

MASHKIZIIBII NATURAL RESOURCES DEPARTMENT

CHEQUAMEGON POINT PIPING PLOVER 2020 SEASON REPORT

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2020 marks the 47th year of monitoring the Great Lakes Piping Plover on Chequamegon Point on the south shore of Lake Superior, the 34th year since the species received endangered status, and the 22nd year of partnership in restorative efforts with the Mashkiziibii Tribe. This year Monitor Royce Galindo returned for his fourth season, and Dane Hildebrandt completed his first.

After being classified as essential workers amid the COVID-19 crisis, the Plover Monitors conducted daily surveys on Chequamegon Point, weather permitting, between June 1 and July 28. Two Piping Plover nests were confirmed, 6 chicks were hatched and banded, and 5 fledged. There were no observed re-nests or observed nests abandoned.

The Great Lakes Piping Plovers have once again exhibited activity on other Apostle Island beaches: one nest with 4 eggs was found on Outer Island, and one nest with 4 eggs was found on Michigan Island. A rate of 2.3 chicks per known breeding pair were successfully fledged across the Apostle Islands. A rate of 2.5 chicks per pair was the success rate at Chequamegon Point. Six of the known 16 eggs laid in the Apostle Islands did not hatch at all (2.7 per pair, or 38% overall).



Nest 1 - "Tire"

Lat/Long: 46.712527, -090.765049 Female: X,-:O,Y²⁴ "Mellow", last observed 7/12 Male: X,-:O^Y,G/O "Gelato", last observed 7/28 Found: 6/3 with 4 eggs Exclosure & Fencing Installed: 6/4 Eggs Laid: 4 Eggs Hatched: 4 Hatch Date: 4 chicks observed 6/24 Banding Date: 7/2 Chicks Fledged: 4 Chick Band Combinations, Weight at Banding, & Nickname:

- X,-:O^R,G³⁴⁵ 13g "Beach Pea"
- X,-:O^G,G³⁴⁶16g "Buckles"
- X,-:O^B,G³⁴⁷ 12g, "Nishiime"
- X,-:O^Y,G³⁴⁸15g, "Meadowsweet"



Figure 3 (top corner). The Tire nest, trail cam, and tire. Figure 4 (above). The four fledged Tire chicks.

The aptly named "Tire" territory (named for the obtrusive black rubber tire laying on the beach near the nest) was home to a superstar pair of plovers who achieved maximum success, rearing their entire clutch of chicks through to fledging. Both of these birds have been loyal to Chequamegon Point for years. The female plover is nicknamed Mellow, due to her calm demeanor during courtship and incubation; when resting on the beach, she will not be bothered by a monitor's approach until they are within feet of her--even when she stands to walk to a safe distance, she is not vocal. Indeed, early in the season, it was this calm demeanor that fooled the monitors into thinking the pair had not yet selected a spot to nest, like their neighbors to the south. When the nest *was* finally located, it was due to her partner's loud, frantic performance, while she stood nearby with her foot shuffling in the sand, foraging silently. Mellow is not easily intimidated. In 2018 and 2019, she was partnered with XO, the male from the 2020 territory to the southeast. This year, her mate was Gelato, a male who has



Figure 5. The Tire nest.

been observed nesting near this spot each season since 2017. A loyal family man, he was observed fostering a chick from a different territory in 2017, when the breeding male from the tip of the island disappeared, leaving the female to continue parenting alone. Records show that this female was actually Gelato's mother--and when she was ready to start her migration early, as female plovers do, Gelato stayed with her lone chick (and his half-sibling) until it was fledged.

Site Description

This nest was located 0.78 miles (1.25km) northwest of the only other nest observed on Chequamegon Point this season. The nest itself was located on a raised patch of beach, where there was a 1-2 foot sand cliff, sometimes sheer, leading into the washzone (visible in figure 6). Over time this cliff was wethered into a more gradual slope, and at no point did any plover seem to have trouble traversing it. The rest of the territory had a gentler slope into the washzone. Cobbles were few and far between, covering less than 5% of the beach. There was no cobble pan. Scattered about the territory were 9 large driftwood logs ("large" meaning too big and heavy to pick up and move), 16 smaller driftwood logs, and one very massive driftwood (close to the size and shape of the live tree it once was) in the washzone. There was also the aforementioned rubber tire, which lay just under 9 meters southeast of the nest cup. A few beach pea bushes lay at the foot of the dunes near the nest, under which the two youngest and smallest chicks, Beach Pea and Nishiime (Anishinaabemowin, meaning "Little Sibling"), were observed taking cover twice (figure 7). Surrounding the nest cup were one stick, some smaller twigs, few tiny cobbles, woodchips, and one small tuft of dune grass (figure 5).

Table 1 describes this nesting area in measurements of distance from the nest cup to surrounding features.

Attribute*	Washzone	Wrack line	Cobble Pan	Foredune	Backwater	Treeline
Distance from nest (meters)	11.4	6.5	N/A	4.5	N/A	90

*Attribute definitions can be found in the glossary on p. 22. Measurements were taken at the end of the season; note that beach conditions change constantly over the course of the season, and numbers should not be considered exact.



Figure 7 (left). A trail camera image of the vegetation near the nest, which was used for cover by young plover chicks.

Visitation

Of the two territories, Tire received the most visitors over the course of the season. In total, approximately 270 visitors, 82 boats, 24 dogs off leash, and 2 dogs on leash were counted on the beach within the territory.

Figure 8. June 27, a busy day for visitors--Tire territory can be seen left, with two people walking into it along shore.



Nest 2 - "Desert"

Lat/Long: 46.70431, -90.75395 Female: X,B:O^B,B/O/B "Bingwi", last observed 7/14 Male: X,-:faded O,-"XO", last observed 7/27 Found: 6/6 with 1 egg Fencing Installed: 6/7 Exclosure Installed: 6/11 Total Eggs Laid: 4, on 6/6, 6/8, 6/10, and 6/11 Eggs Hatched: 2 Hatch Dates: 7/6, 7/8 Banding Date: 7/16 Chicks Fledged: 1 on 7/28 Chick Band Combinations, Weight at Banding, and Nickname:

- X,G:O^B,G³⁵¹ 17g "Animikii"
- X,G:O^R,G³⁵⁰14 g "Wiigwas", last observed 7/22

The breeding male, nicknamed XO for his band combo, returned to this local area of the beach for the third year in a row. He was a welcomed sight after his early departure in 2019, when he disappeared with one of his chicks on on 7/16, leaving his thenpartner Mellow to raise and fledge three remaining chicks. The breeding female was a newcomer this year, and she has been nicknamed Bingwi (simply "sand" in Anishinaabemowin). The lone chick that fledged from this nest joined the four chicks in Tire territory soon after the disappearance of its only sibling on 7/23. Unfortunately no solid evidence was found to help point to predation or a specific predator species.

Egg Infertility and Candling at Desert

On 7/9 and 7/10, no daytime incubation of two eggs was observed, and no defensive reaction was observed from the adults when the nest was approached multiple times to check the eggs.







Because of this behavior, and with approval, a candling session was conducted. The eggs were delicately handled and held over a bright light, which shone through the shell to allow a glimpse of fetal development (or lack thereof). The egg contents were very much transparent and orange, with no clear blood vessels or obvious air pocket. This led to the conclusion that the eggs had not been fertilized and would never hatch, and would indicate why the parents made the decision to focus their energy where it was needed.

Site Description

Figure 11. A small lagoon containing plants was present in the far northern part of Desert territory throughout the season.

On a wide stretch of beach mostly free of large driftwood debris and other notable features, the nest's name reflects the characteristics of its location. There was a narrow line of small, thin driftwood through the cobbles (an old wrack line), and no vegetation in close proximity to the nest. Farther south, some large driftwood was built up towards the foredune, and cobbles became dense in the washzone. Just to the north, five large driftwood logs lounged mostly buried within the foredune, and far to the north there was one willow bush and a small lagoon that managed to hold water for many weeks (figure 11). The nest was located near the west boundary of the cobble pan, away from the washzone. This cobble pan covered approximately 35% of the beach. The cup was surrounded by small and large cobbles, and one curl of birch bark (figure 9 and 10).

Table 2 describes this nesting area in measurements from the nest cup to surrounding features.

Attribute*	Washzone	Wrack line	Cobble Pan	Foredune	Backwater	Treeline
Distance from nest in meters	15.6	3.6	0 (within pan)	6.1	N/A	107.5

*Attribute definitions can be found in the glossary on p. 22. Measurements were taken at the end of the season; note that beach conditions change constantly over the course of the season, and numbers (except the treeline) should not be considered exact.

Figure 12. A panorama of the Desert territory, taken mid-July. The location of the exclosure is indicated by an arrow.



Visitation

The nest was located near a sandy path which connects the west shore (bayside) to the east shore (lakeside) of Chequamegon Point. On days with N, NE, or E winds, visitors with smaller craft are able to safely land on bayside and walk this trail to the lakeside beach to swim, relax, or rock hunt through the cobbles. Although the path lead some visitors directly to the Desert plovers, the majority of visitors preferred to settle away from the psychological fencing. On one occasion, a sea plane landed and beached approximately 350 meters south of the territory, but visitors from the plane never approached (figure 13). Approximately 118 visitors, 28 boats, 9 dogs off leash and 1 dog on leash were counted in this territory.

Figure 13. A seaplane on the beach with Desert territory in the foreground, 6/27. The plane was past the border with the rest of the Mashkiziibii Reservation. The plane arrived from and departed to the east-southeast, and disturbance to the plovers was minimal.



Plover Behavior

The tip of the sand spit was visited 6 times throughout the season. The first visit was made on the first day of monitoring (6/1), and a lone male Piping Plover (X,-: O^{Y} ,Y) was observed foraging. Two Killdeer, a potential competing plover species, were also seen and heard. The same male PIPL was seen again the next day, still without a partner. The pair of Killdeer were once again observed--this time they were caught copulating, and soon after that, both Killdeer chased the PIPL far out over the water. After this, the tip was visited much less frequently. Besides the competition from Killdeer, beach conditions were judged to be unsuitable for breeding Piping Plovers: the narrow



surface of the beach was mostly dark with black iron sand (figure 14), and much of it was strewn with driftwood, gull tracks, pungent gull feces, and gull feathers. No Piping Plovers were documented during subsequent visits, but Great Horned Owl tracks were found on the beach near the dunes 6/19.

A floating pair was noted foraging in and around the Desert territory, starting between 7/6 and 7/7. The female was unbanded, and the male's bands read X,-: O^{γ} , G. The birds may have come from a nest further down the Chequamegon Point beach; up to one mile of the beach south from Desert was explored early in the season, but no plovers were found. XO and Bingwi were observed repeatedly chasing the non-aggressive pair when they ventured too close to their nesting area. The pair was last observed on 7/17.



Figure 14 (top left corner). Black sand at the tip of Chequamegon Point. Figure 15 (above). The floating pair of Piping Plovers, south of Desert territory. The female is on the right, male on the left.

Predators

Predator species with a presence on or near the nesting beach this year include **Aandeg** and **Gaagaagi** (American Crow and Common Raven), **Waasagi-Ma'iingan** (coyote), **Animosh** (dog), **Gayaashk** (gull), **Gookooko'oo** (Great Horned Owl), **Esiban** (raccoon), **Waagosh** (fox), **Merlin**, and **Northern Harrier**.



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Contingents of Gayaashkwag (gulls), with

anywhere between 10 and well over 300 birds, were observed daily on the nesting beach, particularly to the south near the Desert territory.

It was also common to find corvid tracks of varying sizes in both nesting areas, and both Aandeg (figure 16) and Gaagaagi were seen and heard on or near the beach. It is possible predation by corvid occurred on 7/23, when the younger chick from Desert was first noted as missing. On that day Gaagaagi tracks were discovered in Desert territory.

On 7/3, Esiban tracks (figure 17) were found traveling up the foredune from the south and winding through the Desert territory, though they never reached the exclosure.

Waasagi-ma'iingan and Waagosh tracks (figure 18) were found multiple times in and near the territories. Most often tracks appeared in the dunes, rarely venturing out to the beach. It is also possible chick predation by canid occurred on 7/23, which was less than a day after the first Waagosh tracks were found winding along the beach and foredune.

The season's only Northern Harrier (an adult male) was observed from the nesting beach, flying northwestward along the treeline, on the fateful morning of 7/23. Northern Harriers are a rare sight on Chequamegon Point beaches, but the species is known to sometimes prey on small birds.

From top to bottom: Figure 16. A trail camera image of Aandeg and Gayaashkwag in Tire territory. Figure 17. Esiban tracks. Figure 18. Waagosh track.

Figure 19. Imprint of a plover broken wing display in sand, with plover tracks.





Merlin was observed three times at the beach over the season. The only time one was observed actively hunting was on 7/21, but the bird was focused on sparrows in the dunes and in the trees on the bayside shore. On 7/4 a distant Merlin was seen being mobbed by a group of swallows.

Evidence of Gookooko'oo was first recorded on 6/9 when tracks were found in Desert territory, near rodent tracks. On 6/17 tracks were found very close to the Tire nest as well as all across the territory, with scattered rodent and frog tracks. The next day, new tracks encircled the Tire exclosure. On 6/25 tracks were found encircling the Desert exclosure as well (figure 23). Overall, the Tire nest experienced more attention from Gookooko'oo, beginning with pellets being found in the territory on 6/11, but no plovers were predated. Most evidence points to Gookooko'oo hunting rodents and frogs on the plovers' nesting beach. The only clear kill documented was that of a frog, whose tracks began in the washzone and lead toward the dunes, where they ended in a spiral of owl tracks. A rather intact vole carcass was found under a log near owl tracks. Few owl pellets were found, and all of them contained hair and mammal bones. Lastly, as a side note, on 7/16 Monitor Galindo discovered the tail feather of an adult Peregrine Falcon on the east side of the sand spit of Outer Island (figure 24).



Figures 20 (top left) through 22 (second from bottom left). On 7/8 at 0149, Gookooko'oo (Great Horned Owl) lands on the beach next to the Desert exclosure, looks around, and jumps up to perch on the exclosure (circled in red). Two adult plovers can be seen in the background (circled in green).

Figure 23 (bottom left). Gookooko'oo tracks next to the Desert exclosure.

Figure 24 (right). Adult Peregrine Falcon tail feather found on Outer Island at the Piping Plover nesting beach.



Visitation and Human Impact

Over the course of the season, 110 boats were observed visiting Chequamegon Point at the nesting beach, with a total of 388 visitors (coincidentally the same total of visitors from the 2019 season). Of the visitors observed, 103 were contacted by the monitors (27%) from a distance of at least 6 feet. A total of 36 dogs were observed, 33 off leash (92%). The majority of visitors and their boats frequented the northern portion of the beach, near Tire territory. There were no observed instances of close contact between visitors' dogs and plovers.

In two instances, owners refused to leash their dogs. One dog owner planted on the beach stated that she "[knew] the law" and would leash her dog *if* she was going anywhere (meanwhile the



Figure 25 (above corner). The infamous nude yacht, outside camp. Figure 26 (above). The boat of the defiant dog owners who left cigarettes on the beach.

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dog strolled anywhere it wanted). Another couple of dog owners refused even as NPS Law Enforcement boated past them to check on a seaplane (they opted to hold on to the dogs with their hands, instead of using the leashes laying next to them). Soon after, these people with off leash dogs were documented by trail camera (figure 27). They also left a small heap of cigarette butts in the washzone when they departed.

On the morning of 7/3, a monitor discovered an unsancioned camp sprawled out on the beach north of the plover territories (page 13, figures 29-31). No one was present at the time, but closer to midday, the monitor observed a group of men returning to the scene in a boat. NPS Ranger Eric Sjogren arrived as they were packing up. As is the Monitors' duty, the camp was reported; the next day, the monitor was also told by visitors that an associate of theirs, who'd been sea kayaking along the island that morning (who was also observed by the monitor), had reported the camp as well. Even when camping is not banned (temporarily, for COVID reasons) in the Apostle islands, camping outside of designated sites is prohibited.



In 2020, visitation to Camp Plover (the monitors' base) was noticably higher than in preceeding years (2017-2019). Unidentified human and dog tracks (not *too* unusual) were first found at camp 6/19: but a new hole was also found in the monitors' tent screen (a delicate repair that had been ripped opened). Nothing inside was stolen. On the evening of 6/4, a

Figure 28. The bear box as it was found on 7/3.



yacht piloted by a single man and his dog arrived just outside camp while the monitor was trying to eat dinner (figure 25). He stayed offshore for around two hours, some of which was spent on the bough of the yacht, facing shore, in the nude. This same man (and yacht) was recorded anchoring right offshore and exposing himself in front of a plover monitor, who was stationed

alone and in plain sight on the nesting beach, on 6/27/18. He was also observed by another monitor in passing in 2018, offshore near the La Pointe Lighthouse (still nude). He was contacted by NPS Law Enforcement after leaving camp on 6/4/20.

On the evening of 7/3, upon the monitor's return home, the bear box at camp was found tipped on its side (figure 28). The monitor believes it was the work of people and not Makwa (blackbear), due to the boxes great weight and the fact that it had been shifted around on its feet before being flipped; only an adult male blackbear could have the strength to achieve that, and no bear tracks large or small (and no other large animal tracks) were found in the surrounding area or on the nearby beach or sandy forest trail. Some minor dishwear was broken inside the bear box and a water jug was dented and punctured from being impacted by the box. On 7/28, visitors were found





Figures 29 - 31. The empty camp found north of the plovers on 7/3.





Figure 32 (left). Two visitors enter the camp with a leashed dog. A third visitor is anchored near shore in a boat just past the trees, behind the person in blue (not visible). Figure 33 (right). A visitor photographs the Tire trail cam.

Trail Cameras

Trail cameras were installed at both nests this year, and although there were some technical difficulties at the season's beginning, they proved once again to be a *valuable* mode of gathering information on wildlife and visitors. Various animals, including predators Gookooko'oo (page 11), Aandeg, and Gayaashk (figures 16 and 37), were caught on camera at the nests or within the plovers' territories. The cameras also caught Waawaashkeshi (white-tailed deer) approaching an exclosure on two separate occasions (figures 38-39). Waawaashkeshi is not known to predate plovers.

A camera was also installed at Camp Plover, which captured Makwa (figure 35) at the bear box, an array of birds (figure 36), rabbits, and the aforementioned human visitors.



Figure 34 (left). A Tire chick stretches its wings. Figure 35 (center). A small Makwa forages in vain around Camp Plover. Figure 36 (right). An impressive Opichi (American Robin). Opichi has been observed nesting at Camp Plover for the past few years.





Figure 37 (top left corner). A contingent of Gayaashkwag (gulls) are spooked out of the Tire territory by an unseen presence.

Figure 38 (top right corner). Waawaashkeshi (white-tailed deer) makes a second ghostly appearance on the Desert trail camera. Read about the first appearance below.

Figure 39a (left top). A whiskered snout is captured extremely close to the camera. Circled in white is an adult Piping Plover in the background.

Figure 39b (left middle). An adult Waawaashkeshi walks uninterested past the exclosure.

Figure 39c (left bottom). A whiskered snout appears again about one minute later, on the opposite side of the camera's scope. Waawaashkeshi from figure 39b can be seen in the distance, circled in white.

It is uncertain whose washed out snout we are looking at. It's possible the snout in figure 39a belongs to the Waawaashkeshi in figure 39b, who may have been accompanied by another curious companion of the same species, perhaps a fawn, who was not registered by the camera after figure 39c was captured. Or, perhaps a shorter mammal species--such as Esiban (raccoon), whose tracks had been found in the area this season--was inspecting the camera as Waawaashkeshi just happened to walk by.

Tracks around the camera and exclosure were not taken note of on 7/8, and they were cleared away by the severe weather later that day.

Banding

Chick banding took place on three separate occasions this year, due to the discrepancy in age between the Chequamegon Point chicks, as well as weather conditions. All persons participating in banding this season were required to wear face masks and use large pieces of cardboard to fill in the social distance while corralling the birds by hand.

The first banding date was 7/2, where all four of the Tire chicks were successfully



Figure 40. Peggy Burkman handles one of the Desert chicks.

caught and banded at 46.70910, -90.76099. The second day was 7/16; the Desert chicks were successfully caught and banded at 46.70383, -90.75328.

The third banding date was 7/17. The banding crew first visited the Outer Island sand spit, where one chick (X,G³⁵⁴:O^B,G/O/G, figure 41 and 44) was caught and banded at 46.99213, -90.46890. Its two siblings were already able to fly out of reach (a solid fledging confirmation). The banded chick was quite heavy and had all flight feathers grown in (figure 44)--on the *cusp* of fledging. It was close enough that Sumner Matteson and Peggy Burkman agreed that it was reasonable to assume this chick will



have fledged, as well. There was one intact egg in the nest cup (figure 47). Only the adult male was observed during the visit.

The final territory visited was located on the westernmost tip of Michigan Island. One chick (X,G³²⁵:O^R,O/G), still many days away from fledging, was caught and banded at 46.87540, -90.51688. There were three intact eggs in the nest cup (figure 49). Only one adult (likely male) was observed during the visit, and it was unbanded. All in all, 8 of the 10 chicks who hatched were banded.

Figure 41. The Outer Island chick in hand, awaiting new bands.



Figure 42 (above left). One of the Desert chicks awaits new "jewelry" inside a plastic tub of sand.

Figure 43 (above right). Sumner Matteson, left, and Peggy Burkman, right, collaborate on banding one of the Desert chicks.

Figure 44 (below left). The Outer Island chick with new bands, in hand. Its first flight feathers are clearly seen to have grown in.

Figure 45 (below right). The Michigan Island chick leaps to freedom from the hand of Sumner Matteson.







Figure 46 (above). Part of the Outer Island territory. From left to right, Megan Russo, Kasey Arts, and John Keck take down the exclosure and fencing.

Figure 47 (right). The Outer Island nest with its single unhatched egg.

Figure 48 (below right). The Michigan Island nest with three unhatched eggs.

Figure 49 (below). A panorama of part of the Michican Island territory. The banding crew can be seen to the left and a visitor's boat can be seen in the water to the right.





Weather

Over the course of the season, 15 rain events graced Chequamegon Point, with about 9 events reaching thunderstorm status. The average high temperature for the region during this



Figure 50 (above). A storm rolling in from the northwest on 7/6, over the Bayfield Peninsula and Mooningwanekaaning (Madeline Island). It brought light rain and heavy wind gusts. Figure 51 (below). Distant showers over the Bayfield Peninsula, looking west from Chequamegon Point, over the Chequamegon Bay.

period was 82.3°F and the average low 53.6°F. The highest recorded temperature was 92°F, which occurred on 7/3. The lowest temperature was recorded on the night of 6/13 at 33°F. The fastest wind speed and fastest gusts were recorded on 7/8, at 38 and 60mph. There were several stagnant, humid days through the month of July. Data were provided in part by the National Weather Service in Duluth, MN.

Overall, the 2020 season felt *much* hotter and far less windy than the three previous years. E-NE winds were sparse, and so were days that saw waves higher than 2 feet impacting the plovers' nesting beach. Neither of the Chequamegon Point nests were threatened by violent wave activity, unlike in previous years. However, the storm on 7/8 brought destructive west winds upon Michigan Island. After that, on 7/12, NPS Ranger Mark McCool visited the on-duty monitor and reported that the psychological fencing on Michigan Island had taken a huge beating and had been given repairs.



Special Thanks

Despite the looming threat of COVID-19 and the general state of anxiety and unrest, a deep thank you to everyone who still participated in a successful season. The plover monitors would first like to extend a huge thanks to Kris and Noah Arbuckle, for going above and beyond as the main source of transportation this year, and for boating out in all kinds of wind speed and wave direction to haul gear, water, and volunteers on the busiest holiday of the year. Thanks to Sumner Matteson for sharing his extensive plover expertice and his patience in juggling banding dates between islands and bird species. Thanks to **Peggy Burkman** for providing urgently needed exclosures in rough weather and for all her coordination efforts. Thanks to **Kyleleen Cullen** and **Kasey** Arts for transporting exclosure and fencing gear, as well as helping set up protective measures. Thanks to everyone who volunteered to come out with the NPS and Mashkiziibii NRD to assist in banding chicks on Chequamegon Point, Outer Island, and Michigan Island, including: Darrell Burns, Suzi Smith, Megan Russo, John Keck, Kyleleen Cullen, and Kasey Arts. Big thanks to Lance Twombly, Mark McCool, Eric Sjogren, and Peggy Burkman for helping the monitors deal with some unique visitors. Thanks to Wildlife Specialist Abi Fergus for transport, guidance, and communication support thoughout the season. Thanks to Fish and Wildlife Biologist Reena Bowman of the U.S. Fish and Wildlife Service, and Chief of Resource Management Julie Van Stappen of the National Parks Service for also helping to keep the project rolling early on in the season. And finally, thanks to our partners: The National Park Service, U.S. Fish & Wildlife Service, Wisconsin DNR, the Mashkiziibii Tribe and Mashkiziibii Natural Resources Department, the Nature Conservancy, the Johnson Family, and the WISKERT Corporation.





GLOSSARY

Backwater	A stagnant body of water lying within the dune system, isolated from the lake by the beach and foredune. Usually contains different vegetation than the surrounding dunes.
Cobble Pan	The strip of beach parallel to the shore where cobblestones have been most densely deposited by wave action.
Fledged	The point reached in a juvenile plover's life when its flight feather growth allows for the ability to fly.
Foredune	The dune ridge in a system of dunes that is closest to the shoreline.
Treeline	The belt where the dune system transitions into forest habitat; the edge of the dunes where trees begin to grow.
Washzone	The region of the shore line within which waves break.
Wrack Line	The impermanent line of debris, usually dark organic material, that is deposited on the beach by the tide.



All photographs not created by trail camera were taken by Royce Galindo.