

Calidris mauri (Western Sandpiper)

Family: Scolopacidae (Sandpipers and Snipe)

Order: Charadriiformes (Shore Birds and Waders)

Class: Aves (Birds)



Fig. 1. Western sandpiper, *Calidris mauri*.

[http://www.pbase.com/craib_birder/image/117893361, downloaded 16 November 2014]

TRAITS. The western sandpiper is a common shorebird. It is small in size with a short neck and a black moderately long bill which is slightly drooping or downcurved (Fig. 1). It has moderately long, black legs, webbed toes, black-centred tail, its back is grayish brown with hints of reddish orange and its breast feathers are usually lightly marked. During the breeding season the crown, cheeks and scapular become a rusty brownish colour and the breast becomes heavily spotted (Fig. 2). Males and females are similar, but females are a bit larger. Juveniles are similar to adults except with a scalier pattern on their backs. Adults are 14-17cm in length, have a wing span of 25-36cm and usually weigh 22-35g. They have a high pitch voice which creates a raspy “cheet” and have a tendency to whistle while they feed.

ECOLOGY. The western sandpiper has a small reproductive range but an extensive range in the non-breeding season. Breeding is limited to western Alaska and the Chikotshi Peninsula in Siberia (Wilson, 1994). In winter they can be found in the Pacific coastal region from California to Peru and the Atlantic coastal region from North Carolina to Suriname (Wilson, 1994). The largest winter concentration occurs in northwestern Mexico, the Baja California Peninsula (Morrison, 1992). They can also be found in the Caribbean, and are common visitors in both Trinidad and Tobago. They breed in habitats that are made up of a combination of swampy marshes and lush, healthy tundra that allows water runoff. They obtain food from marshes and along the banks of rivers and coastal shores. Densities are estimated at around 3-5 pairs per hectare in nesting areas at the foot of hills, and 5-6 pairs per hectare on hammocks surrounded entirely by marsh.

SOCIAL ORGANIZATION. Western sandpipers have a mating system which is monogamous with both sexes involved in parenting and nurturing the young. Males and females form single bonded pairs and are inclined to revisit original breeding sites. The nesting activities and selection of these birds are mainly restricted to healthy tundra as it offers protection for nests. Increased protection and the presence of both parents allow increased survival rates of young. These birds are ground nesters spending much of day time foraging when the tide is low and resting at night and when tides are high. They are social and present among other species of waders.

COMMUNICATION. Adult western sandpipers communicate with each other by making high pitched “cheet” calls. These are transmitted at different volume levels and speeds creating a specific meaning. They use flight calls, high intensity alarm calls, distress or injury feigning calls to attract attention and trick predators. They also communicate with each other using body language or signals. Western sandpiper chicks are precocial (born in a developed or advanced state) and abandon their nests after hatching in an attempt to forage independently. The parents assist in the thermoregulation of chicks post-hatching and they nurture their young by leading and defending them for a duration of 2-3 weeks after hatching. Parents use call signals to guard young against predators, to prevent straying from the brood and to lead them to suitable feeding sites. Four distinct calls are directed towards chicks. These are: alarm, freeze, brooding and gathering calls.

Calls used to gather chicks cause movement towards the calling parent and the alarm call functions to direct the chicks away from the vocalizing parent. Both calls result in movement and directional changes of chicks. This may cause the chicks to shuffle towards an area rich in resources or away from exposed areas and predators. Gathering calls are advantageous as it allows the parents to locate its offspring facilitating gathering of the brood. Alarm calls cause chicks to move away from the signals point of origin and reduce the number and frequency of chick vocalizations allowing hiding from potential threats and fleeing from the vicinity. The parent western sandpiper will fly towards the predator drawing its attention from the brood. It gives a number of alarm calls while creating a variety of false injury displays for distraction (Brown, 1962; Holmes, 1973). The freeze call is used when predators are in range and chicks react in response to this by crouching motionless and vocalizing less as the parent does the same (Miller, 1984; Walter, 1990). Chicks show reduced vocal response to non-parental adults. Western sandpiper parents usually chase away conspecifics (birds of the same species) from their brood. They attack neighbouring broods that encroach within 20m of their own. Attacks are non

lethal and only used to drive other chicks away. The other parent usually shows up and leads its chicks away from the attacker.

SEXUAL BEHAVIOUR. The male western sandpiper sings and flies over the nesting site trying to attract a potential mate. He approaches a selected female in a crouched position and produces a trilling call. He then makes several scratches or scrapes on the ground and lines them with leaves, lichens or sedges. The female will choose one of these scrapes for her nesting location and lays between 3-5 eggs. Both the male and female help incubate the eggs illustrating bi-parental care. The female may leave before the eggs hatch, leaving the male to care after them. The eggs hatch within 20-22 days and out comes developed chicks that are capable of self feeding. If the female stays both parents nurture their young. There is a possibility that she will leave shortly after hatching occurs. After 19-21 days the chicks fledge.

FORAGING BEHAVIOUR. Western sandpipers are known to feed on insects, crustaceans, small molluscs, marine worms and biofilm depending on whether or not it is the breeding season or non-breeding season, which influences their location. Individuals within a population react differently when there is a variation of food resources available. Bill size varies with sex (sexual dimorphism) and leads to different foraging behaviours and habitat usage. Female western sandpipers have bills which are 15% longer than those of males causing the males to be more susceptible to foraging competition. A study of this was done in three different habitats at Bahia Santa Maria, northwestern Mexico. The habitats were cattail marshes, salty marshes and mangroves. Males demonstrated a higher frequency of pecking, lower probing rate, walked faster and fed at sites with reduced water levels. Males illustrated a greater variation of foraging techniques than females.

During the non breeding season these shorebirds alternate their spatial behaviour and social organization between flocks and territorial behaviour depending on environmental factors. Males are more territorial than females, being more aggressive indicating that males consuming surface prey are affected by foraging interference. Territorial behaviour seems to be an opportunistic technique to limit foraging interference. In high risk habitats sandpipers always feed in flocks of a few to > 50 individuals. There are certain benefits to changing spatial arrangements. These result in reduced foraging effort and increased safety in certain habitats. The risk of predation is a preponderant factor favouring flocking in western sandpipers. Territoriality is reduced when the danger of predation is higher. Reduced territoriality lowers the risk of attacks by low flying raptors.

ANTIPREDATOR BEHAVIOUR. Adult western sandpipers use several calls, as mentioned above. The parent usually flies towards the predator e.g. a peregrine falcon or merlin, and tries to distract it from its young. While doing so the western sandpiper calls to the chicks to run away and seek refuge. The parent may also pretend to be injured while making the feigning call, thus tricking naïve predators. Another antipredator response is foraging for food in flocks; the size of the flock depends on the habitat foraging in and the threat level. For incoming falcons the western sandpipers form flocks and simply attempt to fly under the predator.

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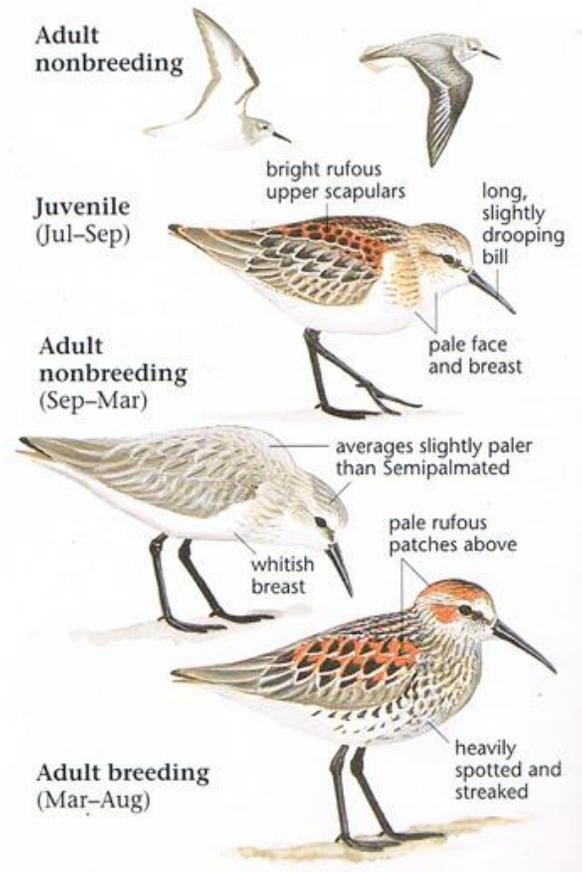


Fig. 2. Comparison of adult and juvenile western sandpiper.

[<http://www.swartzentover.com/cotor/Photos/Hiking/Birds/BirdPages/WesternSandpiper.htm>,

downloaded 16 November 2014]