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NESTING OBSERVATIONS OF THE PIPING PLOVER NEAR SIOUX CITY

From mid-April to early August 1985 members of the Loess Hills Audubon Society monitored the nesting of Piping Plover (*Charadrius melodus*) on fly-ash settling ponds of the IPS Port Neal Generating Station, on the Missouri River near Salix, Iowa. Declining regional and national populations (Borie, 1985; Kaufman, 1984; and Evans, 1985) make the discovery of nesting individuals quite exciting. Piping Plovers were first found at this site in 1984.

The ash ponds appear to be very good nesting habitat (Evans, 1985). There are large areas of gravel-like substrate with little to no vegetation, minimal human disturbance, and an available source of water. Observations were made at irregular intervals by a team of interested individuals. A total of six nests were discovered during the study period and 23 eggs were produced.

The first 1985 sighting occurred on 18 April, with the discovery of three adult birds. Two days later, 20 April, six individuals were seen. Courting and territorial behavior was noted on both dates. The first nest was found on 11 May, but no adults could be associated with this nest. A second nest, with defensive adults, was located on 12 May.

On 25 May four team members canvassed two of the settling ponds. The first nest was determined to be abandoned. Dew covered the three eggs and no adults were in the vicinity. The second nest could not be relocated. It is possible the four eggs from the second nest were washed away by recent heavy rains and/or discharge from a nearby ash-slurry pipeline. Predation cannot be excluded as a cause of the disappearance.

In compensation, three new nests were located on this date. Nest Three contained two eggs, with the adults presenting a very active distraction display. Nests Four and Five contained four eggs each. Adults were in the vicinity of both nests. Only the adults from nest Five presented a mild distraction display. The area around nest Five contained several depressions that resembled active Piping Plover nests (Evans, 1985). There was no evidence that these depressions were ever used for nesting. Other Piping Plovers were seen to the south and west of these nests. We could not manage to explore these areas to confirm any nesting.

At this point it was decided to allow nesting to proceed with no disturbance by the team. Our next observations were on 8 June. The adults from nest Three provided a very intense broken wing nest defense display. As the

observers approached, one bird would crouch and flatten while vocalizing and fluttering its wings and tail. The other adult would remain closer to the nest and would present one side to the observer and flare its tail feathers. This Plover pair would also pursue any other Plover which approached too closely. This activity, at times, took precedence over trying to distract the approaching observers. Four eggs were present on this date.

Nest Six was first found on this date. It, too, contained four eggs. No adult Plovers were in the nest's vicinity. Nest Five generated some defense display, but the behavior was less intense than the displays of the nest Three adults. The displays did not intensify even as the observers approached the nest. There was very little adult activity around nest Four. Nest Four and Five also contained four eggs each.



Overlook of nest Three, looking south, 18 June. The nest is just to the left of the dense mat of vegetation above the photograph's center.

A visit on 18 June was very disappointing. Nest Three could not be visited, due to water and soft ground conditions. The nest appeared to be safe as judged from a rise overlooking the site. No adults could be seen around the nest, but they were heard in that general direction. The nearest ash-slurry discharge pipe was spewing a good volume of water. Nest Four contained only three eggs. We could not determine what happened to the fourth egg. There was no sign of a hatch, but neither were there signs of predation. Nest Five was empty. Here, too, no definite conclusions could be drawn about the fate of these eggs. Nest Six still contained four eggs, but no adults were in the area.

Between 1600 and 1630 hours on 22 June a newly hatched Piping Plover chick was discovered at nest Three. As the observers approached the nest defense behavior of the adults intensified. The chick was not noticed until one adult flew a short distance from the nest carrying half of an eggshell. One newly hatched chick and two intact eggs were in the nest. The observers scanned the area for another chick or evidence of another hatching, but nothing was found. The ash-slurry pipeline was still flowing, but at a much reduced rate from the previous visit. To reach nest Three required picking one's way through some very soft, water-saturated ground. Nests One and Four still contained three eggs each, while nest Six had four eggs. No adults were associated with any of the three nests.

Two Piping Plover chicks and adults were seen on 6 July. On 20 and 21 July one juvenile was seen each day, in the company of one adult on the 20th and two adults on the 21st.

The last visit was made on 2 August. Nest One still contained three eggs. Nest Two still could not be relocated. There were no eggs in nest Three, with the fledging of one or possibly two chicks. Nest Four contained



one intact egg, with a second egg outside of the nest. This second egg possessed a squarish hole, as though the embryo had been surgically removed. Nothing remained within the shell. We offer no explanation as to how this occurred. We can only speculate about the fate of Nest Five. Possibly a hatch occurred, or perhaps the nest was destroyed. Nest Six contained four eggs.

In summary, six Piping Plover nests were located and observed from 18 April to 2 August 1985. Twenty-three eggs were produced with these six nests. We can confirm the hatching of one Plover chick. Two juvenile Plovers with adult supervision were seen. Although this is not a very high success rate (Evans, 1985), it is good to see some successful nesting for this endangered species. We look forward to next year.

Summary of Piping Plover Egg Production
11 May to 2 August 1985

	11 May	12 May	25 May	8 June	18 June	22 June	6 July	2 August
Nest One	3E	--	3E	3E	3E	3E	--	3E
Nest Two	--	4E	--	--	--	--	--	--
Nest Three	--	--	2E	4E	--	3E,1Y	2Y?	--
Nest Four	--	--	4E	4E	3E	3E	--	1E,1D
Nest Five	--	--	4E	4E	--	--	--	--
Nest Six	--	--	--	4E	4E	4E	--	4E

Key: E = egg, Y = young, D = damaged egg. ? = cannot confirm they belong to this nest.

Note: Piping Plovers have a 27 to 31 day incubation period (Evans, 1985, and Terres, 1980)

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