

## Appendix A

*This appendix is comprised from field notes of the dates: nests were discovered, exclosure installations, weekly exclosure checks, daily observations for hatching during the hatch window and daily observations of PIPL broods.*

### **Nest 1, Pair 1**

#### **Cape Point**

- 4/25/2008 A three-egg nest was found and a predator exclosure was installed prior to the onset of incubation. The PIPL adult did not return to the nest after the exclosure was installed. Territorial behavior was observed near the exclosure: one PIPL chased a second PIPL around and away from exclosure.
- 4/26/2008 Incubation and nest exchange was observed.
- 4/28/2008 Two PIPLs were observed foraging near the mouth of the small Salt Pond in the morning. A nest check revealed that the nest now contains four eggs.
- 5/5/2008 Incubation observed. A nest check confirmed four eggs still present.
- 5/12/2008 Poor weather conditions including very high winds and blowing sand. Nest check confirmed 4 eggs still present.
- 5/18/2008 Nest abandoned? An afternoon nest check confirmed four eggs but no birds were present at or in the immediate vicinity of the nest. Two PIPLs were observed ~100 meters southeast of the exclosure, flying and calling.
- 5/19/2008 No PIPLs observed inside the exclosure.
- 5/20/2008 No PIPLs observed inside the exclosure.
- 5/21/2008 No PIPLs observed inside the exclosure.
- 6/1/2008 The nest was determined to be abandoned and eggs were pulled.
- \*11/1/2008 Lab results on the abandoned eggs showed signs of dehydration in the four late-developed chicks, which probably was the result of the nest being abandoned during the high winds. There were no signs of foul play.

### **Nest/Brood 2, Pair 2**

#### **South Ocracoke**

- 5/3/2008 A one egg nest was found in a slightly winded scrape. No birds or tracks were observed.
- 5/4/2008 No PIPLs were observed at the nest site.
- 5/5/2008 No PIPLs were observed at the nest site.
- 5/6/2008 Both adults were present at the nest site. One bird "sat" on nest. Nest check confirmed 2 eggs.
- 5/7/2008 No PIPLs were observed at the nest site. There were lots of PIPL tracks at the nest site. Nest check confirmed three eggs.
- 5/8/2008 A three egg nest was exclosed.
- 5/10/2008 A nest check confirmed a four egg nest.
- 5/11/2008 No observation took place due to very high winds and rain.
- 5/12/2008 No observation took place due to high winds and sound flooding.
- 5/13/2008 High winds continued today but incubation at Nest 2 was observed.
- 5/14/2008 Incubation observed. Water from last night's tide was around the exclosure, but the nest was not affected.

5/15/2008 Incubation observed. A crow flew over the nest.

5/17/2008 Incubation observed. Three crows flew over the nest.

5/18/2008 Incubation observed.

5/21/2008 Incubation observed. Nest check confirmed 4 eggs. No signs of predators.

5/23/2008 Incubation observed.

5/24/2008 Incubation observed.

5/25/2008 Incubation observed.

5/26/2008 The male was observed incubating.

5/27/2008 Incubation observed. Two PIPLs were seen having a territorial dispute in the flats in front of Nest 2. One PIPL was peeping in the flats by the "NO PET" sign, possibly the mate from Pair 2. Nest was checked.

5/28/2008 Incubation and nest exchange observed. Rain and low visibility during the afternoon observations.

5/29/2008 Incubation observed.

5/30/2008 Incubation and nest exchange observed. During the afternoon observation, the female was standing in flats, east of nest, likely due to a WIPL standing on the dune 15 meters away. After 10 minutes she returned to the nest to incubate. The female started peeping at the WIPL when it returned to the same dune.

5/31/2008 Incubation and nest exchange observed. One PIPL was on and off the nest due to a crow and another PIPL was preening in the flats.

6/1/2008 Incubation observed. In the afternoon both birds were present.

6/2/2008 Incubation and nest exchange observed. Crows flying overhead bumped the incubating bird off the nest several times in the morning. Nest checked and no sign of pipped eggs.

6/3/2008 Incubation and nest exchange observed.

6/4/2008 Incubation observed.

6/5/2008 Incubation and nest exchange was observed. A crow was observed being chased by a PIPL and a red-winged blackbird. At Nest 2 and 3 a plover intruder was seen in territorial dispute with both nesting pairs.

6/6/2008 Incubation was disrupted by a fish crow and snowy plover. The crow was observed ~5 m from Nest 2 being chased by a PIPL. A snowy plover flew into the dunes, behind the nest. A third PIPL was observed disrupting Pair 2. Based on behavior and characteristics, this is probably the same plover intruder that was observed yesterday morning. During the afternoon, the female was restless, getting up off nest and then returning several times. At 1737 the first chick was observed peeking out from under the female. The chick was observed foraging outside of the nest and then returning. When the female was bumped off the nest by gull, a second chick was seen still in the nest. The monitor left the area at 1930 with the female brooding both chicks.

6/7/2008 During the morning observations, the brood of three chicks moved south from the nest site to just east of the main dunes. They eventually turned the corner and moved toward the sound side. One egg remained in the nest. In the afternoon the brood was foraging on the sound side. Four adults were seen throughout the afternoon. The female brooded the chicks almost every half-hour. Both adults chased other PIPLs, sandpipers, and ghost crabs away from chicks.

- 6/8/2008 During the morning observation, three chicks and the brood adults were observed foraging in the flats south of the dune. Conditions were extremely hot with no wind, and mid-tide. During the afternoon observation, the brood was foraging along the sound side mudflats and east to the tip of the main dune. The brood was disturbed by a crow, ghost crabs, and a large snake. Chick brooding was not observed until later in the evening as it cooled down. A boat and two people were inside the closure on the north mudflat near the large "No Landing" sign.
- 6/9/2008 The brood was moving between the tidal flats on the sound side and the sand flats south of the main dune line. In the afternoon, the brood foraged along the dune line and the sound side shoreline, resting periodically.
- 6/10/2008 The brood adults and chicks foraged from the mudflats, along the dune line, to the sound side shoreline. The brood adults were together with the chicks for some of the time but also switched off tending after the chicks while the other foraged separately. The brood adults chased laughing gulls, a gull-billed tern and other shorebirds (including one PIPL) away from the chicks.
- 6/11/2008 The brood was spread out while foraging between the sound side mudflats and the edge of the southwest dune line. They were disturbed by a crow on two occasions.
- 6/12/2008 The chicks are getting more independent and expanding their foraging area. They were observed foraging south of the dune point and north of the dunes on the sound side shoreline at low tide. At high tide they foraged in the flats near the dunes. There was lots of boat traffic in the channel in the evening. The brood was disturbed by an AMOY, a crow, a grackle, and a gull-billed tern.
- 6/13/2008 The brood was observed foraging in the open area, south of the dunes. They then moved to the mudflats in the cove. They were disturbed by grackles and gull-billed terns. Two additional PIPL were fighting with the brood adults. Two kayakers landed in the brood area and displaced the brood.
- 6/14/2008 The brood is nine days old and very active. The brood was in the usual area, foraging between the dunes and the mudflat. During high tide they moved to the sand flats. They were disturbed and displaced by grackles. Brood adults chased off a third PIPL.
- 6/15/2008 The brood was observed between the mudflat and the dune flats. They were disturbed by grackles, PIPLs, a crab and a boat.
- 6/16/2008 The female was with the brood, foraging by the dunes for most of the morning. The female left the chicks unattended for about 30 minutes, during which time a LETE swooped down on the chicks but left them unharmed. The female returned and took the chicks to forage on the sound shoreline with the male. During the afternoon observation the brood was not observed due to windy weather conditions and poor visibility.
- 6/17/2008 During the morning observation the brood adults and three chicks were originally seen in the flats near the LETE colony, but then spent the rest of the time in the cove near the sound. In the afternoon the brood was foraging on the sound side shoreline. The male stayed on the shoreline and the female and brood foraged in front of the dunes. Afternoon observation ended early due to lightning.
- 6/18/2008 During the morning, the female and chicks were foraging in the mudflats south of the dune point and continued moving north to the dunes. The female and brood

- foraging by the dunes while the male foraged by the shoreline. During the afternoon, the brood was alarmed and moving east from the mid dunes where they are typically seen. They were peeping and moving quickly toward the east of the tip of the dunes, toward a LETE colony, and then slowly returned to the usual brood area on the flats and dunes.
- 6/19/2008 During the morning, the brood adults and chicks were observed fighting with two other PIPLs. The brood foraged in a sound side flat south of the usual area, then moved farther south to the northeast corner of the twin dunes. In the early evening, the female and male were observed resting in the dunes while the brood foraged along the dune line.
- 6/20/2008 In the morning the brood was foraging south in the central big flats, near the small dune (east of the twin dunes). A total of six adults were fighting in a territorial dispute, in which the pairs were presumed to be from Brood 2, Brood 3 and a pair that was scraping in that area. The brood then moved back north to the usual location, near the main dunes. In the afternoon the female and brood were foraging on the sound shoreline north of the dunes.
- 6/21/2008 In the morning the brood was in the central big flats, brooding and resting near the small dunelet east of the twin dunes. A total of five adults were in a territorial dispute at that location, but the brood did not move. During the afternoon the brood was foraging in the usual spot on the tidal flats on the sound side. Territorial behaviors (parallel runs, horizontal threat display) were seen on the flats, just north of the area where the brood was foraging. The brood began moving south as the tide moved in. Some fishermen pulled up in a boat near some carsonite posts but eventually moved on.
- 6/22/2008 Brood was observed in the center of the big flats to the northeast of the white buoy dune. One chick was flapping its wings. In the early evening the brood was observed on the mudflat in the cove, in the usual area. A total of seven adult PIPL were foraging on the mudflat and sandbar to the north. Then, five of them started fighting. Following a feeding frenzy of laughing gulls at the water's edge, all the PIPLs vanished and the brood ran into the dune vegetation and preened.
- 6/23/2008 In the morning the brood was in the big flats northeast of the white buoy dune. Chicks were attacked by a LETE. Brooding was disturbed by an incoming PIPL, after which they quickly moved north to the usual location northwest of the main dune tip. In the afternoon one or two brood adults and all three chicks were foraging on the mudflat, between the cove and the sound. One chick was often away from the rest, by about 50 feet. Another chick flapped its wings once. A minor territorial battle occurred with another PIPL, but ended immediately with it flying away.
- 6/24/2008 In the morning the brood was in the central flats, moving towards the small dune with the white buoy. A territorial dispute occurred with a PIPL that was in the area. In the afternoon the brood was foraging in the cove near the end of the main dune. Two laughing gulls landed near the chicks and were chased away by the adult.
- 6/25/2008 In the morning the brood was foraging in the cove at low tide. The male chased off a crow, but otherwise stayed with chicks foraging on the shoreline. The female was foraging farther north on the sound side shoreline. In the afternoon

	the brood adults and three chicks were foraging on the sound side, at the end of the vegetated dunes and then moved to the cove. The adults chased away a grackle and another PIPL.
6/26/2008	The female and chicks were observed foraging in the cove at low tide. The male joined the brood and the female moved to the dunes.
6/27/2008	The brood was seen along the shoreline foraging with adults.
6/28/2008	In the morning the brood was in the area of the cove on the sound side of the dunes, foraging. In the afternoon the brood was foraging in the usual location on the tidal flats on the southwest side of the dunes. At end of the observation, the brood and adults were roosting in the high tide line.
6/29/2008	In the morning the brood and brood adults were seen foraging in the tidal flats on the sound side. In the early afternoon the brood and brood adults were by the small Salt Pond at the base of the dunes. In the afternoon the brood was foraging and roosting further north on the tidal flats while three adults engaged in parallel runs and horizontal threat displays.
6/30/2008	In the morning the brood and brood adults were observed foraging on the tidal flats on the sound side. There were what looked like, a few attempts at flying (but none of the chicks made it into the air). The female chased away two gulls.
7/1/2008	The brood and brood adults were observed foraging on the sound shoreline west of the dunes. At one point the entire brood moved abruptly into the dunes for unknown reasons. A few minutes later the brood returned to the shoreline and continued to forage.
7/2/2008	The brood was foraging in the cove on the sound side shoreline. The chicks were spooked twice by gulls and ran to the dunes, but never attempted flying.
7/3/2008	In the morning the brood was foraging in the usual location in the cove with the brood adults present. The brood gradually moved towards the tidal flats, south of the dunes. In the afternoon the brood and brood adults were foraging at the water's edge and in the cove throughout the afternoon. In the early evening they moved to the end of the large dune.
7/4/2008	The brood was foraging with both adults on the sound side. The female chased off four PIPLs that were flying past the brood. The chicks flew about 50 meters from the middle of the flats to the sound side and back, where they continued to forage.

### **Nest/Brood 3, Pair 3**

#### **South Ocracoke**

5/10/2008	The northern portion of the pre-nesting closure was surveyed and a nest with one egg was found.
5/11/2008	No observation occurred today due to high winds.
5/12/2008	No observation occurred today due to high winds.
5/13/2008	High winds continued today but the nest was checked and had two eggs.
5/14/2008	A bird was on the nest, shell tossing. The water from last night's high tide came through the nest area but the nest was not affected.
5/15/2008	The nest was checked and still contained two eggs.
5/17/2008	The nest was checked and the scrape appeared fresh and cleaned out after last night's rain. Nest still contains only two eggs.

5/18/2008 The northern portion of the pre-nesting closure was surveyed. High winds made observation difficult, but five to seven PIPL were observed near Nest 3 exhibiting territorial displays. Nest still contains only two eggs.

5/21/2008 Incubation and nest exchange observed. Nest still with two eggs.

5/22/2008 Incubation observed.

5/23/2008 Incubation observed.

5/24/2008 The incubating adult chased off three crows by peeping and flying at them. The crows dispersed and the adult returned to the nest.

5/27/2008 Incubation observed. Nest still with two eggs. No predator tracks near the nest site.

5/28/2008 Incubation observed.

5/29/2008 Incubation observed.

5/30/2008 Incubation observed.

5/31/2008 Incubating observed. Male appeared very skittish.

6/1/2008 Incubation observed.

6/2/2008 Incubation observed.

6/3/2008 Incubation observed. Nest checked.

6/4/2008 Incubation observed.

6/5/2008 A brief observation found adults from Nest 2 and Nest 3, and one other adult PIPL in a territorial dispute.

6/6/2008 Incubation observed.

6/7/2008 An adult was observed shading the nest. A WIPL was seen running from the dunes, north of Nest 3.

6/8/2008 Incubation observed. The conditions were extremely hot with no wind.

6/9/2008 Incubation observed. The conditions were more comfortable than yesterday with five to ten mph wind, 85 degrees, and sunny.

6/10/2008 Incubation observed. Birds seemed skittish. Nest check confirmed two eggs still in the nest.

6/11/2008 Incubation observed. The female was observed chasing off several crabs. Nest check confirmed two eggs still in the nest. Ghost crab tracks at the exclosure and several holes in the area.

6/12/2008 Incubation observed. The incubating female frequently repositioned herself and was shell tossing.

6/13/2008 One chick hatched and mostly stayed under the brooding female. One egg remained in the nest. The male was seen performing an aerial display.

6/14/2008 The brood is two days old and only one chick has been seen. The adults do not appear to be tending the nest, which is out of sight from the observer's viewing location. The single chick stayed in the flat, open area between the dunes immediately north of the nest site. The adult brooded the chick during the cool of the morning and shaded it during the heat of the day. A ghost crab was attacked and chased by the brood adults. Adults foraging on the ocean shoreline as well as on the sound side. The chick foraged near the nesting site but would disappear out of sight on numerous occasions. In the late afternoon one adult was observed brooding the chick and the other was roosting nearby.



- 6/15/2008 In the morning, the chick moved between the flats to the north of the nest, and then north to the second blowout where one of the adults interacted with a snowy plover.
- 6/16/2008 The brood adults and chick were observed foraging on the oceanside of the dune and in the flats, south of the dunes. Later in the observation they were foraging south of the dunes and heading toward the sound shoreline. Another PIPL chased the chick and adults further south in the flats.
- 6/17/2008 Both adults were observed foraging south in the mudflats, halfway between the dunes and the twin dunes. The visibility was poor due to heat waves and the observation ended early due to a thunderstorm.
- 6/18/2008 The adults and the chick were observed foraging on the sound side shoreline west of the twin dunes. The chick was brooded a lot during the cool of the evening. Only one adult was seen tending the chick; the other adult was preening at a distance.
- 6/19/2008 The brood adults participated in a territorial dispute. Brood 3 was foraging northwest of the twin dunes and Brood 2 moved south. A total of six adult PIPLs were fighting. In the afternoon the male was observed foraging on the sound side shoreline, west of the twin dunes. The female and the single chick from Brood 3 were hiding behind the twin dunes. They repeatedly walked toward the sound to forage and then went back to their hiding place behind the twin dunes.
- 6/20/2008 The territorial dispute continued. A total of six adults were fighting east of the twin dunes and included Brood 2 and Brood 3 adults, and a pair that was scraping. The chick from Brood 3 was not observed. Visibility was reduced by smoke and heat waves.
- 6/21/2008 The territorial dispute continued. A total of five adults were fighting near the white buoy again today. Although there were single and paired PIPL sightings, no chick was seen during the search. The monitor was unable to confirm Brood 3 adults since the chick was not found. The entire sound side shoreline from cove to spit, and big flats from colony dunes and twin dunes to the main dune were searched for the missing chick.
- 6/22/2008 The chick was not located. The monitors scanned and walked all the big flats along the sound side and the main dunes. Four adults were observed fighting near Nest 3. Territorial disputes possibly indicate re-nesting efforts, but Pair 3's identity cannot be confirmed.
- 6/23/2008 Due to thunderstorms and heavy rain throughout the morning, a search for the missing chick was cancelled.
- 6/24/2008 The area surrounding the old nest and the scrape near the enclosure looks maintained following yesterdays rains. The chick is presumed dead.

#### **Nest/Brood 4, Pair 4**

##### **Cape Point**

- 5/12/2008 The Cape Point closure was surveyed and a three-egg nest was found. One PIPL was doing a broken wing display near the nest.
- 5/14/2008 The nest was exclosed as a three-egg nest. Incubation was observed after the exclosure was installed.

5/19/2008 Incubation observed. An adult male, most likely the male from Nest 4, performed an aerial display over Nests 1 and 4.

5/21/2008 Incubation observed.

5/22/2008 Incubation observed.

5/23/2008 Incubation observed.

5/24/2008 Incubation observed. The incubating female chased off a grackle and a least sandpiper.

5/25/2008 Incubation observed. Nest was checked.

5/26/2008 Incubation observed. Nest was checked.

5/27/2008 Incubation observed. A nest check confirmed three eggs with no sign of starring.

5/28/2008 Incubation observed. A nest check confirmed three eggs with no sign of starring.

5/29/2008 Incubation observed.

5/30/2008 The female was on and off the nest throughout the observation period.

5/31/2008 Incubation observed. The female was seen incubating, arranging shells at the nest and foraging. The incubating bird sat tight during strong winds.

6/1/2008 Incubation observed. Nest was checked.

6/2/2008 Incubation observed.

6/3/2008 The female was on and off the nest. The nest contained 3 eggs in the morning. In the early evening, the incubating bird was adjusting its position and opening its wings. Two chicks were observed. Egg shell removal from the nest cup was observed.

6/4/2008 In the morning three chicks were seen and both adults were present. The brood moved from the nest enclosure to the base of the primary dune, near marker H. The chicks alternated between foraging and being brooded by the adults. The adults brooded the chicks; one chick more so then the other two. All five birds foraged in the flats of the ephemeral pool between markers G and H. This was the last time the third chick was observed.

6/5/2008 In the morning the chicks and two adults were present near marker H. The birds disappeared for almost two hours behind a dune before emerging to forage. The female flew east, towards the small Salt Pond. The male and two chicks continued foraging. The third chick was not observed. The male was seen brooding one chick. In the afternoon, both adults and two chicks were seen foraging between markers H and G. The adult male charged a ghost crab. A PIPL (probably the male from Pair 1) approached the brood four times and was chased away by the Pair 4 male each time. The two chicks were being brooded when observations ended.

6/6/2008 In the morning one adult and one chick were seen between markers G and H. The second chick soon joined them. One chick remained foraging while the other chick and one adult roosted at the vegetation line. The chick and female adult returned to forage while the male chased ghost crabs. In the afternoon the adults from Brood 4 were defending their territory. A general fight among five PIPLs occurred at the mouth of the small Salt Pond. It was believed to be the adults from Pair 4 and 5 and possibly a bird from Nest 9. At the end of the observation the males did threat display, runs, and erect postures. In the late afternoon, five adults and two chicks were seen foraging at the mouth of small Salt Pond near marker B. Both adults were seen with the chicks. The male was foraging with



the chicks; the female was foraging about 150 feet from the group. The chicks were occasionally left alone while the male chased off other PIPLs and least sandpipers. At the close of the observation four adults and two chicks were foraging.

- 6/7/2008 In the morning the brood and brood adults foraged mostly in the area along the isolated dune ridge, south of the mouth of the small Salt Pond. Several disputes between Pair 4 and another pair were observed. Many parallel runs were observed all the way southeast to marker B. The adults were aggressive and chased away least sandpipers and gulls that came too close to the brood. In the early afternoon one adult and two chicks were seen foraging north, between markers B and C, on the east side of the dune ridge. The brood moved slightly north to the area of dark sand near driftwood in the small Salt Pond outflow. Another adult was foraging further north near the outflow dune break. In the early evening Pair 4 and their brood foraged primarily along the isolated dune ridge south of the mouth of the small Salt Pond, but made several attempts to move their brood closer to the mouth. These attempts were always met with resistance from another pair of PIPLs. When the observations ended, Pair 4 was in their regular foraging area.
- 6/8/2008 In the morning an adult and two chicks were foraging in the ephemeral pool just south of the mouth of the small Salt Pond. At 1030 three males were seen performing horizontal threat displays and parallel runs. The brood adults continue to occasionally brood the chicks. In the afternoon the adult and two chicks were foraging in their usual spot. The adult was seen shading the chicks, and chasing sanderlings and gulls away from the area. In the early evening the two chicks were foraging while the adult was chasing sanderlings from the area. The brood ran into the dunes at 1820. In the early evening the adults roosted while the chicks continued to forage. Alarm calls occurred when a gull walked nearby at 1930.
- 6/9/2008 The brood was foraging in the same location - the ephemeral pools south of mouth of the small Salt Pond. The female brooded/shaded the chicks during the last hour and a half of the observation. In the afternoon the adults and chicks were foraging and brooding in the same location, south of the mouth of the small Salt Pond. Throughout the afternoon, the adults chased away other PIPLs and a sanderling. At the end of the observation both chicks and both adults were present.
- 6/10/2008 In the morning one adult and two chicks were present. The chicks alternated between foraging and being brooded. The chicks continued to forage when the adult chased off multiple sanderlings. Toward the end of the morning observations both adults were present and horizontal threats and fighting occurred with another PIPL pair. In the afternoon the female adult brooded the chicks for ~ 2 hours. The female did an exchange with the male and the chicks began to forage near the mid-shore dunes. With both parents present, brooding and foraging continued closer to the mouth of the small Salt Pond.
- 6/11/2008 In the morning the brood and both adults were present and alternated between foraging and brooding. An adult performed a horizontal threat towards a sanderling. The brood adult left the chicks to defend their territory. After

performing parallel runs, the other pair flew away. In the afternoon, the two chicks used a small sea rocket tuft on the northeast side of the mid-shore dunes as a shelter and somewhat of a home base. One adult was always present when the chicks were seeking shade inside the vegetation. The chicks continued to forage between the B and C markers in the sand flats while the adults had multiple conflicts with Pair 5, with periods of intense, but brief, fighting. In the early evening the brood was foraging in their usual location. Other plovers were still in the area, but no fighting was observed. At the end of the observation the chicks were taking turns being brooded.

- 6/12/2008 Initially the chicks could not be located but both adults were present, one was performing an aerial display. Later in the observation both chicks and adults were observed foraging. In the late afternoon the brood and one adult was seen foraging near the Nest 9 enclosure. Brooding was observed in the early evening.
- 6/13/2008 In the morning the brood and one adult were seen foraging near the mid-shore dunes in the same location as previous days. Three other adults were seen foraging in the area. In the afternoon the brood and one adult were at the north end of the spur dune, south of the mouth of the small Salt Pond. The birds were in and out of a sea rocket bush, which made them difficult to see. The brood was also foraging in the dune ridge while one adult performed an aerial display south of marker A. At the end of the daily observations, the chicks and an adult were foraging in the regular flats
- 6/14/2008 In the morning the brood was foraging in their usual spot between markers B and C. They also foraged at the flats on the south side of the mid-shore dune, likewise between markers B and C. The male was performing aerial displays for minutes at a time calling rapidly. He was observed chasing other PIPLs, vultures, and AMOYs. The female was near the brood almost all morning. In the afternoon the brood was out of view throughout much of the hottest part of the day. The monitor caught glimpses of them among the vegetation on the dune ridge, south of the mouth of the small Salt Pond. One or both of the chicks would come out on the flats to forage for only a few minutes at a time. Pair 4 adults roosted in or near vegetation while the day was hot. The brood adults also performed aerial displays and disputed with a pair that was defending a territory to the southeast of theirs. In the early evening both chicks emerged onto the flats and foraged for the remainder of the observation.
- 6/15/2008 In the morning the brood was foraging in their usual location. At 1107 the adult and two chicks were near Nest 9 and an altercation with Pair 1 occurred. As a result, the brood moved north into the mouth of the small Salt Pond. In the afternoon one to three adults were present foraging with the brood and defending the territory. In the early evening the brood was foraging and being brooded at mouth of the small Salt Pond. At least one adult was present the whole time, and often both adults were present. When another PIPL landed nearby, the brood adults chased it away.
- 6/16/2008 Throughout the day the adults and brood were foraging at the mouth of the small Salt Pond.
- 6/17/2008 In the morning one adult and the chicks were between the ocean and the mouth of the small Salt Pond when the monitor arrived, but they immediately returned to

the mouth of the small Salt Pond. Both adults and the two chicks foraged there for the rest of the morning. In the afternoon the brood was using a different sea rocket bush as a home base, on the western edge of the small Salt Pond drainage mouth. Both adults were present for the majority of the day, with at least one present at all times. The brood was foraging at the western edge of the drainage as well as the southwest shoreline. The brood was starting to venture farther away from the adults and is also starting to develop more mature plumage in their primaries and secondaries.

- 6/18/2008 The brood was foraging at the mouth of the small Salt Pond while the adults spent a good portion of the morning fighting with Pair 5, nearby. In the early evening the brood was foraging and being brooded on the west side of the mouth of the small Salt Pond. The adults were engaged in several parallel runs with Pair 5.
- 6/19/2008 In the morning the chicks were foraging from the mouth of the small Salt Pond to the Nest 9 enclosure. In the afternoon the brood and adults were roosting and foraging among some small sea rocket bushes in the raised area between markers E and F. The chicks attempted to be brooded, but were often denied. The chicks were beginning to use their wings when trying to run fast. There appeared to be some territorial conflicts between the Pair 4 and Pair 9 adults, but nothing serious or prolonged. The chicks are now going beyond 40 meters from the closest adult.
- 6/20/2008 In the morning the brood was foraging and moving along the west side of the mouth of the small Salt Pond. Pair 4 often engaged in territorial disputes with Pair 5 to the east and Pair 1 to the west. One chick was observed preening. In the afternoon both chicks were foraging in the flats to the west of the mouth of the small Salt Pond. At 1515, an adult male from Brood 5 attacked one of the Brood 4 chicks. He was chased off by both Brood 4 adults. Parallel runs, aerial flight displays, and chases were observed. From 1800-1953, the brood was observed foraging and brooding in the sea rocket near marker E. In the evening, the female moved the chicks back over to the mouth of small Salt Pond. The female from Nest 9 got off the nest, but made no territorial move towards the chicks or adult.
- 6/21/2008 In the morning the brood and one adult were foraging at mouth of the small Salt Pond. At 0821 a crow was in the area; the PIPL in the small Salt Pond began calling and brood running as the crow flew over. The birds continued southwest into patches of sea rocket and out of sight. At 0940 the brood returned to the mouth of the small Salt Pond, passing by and skirmishing with a bird from Nest 9 briefly. In the afternoon only the male from Pair 4 was observed. Both chicks were foraging between the mouth of the small Salt Pond and marker E.
- 6/22/2008 In the morning the brood was observed foraging and moving between the mouth of the small Salt Pond and the dunes in that area. The brood chased off another adult on two separate occasions from the mouth of the small Salt Pond. In the afternoon the brood was foraging and seeking shade in the dunes near the mouth of the small Salt Pond. Most of the time only one adult was present. In the early evening one adult and two chicks were foraging at water's edge near the mouth of the small Salt Pond.
- 6/23/2008 In the morning the brood was foraging between the mouth of the small Salt Pond and the dry ephemeral pools southwest of the mouth. In the afternoon the brood

- was foraging with one or two adults, generally at the waterline at the mouth of the small Salt Pond.
- 6/24/2008 In the morning the adult female and two chicks were foraging at the mouth of the small Salt Pond, slightly south of the mouth, and near the vegetation line on the western margin of mouth. The adult made alarm calls because some egrets were very close.
- 6/25/2008 In the morning Pair 4 was engaged in a parallel run with an unknown PIPL pair near the I marker. All four adults disappeared into the dunes. The brood was in view for a short period of time before heading south behind a dune ridge. The area where the brood was seen was scoped from the ocean and then walked, but the pair and brood could not be located. In the afternoon the brood and both adults were foraging back and forth between post E and the mouth of the small Salt Pond. The adults had many conflicts with other pairs throughout the day.
- 6/26/2008 In the morning the brood was foraging at the mouth of the small Salt Pond with an adult nearby. The brood made one small journey west during which time many vocalizations were heard. In the afternoon the brood was foraging at the entrance of small Salt Pond with both adults. At 1608 the brood disappeared out of view. At 1820 the brood returned to foraging at the entrance of small Salt Pond. There were territorial displays, parallel runs, and horizontal threats.
- 6/27/2008 In the morning the brood was foraging around the mouth of the small Salt Pond and to the west side of the small Salt Pond at the waters edge. In the afternoon both chicks and one or two adults were foraging at the mouth of the small Salt Pond, in flats to the south of the mouth, or in the dune margins on the east side of the mouth of the small Salt Pond. At 1450 Pair 4 and another pair of birds had short territorial conflict involving alarm calls and short runs, and horizontal threat displays.
- 6/28/2008 In the morning the brood was foraging at the mouth of the small Salt Pond with one or more adults. At 1127 the adult was heard and seen alarm calling, false brooding and leading a gull away from the chicks. The brood left the mouth of the small Salt Pond towards the flats and far dunes. When the second adult joined them again, an adult from Nest 9 became territorial, doing horizontal threat displays and some parallel runs. In the afternoon both adults and the brood were foraging at the mouth of the small Salt Pond or just southeast of the mouth in the dune line.
- 6/29/2008 In the morning the brood was foraging at the mouth of the small Salt Pond. At 0828 the adult engaged in a territorial dispute with another adult. The brood was observed foraging on the west side of the small Salt Pond near the water and in the dunes next to the Nest 5 enclosure. At 1055 one adult and one chick were foraging along the dune line. The adult started peeping, and then they both ran into the dunes, and were not seen again for the remainder of the morning. In the afternoon one chick was seen foraging alone at the mouth of the small Salt Pond where it was soon joined by the adult male. Both chicks were then observed foraging in the area of the Nest 5 enclosure near the dune line.
- 6/30/2008 Throughout the day the brood and both adults foraged all over the small Salt Pond area. Both chicks attempted short flights but did not fly higher than a couple of

feet. Flight occurred twice in response to a territorial adult, once to avoid a gull, and several times just to move locations.

7/1/2008 The brood was foraging close to the mouth of the small Salt Pond. Short skirmishes occurred between the adults from Brood 4 and 5. The chicks were stretching their wings and preening. The chicks also moved freely along the water's edge in the presence of the gulls. At 1015 both chicks flew more than 15 meters when they were startled by a heron flying over them. They are now considered fledged.

### **Nest/Brood 5, Pair 5**

#### **Cape Point**

5/12/2008 A one-egg nest was found.

5/17/2008 Two PIPLs were seen foraging near the nest this morning. A nest check confirmed a total of three eggs in the nest.

5/18/2008 Predator exclosure was installed. Incubation and nest exchange was observed after the exclosure was installed. At 1930 no PIPLs were seen on the nest or in the area.

5/19/2008 Incubation observed.

5/21/2008 Incubation observed.

5/22/2008 Incubation observed.

5/23/2008 Incubation observed.

5/24/2008 Incubation and nest exchange was observed.

5/25/2008 Incubation observed. A short aerial display near marker E occurred at 1840.

5/26/2008 Nest was checked. Incubation resumed one hour after the nest was inspected.

5/27/2008 No bird on the nest at 1015.

5/29/2008 Incubation observed.

5/30/2008 No bird was on the nest at 0930.

6/2/2008 Incubation observed. Nest was checked.

6/3/2008 Incubation observed.

6/4/2008 Incubation observed. PIPLs were skirmishing at the mouth of the small Salt Pond.

6/5/2008 Incubation observed.

6/6/2008 Incubation observed.

6/7/2008 Incubation and nest exchange was observed. Nest check confirmed 3 eggs.

6/8/2008 Incubation observed.

6/9/2008 Incubation and nest exchange observed.

6/10/2008 Incubation observed. Nest was checked and there were no signs of starrng.

6/11/2008 Incubation observed. Nest was checked and there were no signs of starrng.

6/12/2008 Incubation observed. Nest was checked and no signs of starrng. No bird on the nest at 1835.

6/13/2008 Incubation observed. Nest was checked and no signs of starrng.

6/14/2008 Incubation observed. Aerial displays were observed near the nest. The incubating bird was agitated due to the grackles in a sea rocket bush nearby. In the afternoon Nest 5 and 9 adults were incubating and disputing with each other and Brood 4 adults were at the mouth of the small Salt Pond. Two more pairs were



- present, and most often were observed foraging at the north and east ends of the small Salt Pond. Almost constant territorial/aggressive/alarm calls were heard.
- 6/15/2008 Incubation observed. Nest was checked and no signs of starrng.
- 6/16/2008 In the morning a single chick was visible at the nest. Nest exchanges were observed during the morning observation period. The female was observed removing an egg shell. In the afternoon two chicks were foraging in the exclosure and one adult remained on the nest. In the evening both adults and three chicks were foraging and brooding outside of the exclosure toward the mouth of the small Salt Pond.
- 6/17/2008 In the morning the chicks were foraging and being brooded. Most of the time only one adult was present. They were located about 40 feet northwest of their exclosure, toward the mouth of the small Salt Pond. In the afternoon the brood was not seen in its entirety until 1500, when they were seen using the east side of the small Salt Pond drainage to forage. The parents were nearby and for the rest of the afternoon they would brood the chicks in-between foraging sessions. All the chicks appear healthy.
- 6/18/2008 In the morning all three chicks were observed however in the afternoon only two chicks were observed. The chicks spent the morning foraging and being brooded in the area between their nest and the mouth of the small Salt Pond. Brood 5 adults left the chicks often to fight the adults from Brood 4 for territory at the mouth of the small Salt Pond.
- 6/19/2008 In the morning the brood was foraging between their exclosure and the mouth of the small Salt Pond. At 1028 a laughing gull swooped down and was chased off by an adult PIPL. In the afternoon the brood was still using the east side of the small Salt Pond drainage, very close to their nest site. The female was often observed brooding the chicks near the nesting site. She would often get up and move away swiftly, only to be followed by the brood. Towards the end of the observation the brood was seen foraging roughly 30 meters southeast of the small Salt Pond water line.
- 6/20/2008 In the morning the brood foraged between the east side of the mouth of small Salt Pond and the flats beside Nest 5. The adults disputed territory with Brood 4 adults and Nest 9 adults in the middle of the mouth and south into the flats. The adults also chased away a gull-billed tern and attempted to lead away a greater black-backed gull. In the afternoon one chick was seen at the start of the observation and then it disappeared underneath some sea rocket to the left of the exclosure. One adult soon appeared and entered the sea rocket area. Three adults (male from Nest 9, and both adults from Pair 5) and two chicks were seen foraging at the mouth of the small Salt Pond. At 1515, an adult from Brood 5 attacked one of the chicks from Brood 4 and was soon chased off by the Brood 4 adults. Parallel runs, aerial flight displays, and chases were seen throughout the observation from the three adults. The female was observed brooding one chick while another chick foraged nearby. The brood was seen near Nest 5 for most of the observation period.
- 6/21/2008 In the morning an adult and two chicks were foraging just south of the mouth of the small Salt Pond, at the mouth of the small Salt Pond and on the east side of the mouth of the small Salt Pond. A crow in the area resulted in PIPL alarm calls and



- the chicks moving to cover. An adult from Brood 5 chased another PIPL south, making a threat display. The brood watched a gull walk through area but otherwise continued foraging. In the afternoon the brood moved to the north end of small Salt Pond flat and foraged. Many disputes between Brood 5 adults and other PIPL foraging on small Salt Pond were observed. Brood 5 adults also chased a whimbrel, a willet, a black-bellied plover, and a gull-billed tern.
- 6/22/2008 The brood was seen foraging at the east side of small Salt Pond. The chicks were observed stretching their wings and running. In the afternoon the chicks were foraging and being brooded on the east side of the small Salt Pond. One or two adults were always present, occasionally chasing other birds away including laughing gulls, ruddy turnstones, and grackles. In the evening one adult and two chicks were observed foraging and being brooded on the east side of the small Salt Pond near a grassy mound
- 6/23/2008 In the morning the chicks were being brooded by the female near the southeast corner of the small Salt Pond. Rain started around 0900. In the afternoon the chicks and the female were foraging along the eastern sand flats of the small Salt Pond, occasionally making alarm calls when gulls flew over. The female brooded the chicks for short periods during periods of rain and strong wind.
- 6/24/2008 In the morning an adult and two chicks were foraging in the southeast corner of the small Salt Pond. Throughout the observation, the adult made alarm calls when grackles, other PIPL and killdeer were nearby. Later in the observation two adults and two chicks foraged near small vegetated small dune in small Salt Pond. In the afternoon the brood was mostly on the eastern edge of the mouth of the small Salt Pond. The brood would alternate between foraging and being brooded.
- 6/25/2008 In the morning the brood and brood adults were foraging along the eastern edge of the small Salt Pond. The adults peeped frequently at grackles foraging nearby, but the brood did not appear to be disturbed. In the afternoon one or two adults and two chicks were foraging and brooding to the east of the mouth of the small Salt Pond.
- 6/26/2008 The brood moved near the vegetated island in the small Salt Pond area to forage. An adult was sometimes very far from the brood. In the afternoon two chicks and one adult were foraging inside the small Salt Pond at the northeast corner, near the bypass road.
- 6/27/2008 In the morning the two chicks and one adult were foraging on the east side of the small Salt Pond; moving to the waters edge. In the afternoon two chicks and one adult were generally foraging in the southeast corner of the small Salt Pond. Up to five other PIPL were seen foraging in the area, with abundant short runs and flights to maintain their preferred foraging sites.
- 6/28/2008 In the morning two chicks and one adult were foraging on the east side of the small Salt Pond. Two adult willets and one willet chick were foraging very near Brood 5. The other adult from Brood 5 arrived and shortly thereafter began fighting with the willet. One of the Brood 5 adults attacked the willet chick and then was attacked by a willet adult. Both Brood 5 adults then attacked the willet. It appeared that the adults were trying to keep the willet away from the chicks. They were false brooding and doing a broken wing display. The fighting stopped when the brood and one adult moved closer to the water to forage, away from the

- willet chick. In the early evening the brood was seen with both adults. They were foraging with the female at the southeast corner of the small Salt Pond while the male was chasing/being chased by the willet. The willet was protecting its chick, which was very near the PIPL brood. The willet and chick eventually left the area. No brooding observed.
- 6/29/2008 Throughout the day one adult and two chicks were foraging on the east side of the small Salt Pond. The chicks foraged and roosted and wandered far from the adult. When the willet and willet chick returned to the area the adult PIPL chased the chick away. In the afternoon the female was foraging and roosting in the area while the male chased a gull out of the area. In the late afternoon the chicks foraged near the grass edge at the small Salt Pond. The adult female was nearby. The willet chick and adult were in the area, but no confrontation occurred.
- 6/30/2008 Throughout the day one adult (sometimes two) and the brood were foraging on the east side of the small Salt Pond. When two laughing gulls flew over head, the chicks ran into the bushes and the adults chased the gulls off.
- 7/1/2008 In the morning the brood and at least one adult were foraging on the eastern side of the small Salt Pond. Brief skirmishes between Brood 4 and 5 adults occurred. In the afternoon the brood was seen along the eastern edge of the pond and moved to the southeastern nook in the evening, foraging at times in close proximity to Brood 4. No conflicts arose between the chicks; however the adults were seen scrapping a few times.
- 7/2/2008 In the morning the brood was foraging and resting in the shade to the east of the mouth of the small Salt Pond. One of the adults did an aerial display once. In the afternoon the brood and one adult were foraging and roosting inside the small Salt Pond in the usual location.
- 7/3/2008 In the morning the brood was foraging on east side of the small Salt Pond. In the afternoon and early evening one adult and the brood were foraging on the east side of small Salt Pond, near the water.
- 7/4/2008 In the morning the brood and brood adults were foraging by the brush/grass island in the middle of the small Salt Pond flats. In the afternoon and early evening the brood was foraging in small Salt Pond from the east side to the waters edge.
- 7/5/2008 In the morning the brood and one adult were foraging on the east side of the small Salt Pond. At one point the brood was roosting in the shade on the east side of small Salt Pond. In the evening one chick was seen foraging in the south-eastern corner of the small Salt Pond.
- 7/6/2008 In the morning the brood was observed foraging on the east side of the small Salt Pond to the water's edge. At one point an adult was also observed roosting with the chicks.
- 7/7/2008 In the morning the two chicks and one adult were observed foraging on the east side of the small Salt Pond to the water's edge. In the afternoon the brood and both adults were foraging on east side of the small Salt Pond. The brood was attempting to fly on multiple occasions, but they never left the ground.
- 7/8/2008 In the afternoon the brood was foraging on the east side of the mouth of the small Salt Pond mudflats. At times one adult would appear and forage in the area. Occasionally the chicks would nestle together.

- 7/9/2008 In the morning the brood was foraging with an adult in the southeast corner of the small Salt Pond flats without disturbance. Observations were stopped due to lightning. In the afternoon the chicks foraged at the southeast end of the small Salt Pond flats. No flight attempts were witnessed.
- 7/10/2008 Throughout the day the brood was foraging and roosting on the east side of small Salt Pond and near the water's edge. At times one adult was present.
- 7/11/2008 In the morning one adult and the brood were foraging on the east side of the small Salt Pond to the water's edge. At one point one adult and the brood left the small Salt Pond to go to the shell flats near their nest site. The adult was doing parallel runs with another adult and the chicks were roosting and preening. One chick was flapping its wings and got a few inches off the ground. One chick also flew an unknown distance. Several awkward take off attempts were observed but then the chick flew out of sight. It rained during the afternoon resulting in poor visibility. One adult was foraging with the brood at the mouth of the small Salt Pond. The brood then moved behind the dunes towards the ocean. In the early evening one adult and two chicks were foraging near the eastern edge of the small Salt Pond.
- 7/12/2008 In the morning the brood was foraging at the east side of the small Salt Pond on the north end. With both adults foraging in the area, the chicks were preening and wing flapping, but only getting a few inches off the ground. At 1150 one adult chased one chick for about a minute at which point it flew away and out of sight (about 50 yards). This chick is considered fledged. The remaining chick and adult continued to forage. In the afternoon a chick is foraging by itself at the mouth of the small Salt Pond. At 1634 the chick began flapping its wings and then flew about 60 meters to the middle of the small Salt Pond where it proceeded to forage near the other fledged chick. Now both chicks are considered fledged.
- 7/13/2008 Although the chicks are considered fledged, observations continued. One adult and two chicks were foraging on the beach and later moved closer to the duneline. The adult was observed performing a broken wing display to lead a ghost crab away from the chicks. They then returned to the small Salt Pond where they remained for the rest of the morning and afternoon.
- 7/14/2008 In the morning one adult and two chicks observed foraging on the beach near the southern end of the Cape Point Bypass Road. One chick then flew over the dunes toward the small Salt Pond. The other adult and chick then moved to the mouth of the small Salt Pond. One adult and two chicks spent the rest of the day in the vicinity of the small Salt Pond.

#### **Nest 6, Pair 6**

##### **Bodie Split**

- 5/22/2008 A one-egg nest was found under some rocket weed. Both birds were in the area foraging.
- 5/23/2008 The female was foraging 100 meters west of the nest.
- 5/24/2008 No birds were present.
- 5/25/2008 No birds were observed.
- 5/26/2008 Nest check revealed two eggs. One bird was foraging at the southwest edge of the Bait Pond.

5/28/2008 A bird was tending and/or incubating the nest. A nest check revealed a total of three eggs.

5/29/2008 Predator exclosure was installed. One egg is missing from the nest (leaving two eggs). A fish crow was observed harassing the birds.

5/31/2008 Incubation and nest exchange observed.

6/1/2008 Both birds were foraging at the Bait Pond and one returned to the nest and began incubation.

6/2/2008 Nest check confirmed the presence of two eggs. The incubating adult left the nest when the monitor approached but did not fly away.

6/3/2008 Incubation observed. Incubating bird periodically left the nest to stretch and forage around the nest.

6/4/2008 Incubation and nest exchange observed.

6/6/2008 Incubation observed.

6/7/2008 Incubation and nest exchange observed.

6/9/2008 Incubation observed. Nest check confirmed the presence of two eggs. The male flew over the monitor, calling, and headed to the Bait Pond.

6/10/2008 Incubation and nest exchange observed.

6/11/2008 Incubation observed. Nest check confirmed the presence of 2 eggs.

6/12/2008 Incubation observed. One adult was incubating while the other was foraging northwest of the nest.

6/13/2008 At the start of the observation one PIPL was walking around the exclosure and was head bobbing then left area. Incubation observed.

6/14/2008 Incubation observed.

6/15/2008 Two pairs of willets repeatedly dive-bombed and called around the observation area. No PIPL were tending the nest at that time. The willet action did not cease after ten minutes, and two PIPLs flew by the monitor, calling. The willets would not cease calling and the PIPLs did not return. The monitor decided to leave the area to avoid additional disturbance to the nesting pair. As the monitor left the observation site a peep-lo was heard.

6/16/2008 The willet alarm behavior began as the PIPL observation started, causing both PIPLs to come to the observation area to observe the monitor within ten feet. One PIPL returned to the nest to incubate while the other started foraging close by. Nest check conducted.

6/17/2008 Incubation observed. During the observation an adult fought off two red-winged blackbirds. At the close of the observation one PIPL stayed outside the closure, grooming, while the other incubated.

6/18/2008 Incubation observed.

6/19/2008 Incubation observed.

6/20/2008 Incubation observed. Two separate thunderstorms occurred in the area today.

6/21/2008 Incubation and nest exchange observed.

6/22/2008 Incubation and nest exchange observed. While one bird was incubating the other bird was observed foraging at the small overwash area to the north of the nest. Incubating bird left nest briefly to "peep" at an AMOY that walked by the exclosure.

6/23/2008 Incubation and nest exchange observed. The female was bumped off the nest three times due to willets flying and calling nearby.

- 6/24/2008 Incubation and nest exchange observed. The nest was checked confirming the presence of two eggs. The female was on and off the nest throughout the observation.
- 6/25/2008 Normal incubation was still occurring. PIPL would come off the nest at the sound of terns or some other minor disturbance, but would return to the nest within 10 minutes. The nest was checked and still contained two eggs. No signs of starrng.
- 6/26/2008 One PIPL was seen foraging in the mudflat northwest of the nest. The other PIPL was seen exiting the closure, head-bobbing and pacing the perimeter four times during the observation.
- 6/27/2008 Both the birds were present at the start of the observation. The female was false brooding as the monitor walked to the observation site. The female then proceeded to forage and preen approximately 30 feet northeast of the nest for about 15 minutes before returning to the nest. She attempted to incubate several times, but was spooked out of the exclosure by fighting AMOYs, a willet, and a low flying airplane.
- 6/28/2008 The nest was checked and still contained two eggs. No signs of starrng. The PIPL came off the nest when a crow flew overhead and again when a willet started alarm calling.
- 6/29/2008 No bird on the nest when the monitor arrived for morning observations. A PIPL arrived ~1/2 hour later and began to incubate. Nest was checked and still contained two eggs. No signs of starrng. The PIPL was on and off the nest throughout the afternoon observations. A willet startled the PIPL off the nest, but the PIPL returned to the nest shortly thereafter.
- 6/30/2008 An hour into the morning observation, one PIPL went to the nest to incubate. A nest exchange occurred, and one PIPL flew towards the Bait Pond. The bird was on and off the nest until an exchange occurred again. The pair was active while incubating the nest, constantly shifting and shaking feathers.
- 7/1/2008 Incubation and nest exchange observed during the morning observations. One adult was seen in and around the exclosure throughout the afternoon observations.
- 7/2/2008 No birds were found by the nest at the start of the morning observations. Nest was checked. Two eggs were still present and they looked freshly incubated. Incubation was observed after the nest check. During the early evening observations, the male was on and off the nest.
- 7/3/2008 Incubation and nest exchange observed during the morning observations. During the late afternoon/early evening observations a PIPL was on and off the nest five time. A nest exchange occurred and this adult was on and off the nest throughout the remainder of the observation period as well.
- 7/4/2008 Incubation and nest exchange observed during the morning observations. At 0715 a grackle flew over the area. Both PIPLs chased the grackle out of the area. Winds around 25 mph in the early evening. A female PIPL was bumped off the nest during the nest check. The nest now only contains one egg. No evidence of predator activity observed near the nest but signs were probably erased by the wind. The surrounding bushes were inspected carefully for a chick, but nothing found. Inside the closure there were four ghost crab holes.
- 7/5/2008 Incubation observed during the morning and afternoon observations. The nest check revealed the nest still contained one egg with no signs of starrng. Only one



	ghost crab hole was near the exclosure today, and it was pretty small, (probably too small to predate a PIPL egg).
7/6/2008	Incubation observed during the morning and afternoon observations. At one point one adult was incubating while the other adult was outside of the exclosure. The nest check revealed the nest still contained one egg with no signs of starrng. A willet briefly startled the PIPL off the nest.
7/7/2008	Incubation observed during the morning and afternoon observations. During the morning observations one PIPL was foraging west of the nest in the overwash while the other PIPL was briefly startled off the nest by an alarmed willet. A ghost crab appeared near the nest while it was unattended. The monitor checked the nest and the egg appeared to be undisturbed.
7/8/2008	Incubation observed.
7/9/2008	Incubation observed. Poor weather conditions with persistent rain and storms all day, including winds of 23 mph. The nest check revealed the nest still contained one egg with no signs of starrng. The PIPL was off the nest for less than six minutes.
7/10/2008	Incubation and nest exchange observed. No bird was on the nest upon the arrival of the monitors. After 22 minutes the female arrived from the direction of the Bait Pond and began incubating. A closure violation was documented when two pedestrians were observed shelling near the PIPL nest.
7/11/2008	No bird was on the nest upon the arrival of the monitor. The adults were not observed incubating but a nest check revealed that the nestcup is still being maintained and one egg was still present.
7/12/2008	Incubation and nest exchange observed.
7/13/2008	Incubation and nest exchange observed. Other PIPLs were foraging west of the nest in the overwash.
7/14/2008	Incubation observed. The nest check revealed the nest still contained one egg with no signs of starrng. The adults were on and off the nest, foraging in the overwash.
7/15/2008	Incubation observed.
7/16/2008	Incubation and nest exchange observed.
7/17/2008	Incubation observed. The nest check revealed the nest still contained one egg with no signs of starrng.
7/18/2008	Incubation and nest exchange observed.
7/19/2008	No PIPL adults were present during the entire observation. A nest check revealed the egg to be about one meter away from the nest cup and about five inches from a ghost crab hole. There was also an additional ghost crab hole about five inches from the nest cup. The nest cup itself was not maintained.
7/20/2008	No signs (bird, tracks, egg, or call) of PIPL in the nest area.

#### **Nest 7, Pair 7**

##### **South Ocracoke**

5/23/2008	Nest 7 was discovered accidentally. A monitor was checking on a scrape that had been well maintained for a few weeks. Sand that was deposited during the overwash event last week was removed from the scrape area and a single egg was recovered from the compacted sand.
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**Nest 8, Pair 8**  
**South Ocracoke**

- 5/30/2008 A one egg nest was found north of the "No Pet" sign. Pair 8 was observed copulating and then foraging on the shoreline.
- 5/31/2008 One PIPL was observed near nest at 0645.
- 6/1/2008 A bird was on the nest. The winds were blowing ten to 15 mph. The second bird was heard peeping and then seen flying off later. AMOY Green 76 and Green 86 were observed chasing the PIPL adults away from the nest.
- 6/2/2008 Nest check revealed that the nest now contains two eggs. No bird was on the nest during the nest check, but both birds were observed in the area two and a half hours later.
- 6/3/2008 Two PIPL adults were seen near Nest 8, possibly incubating, and preening. One adult flew to the ocean shoreline to forage. A nest check revealed that the nest now contains three eggs.
- 6/4/2008 One adult was at the nest, shell tossing and chasing sanderlings out of nest area. The nest was exclosed at 0920 and it was discovered that only one egg remained in the nest. The male was incubating the nest before the exclosure was installed, but was bumped off the nest at 0919. The male returned to the nest when the exclosure was completed. The male was restless and continued to leave the nest and run around the exclosure. The female approached the exclosure at 1014 but never entered. The birds were agitated and restless throughout the observation.
- 6/5/2008 The nest was covered in sand and no birds were observed during the morning and afternoon observations. The nest is not being maintained and appears to be abandoned.
- 6/6/2008 The egg was still buried in sand. Two large ghost crab holes were within inches of the nest.
- 6/11/2008 The egg was uncovered and still in the exclosure. The crab holes are still present.

**Nest/Brood 9, Pair 1**  
**Cape Point**

- 6/3/2008 A one-egg nest was found. Both birds were present.
- 6/5/2008 The male was observed at the nest site. Nest check revealed two eggs were in the nest.
- 6/7/2008 The nest was not being incubated in the morning, but a bird was incubating during the evening observation. A nest check revealed three eggs in the nest.
- 6/8/2008 The predator exclosure was installed. The male was present while the exclosure was being installed and he returned to the nest shortly after we left the area. He was on and off nest throughout the remainder of the observation. Incubation observed.
- 6/9/2008 Incubation and nest exchange observed.
- 6/10/2008 Incubation observed. The mate was foraging in flats nearby.
- 6/11/2008 Incubation observed.
- 6/12/2008 No bird was on or near the nest during the nest check. Nest check revealed that the nest still contained three eggs.
- 6/13/2008 Incubation observed.

6/14/2008	Incubation observed.
6/15/2008	Incubation observed. Nest check revealed that the nest now contains four eggs.
6/16/2008	Incubation observed.
6/16/2008	Incubation observed.
6/17/2008	Incubation observed.
6/18/2008	Incubation observed.
6/19/2008	Incubation and nest exchange observed. One incubating bird was seen off the nest several times when it was disturbed by the adults from Pair 4, but the adult always returned to incubate within ten minutes of the disturbance.
6/20/2008	Incubation observed. The pair often left the nest to fight with Pairs 4 and 5.
6/21/2008	Incubation and nest exchange observed. Both adults were engaging in territorial disputes with Pair 4.
6/22/2008	Incubation observed.
6/23/2008	Incubation observed. Some pedestrians passed nearby after entering the Cape Point closure and the bird was bumped, but returned shortly thereafter.
6/24/2008	Incubation observed.
6/25/2008	Incubation observed.
6/26/2008	Incubation observed.
6/27/2008	Incubation and nest exchange observed.
6/28/2008	Incubation observed. Nest check revealed that the nest still contained four eggs.
6/29/2008	Incubation observed.
6/30/2008	Incubation observed.
7/2/2008	Incubation/brooding observed. When the monitors approached two chicks in the nest did not move and the PIPL adult did a broken wing display. One chick was observed foraging in the evening.
7/3/2008	Incubation/brooding observed. Three chicks were observed foraging in and near the nest enclosure. The brood adults were fighting and engaging in parallel runs with Pair 10 (i.e Nest/ Brood 12). One adult was observed removing shell fragments from the nest.
7/3 - 7/9	See Nest/Brood 12

### **Nest/Brood 10, Pair 9**

#### **South Beach**

6/12/2008	A four egg nest was found. Both birds were present.
6/13/2008	Incubation observed.
6/15/2008	Incubation and shading observed.
6/17/2008	Incubation observed.
6/18/2008	Incubation observed.
6/19/2008	Incubation observed.
6/21/2008	Incubation observed. The male was on the nest at the arrival of the monitor, with the female nearby in the flats. At 1108 the female flew to the small Salt Pond, calling.
6/23/2008	Incubation observed.
6/24/2008	Incubation observed. The male was on the nest for the duration of the observation. It got off nest three times, without any disturbance to prompt it, and stayed within the enclosure, only to quickly return to the nest. The male was

	moving the eggs frequently. Nest check revealed that four eggs were still present. No signs of starrng.
6/25/2008	Incubation observed.
6/27/2008	Incubation observed.
6/28/2008	Incubation observed.
6/29/2008	Incubation observed.
6/30/2008	Incubation observed.
7/1/2008	Incubation observed.
7/2/2008	One chick was observed; it looked to be a day old. The chick ran as the monitors approached the nest site. There were two eggs still in the nest, one egg was missing. Incubation/brooding observed. Many nest exchanges occurred throughout the afternoon and evening. The one chick spent most of the day brooding under the adult but would make infrequent appearances to forage. For the last hour of the evening observation, the chick spent almost the entire time foraging within 15 meters of the closure in all directions.
7/3/2008	One adult and two chicks were present about 30 meters east of the nest site. At 0740 two chicks and both adults moved west, down to the Salt Pond Road. Both adults fought with a ghost crab. At 0830 the two chicks and brood adults moved east, about 50 meters east of the nest site. The nest was checked by the monitor at 0840 and one egg remained. At 0848 the brood adults and two chicks continued to move further east of the nest site. At the end of the observation the brood adults and two chicks moved over a ridge and were not seen again.
7/4/2008	The monitor walked behind the dunes from the Salt Pond Road to marker H, scoping the beach along the way. The Big Salt Pond shoreline was scoped. Many PIPL tracks were found, including some that appeared to be chick tracks in the ephemeral pool area between markers H and A. The monitor could not locate Brood 10 or Pair 9.
7/5/2008	The monitor could not locate the brood between the Salt Pond Road and the Point. The ephemeral pool areas and the big Salt Pond were also checked.
7/6/2008	A pair of birds, the female of which looked very similar to the Pair 9 female, was observed foraging on the large Salt Pond. There were no chicks or protective behaviors observed.

### **Nest/Brood 11, Pair 7**

#### **South Ocracoke**

6/11/2008	Re-nesting behavior was observed, including tilt display and copulation, at the northern most scrape area where old PIPL Nest 7 was lost.
6/13/2008	The nest was found where previous scrape was recorded, approximately five meters from the old Nest 7. No birds were present. There was one egg in the nest.
6/14/2008	The area was not surveyed today but Pair 7 was observed copulating near the Nest 11 site.
6/15/2008	During a quick nest check both birds were observed in the area. The nest had two eggs.
6/16/2008	The nest was checked confirming a three egg nest. The female was peeping in the area. Both adults were observed flying over the nest at 1115. The nest enclosure

was installed at 1745. The male was bumped from the nest but returned when the enclosure was completed. The nest was observed until 1910 with both birds arriving and spending time at nest.

6/17/2008 Incubation by both adults observed. They appeared restless. They were observed shading the eggs.

6/18/2008 Incubation observed. A nest check revealed the nest contained four eggs.

6/19/2008 Incubation observed. The adults chased off another male PIPL.

6/20/2008 Incubation observed. A small storm was moving in, but the male continued to incubate.

6/21/2008 Incubation observed.

6/22/2008 Incubation observed.

6/23/2008 Incubation observed. The observation was cut short due to thunderstorms.

6/24/2008 A quick nest check revealed the nest still contained four eggs. The incubating bird was off the nest due to a crow in the nest area eating a rabbit carcass, which the monitor removed.

6/25/2008 Incubation observed.

6/26/2008 Incubation observed. The female was incubating while the male was performing an aerial display.

6/30/2008 Incubation and nest exchange observed.

7/1/2008 Incubation observed. A quick nest check documented that the four eggs were still present and there were no signs of predators.

7/2/2008 Incubation and nest exchange observed. The female was incubating, sitting tight and dozing off and on. A nest exchange occurred at 1053. The male was incubating when the female flew towards the sound.

7/4/2008 Incubation and nest exchange observed.

7/6/2008 Incubation and nest exchange observed. A quick nest check confirmed the four eggs were still present.

7/8/2008 Incubation observed. A female grackle was perching on top of the enclosure at 1130 and bumped the PIPL off the nest. The grackle tried to get in through the netting while the PIPL ran around the enclosure. The female PIPL was successful in chasing off the grackle and was back incubating at 1137.

7/9/2008 Incubation observed. The female was incubating while the male was performing an aerial display over the nest area.

7/10/2008 Incubation and nest exchange observed. The female settled in and was sitting tight when the male flew towards the sound.

7/11/2008 Three chicks observed. The female and male were taking turns incubating the nest and brooding the chicks. The male chased off a gull and the female chased off a red-winged blackbird. In the afternoon the nest was being incubated throughout the observations, primarily by the female. The three chicks foraged and were brooded by the male, never moving more than twenty meters from the nest enclosure. On at least two different occasions ghost crabs stalked the brood and were chased off repeatedly by the brood adults.

7/12/2008 In the morning the female and male spent equal time brooding the chicks at the nest site. The nest was checked at 0812 and there were no eggs, but a newly hatched chick was in the nest, for a total of four chicks. At 0845, one of the three older chicks disappeared and still had not been seen at the end of observation.

7/13/2008	<p>This is the last observation of this chick. In the afternoon the two older chicks from the brood foraged along the dunes, between the nest and the boundary of the pre-nesting closure, primarily with the male adult. The female tended to the youngest hatchling all day, taking short and hurried breaks for foraging and avian predators. Throughout the day grackles, blackbirds, gull-billed terns, greater black-back gulls, herring gulls, and laughing gulls all bumped the female off of the nest. At 1639 the hatchling stood up in the nest cup and appeared to be very dark and shaky and could not stand well or walk out of the nest. This was the last time this chick was seen. At the end of the observation the female was brooding one chick while another foraged in some small dunes 25 meters north of the nest. At the start of the observation, two chicks were foraging east of the nesting exclosure. At 0827, the brood started moving south along the dunes towards the nest site. At 1010, the brood was foraging in the shell flats north of Nest 3. At 1103, the brood moved west into the vegetation where they could not be observed. Both the adults were present. The pair would fly together, west to the sound and return almost instantly. Throughout the observation, the adults chased off red-winged blackbirds, gull-billed terns, and a variety of gulls and crabs. During the afternoon observations, the brood could not be located. The brood adults were observed flying from the vegetation to the sound and ocean side of the dunes every few minutes. They would then “hover” over the vegetation or land in the vegetation. After 1718 only one adult was seen at a time. Both adults chased off a red winged blackbird, two terns, and another adult PIPL.</p>
7/14/2008	In the morning the adults were observed foraging on the sound side in the tidal flats but no chicks were present. The brood was not seen in or around the dunes from the nest site to the sound side.
7/15/2008	In the morning the brood adults were observed foraging on the sound-side shoreline but no chicks were seen. The dunes were surveyed but the brood could not be located.
7/16/2008	In the morning the adults were observed flying from the dune point to forage on the sound side shoreline. No chicks were observed.

## **Nest/Brood 12, Pair 10**

### **Cape Point**

6/21/2008	A four-egg nest was found. It was sighted with a scope between Nest 9 and Nest 1. The closure was installed at 1430
6/22/2008	Incubation observed.
6/23/2008	Incubation observed.
6/24/2008	Incubation observed.
6/25/2008	Incubation observed.
6/26/2008	Incubation observed.
6/27/2008	Incubation observed.
6/28/2008	Incubation observed. Nest was checked and still contained 4 eggs.
6/29/2008	Incubation observed.
6/30/2008	A chick was seen at the nest and looked like it had just hatched (it appeared wet). There were still egg fragments in the nest. There were two LETE trapped in the nest exclosure.

- 7/2/2008 One adult was incubating/brooding. There may have been more than one chick in the nest. One chick observed foraging at 1857.
- 7/3/2008 In the morning two chicks were foraging in and around the nest enclosure. An adult was observed removing an egg shell fragment from the nest cup. The adults continued to incubate the nest throughout the observation and were also fighting and engaging in parallel runs with adults from Brood 9.

#### **Broods 9 and 12**

- 7/3/2008 The adults from Brood 12 spent most of the afternoon incubating/brooding. The chicks were seen when nest exchanges or adjustments were made by the adults. By the late afternoon the chicks are beginning to wander far from the enclosure to forage. One adult was still brooding the nest. Horizontal runs at adults from Brood 9 were seen several times during the observation. An adult was seen removing egg shell fragments from the nest cup and taking them in the direction of Nest 9. The adults continue to brood the nest.
- 7/4/2008 At 0800 two chicks and two adults were seen with three chicks and two adults near the nest sight. The adults were fighting and one adult attacked one of the chicks from the three chick brood. At 0810 the adults were still fighting and one adult chased away a gull. Between 0930 and 1000 the two adults and two chicks and the two adults and three chicks moved closer to the mouth of the small Salt Pond. Eight adults in area were all fighting. The two chick brood was in the flats and the three chick brood was in the brush on top of a dune. At 1030 the three chick brood moved down to the base of the dune and moved closer to the west-side of the mouth of the small Salt Pond. The two chick brood was near the center of the mouth of the small Salt Pond. At 1053 the three chick brood was being brooded by one adult, while the other adults continued to fight. At 1100 an adult was seen brooding a total of four chicks on the west-side of the mouth of the small Salt Pond. One chick was seen foraging with two adults towards the east-end of the mouth of the small Salt Pond. Fighting among the adults appeared to settle down. At 1112 one chick was being brooded in the sand flats at the east-end of the mouth of the small Salt Pond, while the four chicks were being brooded at the west-end of the mouth of the small Salt Pond under the brush/vegetation. For the majority of the afternoon four adults were foraging and fighting at mouth of the small Salt Pond. Two chicks were seen running along the dune line, and then went into a sea rocket bush. An adult was seen chasing off a grackle from the sea rocket bush. At 1517 four adults were fighting and one chick was foraging while the other three chicks were roosting. For the rest of the observation the adults were either fighting or foraging and the chicks were either brooding and roosting or foraging.
- 7/5/2008 During the morning observations four chicks and two adults were seen foraging at the mouth of the small Salt Pond. The brood and brood adults then moved around to the dune line on the west and east side of the small Salt Pond mouth, and along the dunes near the enclosure for Nest 5. One chick was lagging behind during the moves from one location to another. The adults fought several times with two other adult PIPLs. At 0829 two adults and one chick were foraging in the middle of the small Salt Pond mouth. The adults left the chick frequently to fight with the other PIPL adults in the area. They moved between the middle of the small



Salt Pond to the back, along the grass line. During the afternoon observations, the four chicks and two adults were either foraging together or the adults were brooding the chicks at the mouth of the small Salt Pond. One chick appeared especially clumsy. At 1805 the male was seen doing a broken wing display to a gull near the water's edge at the mouth. Between 1817 and 2000 the single chick and two adults were observed in the northeastern corner of the small Salt Pond. The chick was foraging together with an adult or was being brooded by one adult while the other adult acted territorial.

7/6/2008 Weather conditions were poor with wind and rain occurring during the morning observations. One adult was observed brooding the four chicks. Later on, one adult was roosting and the four chicks were foraging along the dune line on the west side of the small Salt Pond. The single chick and two adults were located at the back of the small Salt Pond. Four adult PIPLs were seen chasing off a crow. In the afternoon the single chick along with an adult was in the northwest corner of the small Salt Pond. Two adults and two chicks (one chick missing) were close to the mouth of the small Salt Pond, and the adults calling consistently. One adult and two chicks moved to the west side of the mouth of the small Salt Pond. The other adult was running into a nearby sea rocket vocalizing abundantly. At 1545 a grackle was nearby, resulting in the adults alarm calling. The birds then moved back to the east side of the mouth of the small Salt Pond. Two adults and two chicks were observed foraging near the dune line. At 1830 two adults and two chicks were foraging and roosting near the stake southwest of the mouth of the small Salt Pond. One adult and one chick were in the northwest flats of the small Salt Pond.

7/7/2008 In the morning, one adult and two chicks were foraging on the east side of the mouth of the small Salt Pond. The adults frequently chased off a gull, and were also observed leading the gull away with broken wing displays. At one point two chicks and four adults were observed at the dune line near the enclosure for Nest 5. The adults were engaged in territorial displays while the chicks foraged. The single chick and one adult were foraging at the north-end of the small Salt Pond for the majority of the day. In the afternoon two adults and two chicks were foraging at the mouth of the small Salt Pond and also spent time in the dunes. There was a gull bothering this brood all day. In the early evening only one adult and one chick were observed foraging and brooding at the mouth of the small Salt Pond.

7/8/2008 One pair was at the mouth of the small Salt Pond on the ocean side. The other pair was in the southeast corner of the small Salt Pond. Those at the mouth of the small Salt Pond were calling continuously when the monitor arrived. They spent most of the time foraging and at 0945 a gull came and took the chick. Both adults chased the gull away and spent the next hour vocalizing. The pair in the southeast corner of the small Salt Pond chased the same gull away at 1051. They spent the rest of the time foraging and chasing off other PIPL adults. In the afternoon the remaining chick and two adults continued to forage in the southeast corner of the small Salt Pond. A few times a third PIPL was in the area and the adults engaged in territorial battles. The adults also chased away a gull and a red-winged blackbird.

7/9/2008 One chick and two adults were foraging in the north central grass flats of the small Salt Pond. There was an incident with an immature herring gull, where both adults chased and dove at the gull while the chick hid. The gull left the immediate vicinity and the group returned to foraging about five minutes later. The observation was stopped due to lightning. During the afternoon one chick was observed foraging with two adults along the east side of the small Salt Pond. At 1515 a crow flew into the area and appeared to take the chick. The adult PIPLs peeped and circled over the flat after the chick disappeared and were aggressive toward other PIPLs. At 1733 a crow flew in from the north and flew very low over the flats, landing for a short time on the south end of the flats and then flying away in a northerly direction. All four PIPL that were foraging on the small Salt Pond at that time peeped and harassed the crow until it left the area. A male PIPL was seen false brooding for a gull at the south end of the small Salt Pond and for a snake at the north end of the small Salt Pond. The chick was not observed again after 1515.

### **Nest 13, Pair 11**

#### **Cape Point**

6/22/2008 A two-egg nest was found. The predator exclosure was installed on the same day the nest was found. Incubation was observed after the exclosure was installed.

6/23/2008 No bird present during a brief observation.

6/24/2008 Incubation observed. A nest check revealed that the nest now contains four eggs.

6/26/2008 Incubation observed.

6/27/2008 Incubation observed.

6/28/2008 Incubation observed. A nest check revealed that the nest still has four eggs.

6/29/2008 Incubation observed.

6/30/2008 One adult present, but not incubating the nest. Observation was very brief.

7/2/2008 A nest check revealed two small ghost crab holes in the nest area and only one egg remaining in the nest.

7/3/2008 Incubation observed.

7/4/2008 The incubating bird seemed skittish. The nest was frequently left unattended.

7/5/2008 Incubation observed.

7/9/2008 Incubation observed but the bird appeared very nervous.

7/12/2008 No birds were seen on or near the nest. Two birds were seen foraging on the shoreline at 1740. A nest check revealed that the last egg had disappeared.