

USE OF CABANAS BY PIPING PLOVER CHICKS AFTER HATCHING



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Abstract

In 2013 cover structures known as “plover cabanas” were introduced at Grand Marais, MI to offer plover chicks shelter from sun and predators during the day. While monitors have witnessed plovers using the cabanas there has not been a quantitative assessment of their use. We set motion sensitive game cameras, on average .4 meters, from plover cabanas at four nesting locations, Grand Marais, Gulliver, Port Inland, and Vermilion, in the Upper Peninsula of Michigan to quantify the use of the “plover cabanas”. Plovers were observed using cabanas in 69 of 710 pictures taken. Use of cabanas varied by nesting site with 5 site ($P=16.6$). It was noted that at some sites the cameras were placed close to the cabana. Varying the distance in cameras and observing the resulting usage would be a possible expansion on this research. The cabanas were never used as perches by predators and chicks were observed using them in harsher weather. They were also used as perches for parents watching chicks at sites with little drift wood. After conducting this research it is recommended that cabanas be set up at nesting sites in the Upper Peninsula, and possibly the Lower Peninsula, for the 2016 breeding season.

Introduction

The Piping Plover is a very small shorebird with pale backs that match the pebbled beaches it breeds on (Kaufman 2015). There are three populations of Piping Plovers; the Great Plains, the Great Lakes, and the Atlantic coast (US Fish and Wildlife Service 2015). The Great Lakes population of Piping Plovers is listed as endangered and has been since 1986 (US Fish and Wildlife Service 2015). At the time of their listing there were only 17 documented breeding pairs in the Great Lakes and in 2015 numbered 73 pairs. Predation such as by crows and gulls, and human encroachment due to recreation and development have had a significant impact on annual fledging rates. The precocial young leave the nest a few hours after hatching and feed themselves (Kaufman 2015) and their extreme amount of movement makes protecting the chicks from predators and human disturbances challenging for volunteers and researchers. In addition to predation, the often harsh and highly varied weather elements along the Great Lakes may decrease likelihood of chick survival. Artificial cover structures “cabanas” have been used to increase fledging and survival rates of hooded plovers in Australia. These “cabanas” have been placed at some piping plover nesting sites within the Great and have seen some use, however this use has not been quantified.

Objective

The objective of this study was to attempt to quantify the use of plover cabanas by Great Lakes piping plovers at four nesting locations (Grand Marais, Vermilion, Gulliver, Port Inland) in Michigan’s eastern Upper Peninsula.

Methods

Data was obtained at four nesting locations, Grand Marais, Gulliver, Port Inland, and Vermilion, in the Upper Peninsula of Michigan. Cabanas were placed at sites after chicks had reached at least one week of age and motion sensitive game cameras (Moultrie 880) were set 0.4 meters from the cabanas (figure 1). The location of the cabanas at the sites was determined with the assistance of the monitor(s) of the sites. Cameras and cabanas were left at the sites were vacated. Pictures were downloaded and analyzed for presence of plovers or other animals (i.e. predators) in or around the cabana. Use was determined if the plover was observed under the cover of the cabana or on it. Chi square analysis was used to determine if use was used to determine if plovers used the cabana when in proximity (H_0 : pictures with plovers using cabana = pictures with plovers not using cabana). Use was further characterized by time of day, weather condition (gleaned from photo), and ambient temperature.



Figure 1. Cabana and game camera at Grand Marais, MI nest site ‘Sucker River’

USE OF CABANA AT GULLIVER 3 NEST SITE

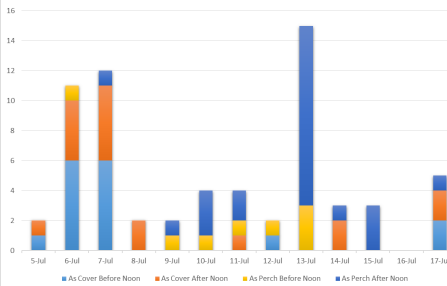


Figure 2. Cabana use (number and type) by piping plovers before and after noon at Gulliver 3.

USE OF CABANA AS COVER AT GULLIVER 3 NEST SITE AND AMBIENT TEMPERATURE

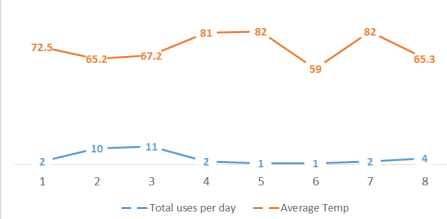


Figure 3. Daily cabana use by piping plovers and Ambient temperature at Gulliver 3.



Figure 4. Male piping plover using cabana as a perch to watch over foraging chicks at Gulliver 3 nest site.

Acknowledgements

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Results

Data from Vermilion and Port Inland were not usable due to technical issues.

Over 710 pictures were examined containing 96 plover observations with cabana use 71.9% (69 observations) of records higher than expected ($p = .002$). Observations were dominated by the Gulliver 3 pair who accounted for 67 (97%) of the 69 positive use observations. Of those 67 positive uses 50.7% were from the male over using the cabana as a perch.

No predators were observed using the cabanas as a perch.

Seasonal use was characterize by the Gulliver 3 plovers throughout the day (figure 2) and the ambient temperatures during use (figure 3).

Discussion

Overall cabana use was highly varied by nest site and individual plover pairs, as only one pair accounted for 97% of all observations of cabana use. The cabanas offered needed structure on beaches void of driftwood as parents used them as a perch to watch chicks forage (figure 4), and chicks used them as cover in harsh weather (figure 5).

Regardless of plover use in this season, there were no negative impacts, such as predator use as perches, observed from those cabanas deployed at Piping Plover nesting sites. As this was a preliminary examination of the cabanas it is suggested that they are likely a benefit to plovers, or in the least not a negative factor, and their use in the future is warranted but should be re-examined.

Literature Cited

- Kaufman, K. 2015. Piping Plover. National Audubon Society. Michigan Department of Natural Resources (DNR). 2015. Great Lakes Piping Plover.
- U.S. Fish and Wildlife Service. 2014 Species Profile of Piping Plover (*Charadrius melodus*) – Great Lakes Population.
- Vincent Cavaliere. 2016. US Fish and Wildlife Service. Personal Communication.



Figure 5. Piping plover chicks using cabana for shelter at Gulliver 3 nest site.