	76	63	33	74	2015	Ridgeway / Brown	Ano V5
6-Apr-16	0A181C695A	F	94	107	87	43	209	2015	Ruth Eason / Jess Angle	
6-Apr-16	0A181C6950	M	104	122	99	52	285	2015	Severn River / Greenlee	
6-Apr-16	0A181C6A09	J	72	84	66	36	105	2015	West Annapolis ("Snappy") / Burrows	
6-Apr-16	0A181C614B	J	83	97	77	43	152	2015	Severn River / Hudson	

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6-Apr-16	0A181C6944	J	68	79	66	34	90	2015	Rolling Knolles ES / Bridget Lanison	
6-Apr-16	0A181C6A0F	J	78	91	76	38	126	2015	Severn River MS / Prestridge	
6-Apr-16	0A181C6A11	J	82	99	82	40	162	2015	Severn River MS / Hudson	
6-Apr-16	0A181C6954	J	75	87	73	37	106	2015	Woodside / Kirby	
6-Apr-16	0A181C6205	J	72	82	68	35	104	2015	Southern HS / West	
6-Apr-16	0A181C6962	J	72	85	68	36	105	2015	South Shore ("Crush") / Balestreire?	
6-Apr-16	0A181C6A05	J	62	72	59	32	69	2015	Solley ES / Kerr	
6-Apr-16	0A181B2905	J	74	86	71	37	106	2015	Waugh Chapel / Jones	
6-Apr-16	0A181C696F	J	64	73	60	34	75	2015	Solley ES / Webster	Ano V3-5
6-Apr-16	0A181C6A08	J	68	81	66	33	78	2015	Lindale MS / Mavro	
6-Apr-16	0A181C617C	J	66	80	64	33	83	2015	George Fox Middle / Ben Thompson	
6-Apr-16	0A181C6942	J	71	83	69	35	104	2015	Deale ES / Eric Day	
6-Apr-16	0A181C6956	M	89	106	87	41	186	2015	Jones ES ("Captain Adventure") / Bigelow	
6-Apr-16	0A181C6938	J	68	82	65	35	92	2015	Hebron Harmon / Nolan	11L marginals, Ano V1
6-Apr-16	0A181B2830	J	77	90	70	36	108	2015	Folger McKinsey / D. Banaert	
6-Apr-16	0A181C695B	F	92	107	84	43	192	2015	Hilltop ES / Dana Quainoo	
6-Apr-16	0A181C694E	J	82	98	76	39	141	2015	CATN / D. Muller (# 59)	
6-Apr-16	0A181B283D	J	75	89	73	37	124	2015	Glen Burnie HS / Angie Voll	
6-Apr-16	0A181C693E	J	72	83	66	35	100	2015	Arundel HS / Jewell or Clardy?	
6-Apr-16	0A181C695F	J	66	76	60	31	74	2015	Croften MS / Etter	Ano V5
6-Apr-16	0A181C6971	J	65	75	62	33	75	2015	Lindale MS / Rob Mauro	
6-Apr-16	0A181C6A0B	J	72	85	70	38	108	2015	Glen Burnie HS / Angie Voll	
7-Apr-16	0A181C6A0D	F	101	112	89	46	256	2015	Annapolis MS / Nan Henry	
7-Apr-16	0A181C696A	J	86	103	81	42	171	2015	Broadneck / Karen Walsh	
7-Apr-16	0A181C6965	F	96	108	89	46	229	2015	Bodkin / K. Duffy	
7-Apr-16	0A181B284B	J	73	85	67	37	114	2015	Arundel HS / Jewell or Clardy?	
7-Apr-16	0A181C695C	J	81	93	74	37	137	2015	Bates MS / J. Smith	
7-Apr-16	0A181C694C	J	75	92	77	37	131	2015	CATN / D. Muller (# 174)	
7-Apr-16	0A181C6967	J	70	80	67	34	88	2015	Benfield / Gina Mullin	
7-Apr-16	0A181C6978	J	73	83	70	34	105	2015	AE ("Albert") / #59	
7-Apr-16	0A181C6943	J	64	77	63	32	80	2015	AE ("ET")	
7-Apr-16	0A181C6979	J	75	84	70	39	113	2015	Arundel MS / Zach Jones	
7-Apr-16	0A181C6A00	J	71	85	69	36	103	2015	AE ("Nick Jr.") / # 174	
7-Apr-16	0A181C6A14	J	64	77	63	33	74	2015	AE ("Don") / # 115	

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7-Apr-16	0A181C6969	J	65	74	63	33	76	2015	AE ("Norton") / #94	
7-Apr-16	0A181C6960	J	79	95	76	38	131	2015	Mead MS ("Hobie")	26 marginals
7-Apr-16	0A181B2906	J	67	79	66	33	91	2015	AE ("Ichabod")	4 vertebrals
7-Apr-16	0A181C6972	F	94	110	87	45	211	2015	Bodkin / Donna Rush	
7-Apr-16	0A181C6977	J	51	61	47	26	42	2015	Freetown ES / Cassie Hanay	
7-Apr-16	0A181C696B	J	58	70	56	31	58	2015	Belvedere / M. Sabat	Ano V5, 11L marginals
7-Apr-16	0A181C6941	J	53	63	53	26	47	2015	Marley Middle / Sandi Jones	
7-Apr-16	0A181C6A03	J	60	74	58	31	63	2015	Hillsmere ES / Lisa Ferrer	
7-Apr-16	0A181C6933	J	59	69	56	29	57	2015	Corkran MS / Klinedinst	