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On the Waterfront

Sebastian the Snowy Owl
A Modern Tale of Climate Change, Species Interaction

By David Frew, Scholar in Residence
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Good birdwatchers refrain from naming the birds they spot. Not so much me! Let me introduce Sebastian, the Snowy Owl, who became a regular local visitor for three years and hung out near my sailboat where it was in winter storage at the

Erie Yacht Club. Sadly, Sebastian is gone now. He has departed because of the very same weather phenomena that brought him to Erie. Winter warming. We miss him but understand that the weather shifts, which originally brought him to Erie, have now taken him away. He had no choice but to leave. But his time here may have been a cautionary warning.

Sebastian's story involves two other species and, of course, climate change. His species is in trouble. The snowy owl has been declared endangered. Best estimates suggest that the population of snowy owls has declined by more than 70% over the last decade. The primary problem for the species, which generally live in the Arctic, is that global warming has had a devastating impact on the northern environment. Warming has been more extreme at the polar ends of the Earth than in the middle latitudes, at places like Erie. Arctic warming has shifted the living patterns of many northern creatures, including the polar bear and the snowy owl.

A few years ago, local bird enthusiasts were shocked to learn that snowy owls had been reported on Presque Isle. The owls arrived with early winter snowfalls and were working the beaches, where they were preying on migrating shore birds. My wife Mary Ann and I traveled to Presque Isle several times but never saw one. But then one day as we were checking on our winter-stored sailboat at the Erie Yacht Club, we were shocked to see a huge snowy owl launch himself from the winter cradles near our boat, sweep away in a graceful circle and land on a pier on the west side of the club. Snowy Owls are huge, bigger than any native owls. They are also magnificent and graceful, able to fly with almost no apparent effort.

It was climate change that brought snowy owls, including our new friend Sebastian, to Erie. Warm Arctic weather had altered the behavior of the owl's primary fall food target, the lemming. The cute little rodents were having a difficult time with the new warmer weather, which made it hard for them to thrive. Lemmings had previously burrowed through thick layers of snow and into the relatively soft surface of the soil, where they could live in relatively shallow dens protected by a thick insulating layer of snow. As the climate warmed, however, lemmings had to dig into the hard, frozen (uninsulated) ground. Even when they managed to dig deep enough holes in the hard surface of the frozen dirt, their dens were exposed to colder weather because the traditional deep layer of snow was not there.

With the lemming population in "trouble" in the arctic, snowy owls did not have enough to eat. As a matter of adaptation, snowy owls began to move south, searching for new food sources. They have now been seen as far south as the Carolinas. Snowy owls are superb flyers, having been clocked at over 50 miles per hour.



The lemming

After noting the presence of our new friend, we began to visit every day to watch our new friend and after a while, we could predict his behavior. At about noon, he would climb out of the stack of wood and metal cradles, where he was living on the south side of the yacht club boatyard and fly in a low circle to the west. Rarely rising more than a few feet from the ground, Sebastian would find his way to the highest dock structure on the northeast edge of the yacht club basin and land. There he would perch and wait. For his new treat. Like most predators, snowy owls are adaptable. When a favorite food source becomes scarce, they quickly adjust. Find a new one. For Sebastian, the target in Erie was the American Coot, a duck-like bird, which is fatty and slow. What could be better?



The American Coot

Coots are migrating shorebirds. They are notoriously bad flyers but incredibly athletic swimmers. While this combination may seem, at first glance, to place them at a migratory disadvantage, it is an adaptation that has helped the species to thrive. During migrating seasons, spring and fall, in locations like Presque Isle Bay, these unique species characteristics allow coots to be among the first to arrive in the spring and the last to depart for southern climates in the fall. During the fall, their swimming skill allows them to dive deeper than other shore birds so that they can “finish off” any green bottom growth that remains after other birds have eaten as much as they can reach, given their limited diving prowess. The opposite is the case in spring when deep-diving coots are able to swim deep enough to eat early and left-over bottom growth.

One of the most interesting coot behaviors is their tendency to gather on open water in large groups. Birders refer to these huge coot flotillas as “rafts.” The proclivity to gather in very large groups is said (by ornithologists) to be a defensive strategy, which makes the gatherings of individually small and vulnerable birds appear to be a very large, black organism from high above. This group-gathering tendency seems to be designed to deter flying predators like eagles and hawks from preying on the vulnerable coots.

Given prevailing southwest winds on Presque Isle Bay, coots tend to gather in the sheltered corner just east of the Erie Yacht Club basin and in front of Ferncliff. That spot on the bay is rich with weed growth and protected from the prevailing wind by the club’s basin structure. And that was why Sebastian was working the area.



A "raft" of coots

While a coot raft may have been useful in deterring high-flying predator birds like eagles, it was playing right into Sebastian's hunting strategy. The huge group of coots provided the snowy owl with a rich target, from which it was inevitable that there would be at least one slow-moving "victim" if Sebastian timed his attack moves properly. And he did. While we watched, Sebastian repeatedly launched himself from the top of the dock, where he had been patiently waiting. Using the elevation of the dock for "mechanical purchase," he launched himself and glided toward the coots, barely moving his wings. His approach was unnoticed by the hapless birds as he flew just inches from the surface of the water. Sebastian was "on top of" the coots before they could react and almost always grabbed one in his sharp, hooked talons. The coots did not have a chance. They reacted, but not until he was in the middle of their "raft." Their reactions ranged from diving to flying away, but Sebastian was a regular winner.

During the time that we watched, Sebastian was successful almost 90% of the time. He would repeatedly depart the crowd of coots with one unfortunate bird in his talons, swoop back toward the club and land in a dedicated spot between the outdoor restrooms on the north end of the east breakwall and the EYC lighthouse. Once he had reached his "picnic destination," Sebastian would land and make quick work of the coot that he had captured, ripping it apart and feasting. Coots are packed with protein and fat and provide needed nutrition for a variety of species, including fox, coyotes, snapping turtles, and large birds. In the American South they are a regular target for hunters who call them marsh hens and regularly mix "coot" into Cajun dishes.

Two primary environmental conditions were essential to the success of snowy owls in Erie: (1) snow cover and (2) open water. A coating of snow provided "cover" for the white colored owls and open water enabled them to hunt the

thousands of migrating shore birds that visit Presque Isle's environs to rest and wait to continue their annual journeys – shore birds like Sebastian's tasty coots. Sebastian is gone. And the change that seems to have diverted him is climate warming. As each of the last several winters has exceeded its precession season as the warmest on record, Presque Isle Bay waters remain wide open until late January or February, an enticement to the shore birds. But there has been little or no snow. This year's snowfall total, for example, was about a third of the long-term average. Snowy Owls have reportedly moved to Montreal, which has experienced an increase in its lemming population. How did they know?

Where will the current trend in warming lead? As a wise owl like Sebastian might say, "Only time will tell."

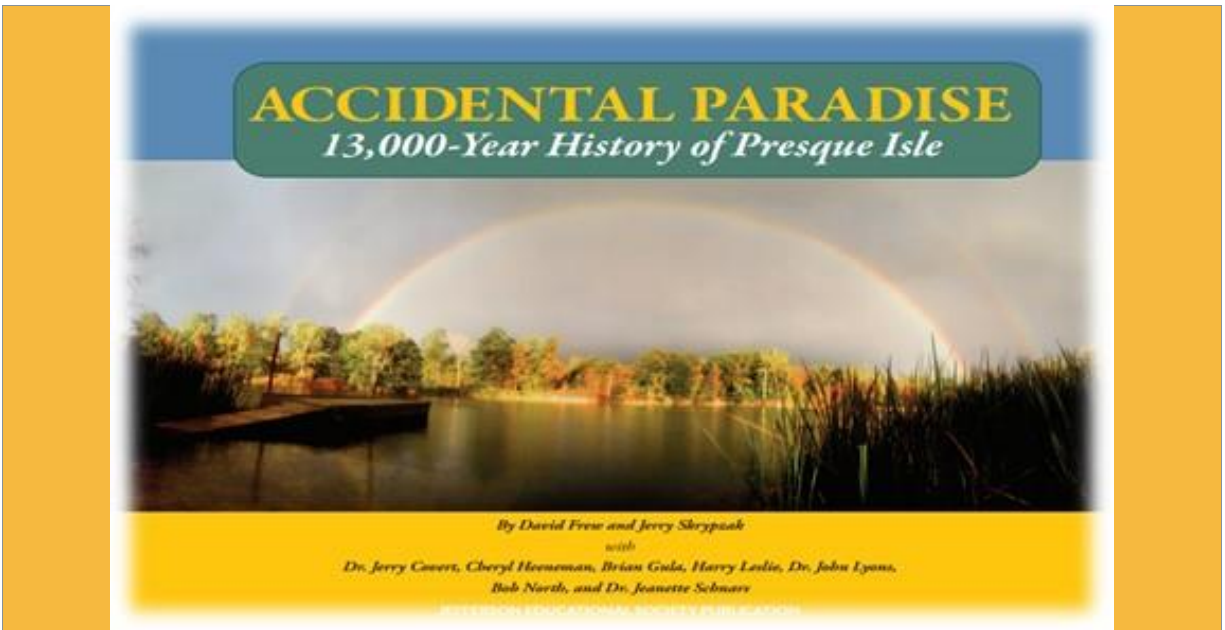
For more information about regional birds, migration, and climate, visit Presque Isle's Tom Ridge Environmental Center, Cornell University's "Lab of Ornithology," or the Roger Tory Peterson Center in Jamestown, N.Y.

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by Dr. David Frew and Jerry Skrypzak



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The book, priced at **\$35 plus tax and shipping**, can be ordered now through the website sponsored by the TREC Foundation, AccidentalParadise.com.

Presque Isle Gallery and Gifts on the main floor of TREC, located at **301 Peninsula Drive, Suite #2, Erie, PA 16505** will also handle sales *daily from 10 a.m. to 4 p.m.*

For more information, send an email to aperino@TRECf.org.

To watch "Accidental Paradise: Stories Behind The Stories" click [here](#).

ABOUT THE AUTHOR

Historian and author David Frew, Ph.D., is a Scholar-in-Residence at the JES. An emeritus professor at Gannon University, he held a variety of administrative positions during a 33-year career. He is also emeritus director of the Erie County Historical Society/Hagen History Center and is president of his own management consulting business. Frew has written or co-written 35 books and more than 100 articles, cases, and papers.



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