

Charadrius semipalmatus (Semipalmated Plover)

Family: Charadriidae (Plovers)

Order: Charadriiformes (Shorebirds and Waders)

Class: Aves (Birds)



Fig. 1. Semipalmated plover, *Charadrius semipalmatus*.

[<http://www.go2moon.com/image/Birds/Plover/Plover-A1.html>, downloaded 5 November 2016]

TRAITS. *Charadrius semipalmatus* is a small, stout shorebird with a well-rounded head, orange webbed feet and no visible neck (McCormick, 2016). It is approximately 18cm in length, has a wingspan of 43-52cm and an average weight of 45g (Bouglouan, 2016). Males, while in breeding plumage, have a distinctive black neckband and black mass over the eyes, white underparts, and brown wings (Fig. 1). The bill is orange with a black tip. An overall similar but drabber appearance is seen in female breeding plumage. In non-breeding plumage, the neckband changes to a brown colour and there is reduced black mass surrounding the eye. Chicks have grey downy feathers, yellowish legs with white wings and an almost entirely black bill (Fig. 2) (Chang, 2011).

ECOLOGY. The habitat of the semipalmated plover includes intertidal salt mudflats, freshwater mudflats, beaches, shores of lakes, ponds and rivers (Kaufman, 2016). The semipalmated plover, during the breeding season, occupies the arctic tundra through Canada and Alaska (Bouglouan, 2016). During the winter season when harsh conditions exist, the semipalmated plover migrates south, as far as Central and South America and the Caribbean. It is a very common visitor to both

Trinidad and Tobago, mostly between August and April (French, 1991). It forages both during the day and night, feeding on small crustaceans, molluscs and worms and on terrestrial insects while inland (Kaufman, 2016). They are opportunistic feeders, feeding on whichever food is available. For example, during the locust grasshopper outbreak in the United States, this plover's diet consisted mainly of the locust grasshopper contributing to the control of the population size of the insect. They are hosts to parasites such as feather mites and lice, and serve as a food source for mammals such as weasels and fox (Chang, 2011).

SOCIAL ORGANIZATION. Semipalmated plovers are territorial; during the non-breeding season they defend their territory (Swarth, 1990). Also, during breeding seasons, males defend their nesting areas by hovering around in circles with slow wingbeats and repeated calling (Kaufman, 2016). They are also known to defend their mate by engaging in displays of fanned tails and wing dropping (Bouglouan, 2016). A semipalmated plover's habitat includes open mudflats such as sandy beaches and lake shores. Breeding grounds are also in open flats of gravel in close vicinity to water. The average clutch consists of four eggs. Both parents care for their young however shortly after hatching, the chicks leave their nests and some obtain their own food. Females eventually abandon their young and male; the male has sole responsibility for the chicks. Chicks begin their first flight at about 23-31 days after hatching (Kaufman, 2016). Juvenile chicks migrate in small flocks. Nesting is semi-colonial and females are monogamous (Palmer, 1967).

ACTIVITY. Both diurnal and nocturnal activity is seen in the semipalmated plover, but they are predominantly diurnal feeders (Dodd and Colwell, 1996). Feeding accounts for 60% of the bird's daytime activity (Morrier and McNeil, 1991). They migrate during the spring, mid-April to mid-May, to the sub-arctic for breeding purposes. The return migration is made in the months of July through November, to winter along the coasts of Central America and the Caribbean (McCormick, 2016).

FORAGING BEHAVIOUR. While foraging, semipalmated plovers search for their prey visually. The nature of their bill, small but powerful, allow for snatching of prey and hammering or cracking of hard objects. They display a foot trembling behaviour; it digs by kicking its legs sideways and backwards, throwing sand up and around. This action startles and exposes invertebrates in grassland and intertidal zones to move to the surface, allowing plovers to visualize its prey hence increasing capture (Cestari, 2009). They also forage in typical plover style, that is they run a few steps and pause, then begin running again pecking at the ground or snatching anything spotted that is edible (Kaufman, 2016). They generally forage in small groups (Fig. 3) that are metres apart however they have also been recorded foraging alone (Fig. 4).

COMMUNICATION. Semipalmated plovers produce a common call that is a soft, clear whistle which is used by males to communicate with other members of their flock. Communication for the purpose of courtship uses a quickened version of the common call. A dance, most commonly known as "butterfly flight" is performed by males during courtship. It includes a deliberate and slow flutter of their wings while hovering near its territory, approximately 50m above the ground (Chang, 2011). Flights are used to define the boundaries of a male territory and also to attract female mates. In the event that a threat occurs, the male defends his territory by flying with wings slightly outwards and head down towards the threat or object. A rapid and repeated chattering, signalling nervousness and anxiety, is used by parents to communicate to their young, the presence of a predator in the territory (Chang, 2011).

SEXUAL BEHAVIOUR. Breeding is seasonal, that is during the months of May to August. The semipalmated plover is a monogamous bird. Males establish nesting grounds and eventually create the nests which are shallow depressions in the ground covered by leaves (Zehringer and Kasich, 2012). Once a male's territory has been chosen by a female, the male follows the female so as to defend his mate and his territory. The male also displays threats to other males by moving towards them with his wings slightly out and his head in a bent or downward position. Initially, the male meets and greets his mate in an aggressive way; making a chattering vocalization while chasing her with his tailed fanned and cocked (Chang, 2011). This aggression eventually diminishes as courtship continues. The male then begins to court the female with its butterfly flight motion as well as courtship calls. The female indicates her choice of mate and territory by performing a tail fanning display. The tail display is often followed by copulation. After successful copulation, females lay a clutch of 4 eggs over a 5 day period. There is a 24-30 hour interval between the laying of each egg (Chang, 2011). Both males and females contribute to incubation of the eggs for the next 23-25 days (Kaufman, 2016). Two broods are produced per breeding season (Swarth, 1990). Eggs are pear-shaped and olive brown in colour with black and brown patches. The eggs usually weigh between 8.7-9.4g. The entire clutch hatches within 2-5 days. After the egg has hatched, a young bird can take a maximum of 4 days to complete its hatching however it usually completes its hatching within a 12 hour period.

JUVENILE BEHAVIOUR. Both parents care for the young initially; they both incubate eggs. After an egg has hatched the male leads his young a small distance away from the nest where he feeds and broods the chick for up to 5 days. Semipalmated plover chicks are precocial, they can walk and feed hours after birth. At approximately 15 days after the eggs have all hatched, the mother abandons her young and her mate. The chicks are fully developed within 22-30 days after hatching; they experience their first flight around this time. During the fall when semipalmated plovers migrate, the juveniles tend to flock together. They become sexually mature at age 2 or 3. They breed yearly after their first breeding experience (Chang, 2011).

ANTIPREDATOR BEHAVIOUR. Semiplamated plovers are exposed to predation from animals such as hawks, weasels and foxes. Eggs, chicks and adult semipalmated plovers are all preyed upon by these predators. *Charadrius semipalmatus* nest in areas of sand and pebbles with little vegetation, and depend on the camouflage of their eggs to prevent them from being preyed upon by predators. In an attempt to discourage or intimidate a predator, a semipalmated plover performs an aggressive "mobbing display". Parents stay close to their young. Incubating semipalmated plovers have also been able to effectively deter or distract a predator by using distraction displays whereby a plover runs and flies a safe distance away from the nest singing loudly to attract predators to the song and keep them away from the nest. Closer to the hatching of eggs, there is a significant increase in the intensity of the songs. Semipalmated plovers have also been known to master the act of feigning injury (Sinclair and Alexander, 2003) that is when encountered by a predator the bird begins to fake an injury such as a broken wing (Fig. 5). The bird then moves towards the predator in attempt to lure it as far away from the nest as possible. Once the predator is a distance away from the nest, the bird then quickly flies off and returns to its young (Chang, 2011).

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Fig. 2. Semipalmated plover chick in Alaska.

[<http://www.go2moon.com/image/Birds/Plover/Plover-A2.html>, downloaded 10 November 2016]



Fig. 3. Semipalmated plovers foraging in a small group.

[<http://www.oiseaux-birds.com/card-semipalmated-plover.html>, downloaded 12 November 2016]



Fig. 4. Semipalmated plover foraging alone.

[<http://www.oiseaux-birds.com/card-semipalmated-plover.html>, downloaded 10 November 2016]



Fig. 5. A semipalmated plover feigning injury - broken wing display.

[<http://www.go2moon.com/Plover.html>, downloaded 10 November 2016]

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