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# Injured migratory shorebirds and gulls in the Kadalundi-Vallikkunnu community reserve

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**Abstract**

During the study on the foraging ecology of the migratory shore birds of Kadalundi, several injured birds were observed. Detailed investigation revealed that out of 28 species of migratory birds recorded from the area under study, 16 individual shorebirds belonging to six species were found injured. All injured species belonged to distant migrant category. One Whimbrel (*Numenius phaeopus*) was observed throughout the period of study. Lesser Sand Plover (*Charadrius mongolous*), Black-headed Gull (*Larus ridibundus*), Little Stint (*Calidris minuta*), Grey Plover (*Pluvialis squatarola*) and Common Redshank (*Tringa totanus*) were other species of injured birds observed. Direct observation method was followed for the study during 2005 to 2012. The Kadalundi-Vallikkunnu Community Reserve is one of the most important wintering ground and stop-over for migratory shorebirds in the West Coast of India. Anthropogenic activities may be the major reasons attributable to the bird injury.

**Key words**

Gulls, Injury, Kadalundi-Vallikkunnu community reserve, Migratory, Shorebirds



## Introduction

The coastal wetland of India is important for a large number of migratory water birds (Sandilyan *et al.,* 2010) and the estuarine tidal flats in India are important foraging places for many species of migratory shorebirds during winter season mainly because these tidal flats are located along the Central Asian Flyways. Anthropogenic activities resulted in severe loss or degradation of their habitats, endangering many species of birds and their potential invertebrate preys (Wada *et.al.,* 1996; Wetland International, 1996).

India is the core country of Central Asian Flyway (CAF) and supports 257 species of water birds. Of these, 81 species are migratory birds of CAF conservation concern, including three critically endangered species, six endangered species and 13 near threatened species (MoEF, 2005). Kadalundi-Vallikkunnu Community Reserve (KVCR) is internationally important for large numbers of migratory shorebirds that winter on its estuary. The KVCR is one of the most important wintering ground and stop-over in the West Coast of India. (Uthaman and Namasivayan, 1991). Its conservation significance has been studied by Aarif *et al.* (2011).

Shorebirds are likely to be important indicators of wetland health on a global scale. Their population worldwide is in a perilous state and about 48% with known trends are in decline (International Wader Study Group, 2003). Extrinsic threats such as habitat loss, predation, climate change, and hunting are cited as the major probable causes of population decline or elevated extinction risk across many species of shore birds. The actual cause for decline are to be subjected for in-depth research.

Studies in other parts of the globe showed that long distance migrant waterbirds appear particularly susceptible to the effects of human encroachment on habitats, overexploitation of resources and global climate change (Piersma and Baker, 2000; Baker *et. al.,* 2004; Boere *et. al.,* 2006; Galbraith, 2011). Literature survey reveals that no such studies based on injury to migratory birds have been carried out in this coastal belt in the past.

However the objectives of the study was to document injured migrant shorebirds, including frequency of sighting, of KVCR; document the taxonomic and migrant category of the injured shorebirds and identify the probable causes of injury in the migrant shorebirds in KVCR.

## Materials and Methods

**Study site :** Kadalundi River is one among the 41 west flowing rivers of Kerala. The Kadalundi River, at its drainage point forms the Kadalundi wetland that drains into the Arabian Sea (Fig 1). This wetland is located in Tirur Taluk and comes under the Kadalundi and Vallikunnu Panchayats (11°7'28"– 11°8'01"N and 75°49'36"–75°50'20"E) of Kerala State. Three square kilometers of this wetland area were declared Community Reserve in 2008 (Govt. Notification, 2007). Here, about 8 ha of mudflat are usually exposed during low tide, that attracts many birds to the wetland. This is the primary foraging ground of migratory birds. Mangrove species like *Avicennia officinalis*, *A. marina, Rhizophora mucronata*, *R. apiculata*, *Kandelia candel*, *Brugeria cylindrica, Acanthus ilicifolius, Exocecaria agallocha* etc which are abundant in this wetland (Radhakrishnan *et al.,* 2006) forming the second most important foraging ground of migratory shorebirds. In this region many specialist group of shorebirds forage intensively during the wintering season as different species of crabs and polycheates are abundant there.

**Observations :** The present report is based on the observations made during the period January 2005 to April 2012. The study area was visited once a week throughout the period. The findings are based on the observations made during the studies on the foraging ecology of the migratory shorebirds of the west coast of India. Observations were made with the help of Nikon binocular (10x50 mm) and CX 130 E Video camera during low tide in early hours of the day (6.00 to 11.00 a.m.) as it was ideal time to observe the migrant birds. Taxonomic designation of bird species were confirmed with the help of resource materials (Grimmet *et al.,* 1999; Sashikumar *et al.*, 1999; Kumar, 2005; Message and Tylor, 2005).

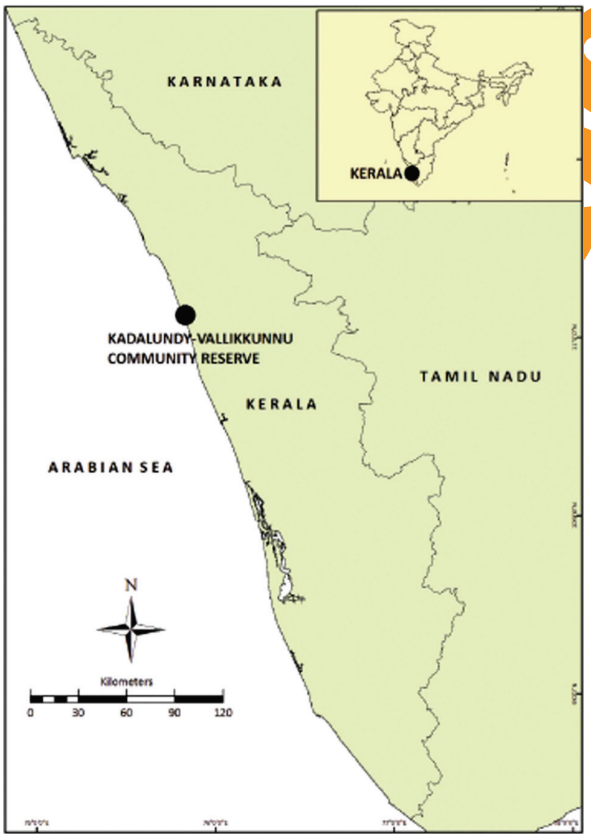


**Fig. 1 :** Location of Kadalundi-Vallikkunnu Community Reserve in Kerala State

## Results and Discussion

Among 28 species of migrant shorebirds recorded from study area, the Lesser Sand Plover, Greater Sand Plover, Kentish Plover, Common Redshank, Whimbrel, Eurasian Curlew and Common Sandpiper were most common species. Sixteen individual birds belonging to six species including one Black-headed Gull (*Larus ridibundus*) were observed with injuries during the study period. All the injured birds belonged to distant migrant category (Table.1). One Whimbrel (*Numenius phaeopus*) (Fig. 2) with broken right leg was observed throughout the study period (seven years) including rainy days which indicated that the bird was not fit enough for return journey. The first sighting of Lesser Sand Plover (*Charadrius mongolous*)-the most dominant species among the shorebirds in the Kadalundi and an over summering species (Aarif, 2009) - with right leg injury was

**Fig. 2 :** A photograph of Whimbrel with injured right leg

**Table 1 :** Details of injured migratory shorebirds identified from Kadalundi-Vallikkunnu Community Reserve

| Year | Species | No | Habitat | Injured body part | First sighting | Last sighting |
|---|---|---|---|---|---|---|
| 2005 | Whimbrel (*Numenius phaeopus*) | 1 | Mangroves | Right leg | 8.20 a.m. on 17th Jan | 11.20 a.m. on 9th Sep |
| 2006 | Whimbrel (*Numenius phaeopus*) | 1 | Mangroves | Right leg | 11.30 a.m. on 23rd Jan | 10.12 a.m. on12th Dec |
| 2007 | Whimbrel (*Numenius phaeopus*) | 1 | Mangroves | Right leg | 7.10 a.m. on10th March | 5.30 pm on17th Sep |
| 2008 | Whimbrel (*Numenius phaeopus*) | 1 | Mudflats | Right leg | 6.20 a.m. on 8th January | 10.22 a.m. on 22nd Oct |
| | Lesser Sand Plover (*Charadrius mongolous*) | 1 | Mudflats | Right leg | 2.30 p.m. on 28th Oct | 3.15 p.m. on13th Nov |
| 2009 | Whimbrel (*Numenius phaeopus*) | 1 | Mangroves | Left leg | 6.10 a.m. on11th Jan | 5.20 p.m. on 20th Dec |
| 2010 | Lesser Sand Plover (*Charadrius mongolous*) | 2+1 | Mudflats | Right leg | 9.32 a.m. on 7th Nov | 10.20 a.m. on 11th Dec |
| | Whimbrel (*Numenius phaeopus*) | 1 | Sandy beach | Left leg (2); right wing (1) | 8.10 a.m. on 12th Mar | 10.30 a.m. on12th Oct |
| 2011 | Black headed Gull (*Larus ridibundus*) | 1 | Mudflats | Right wing | 7.30 a.m. on 10th Nov | 7.50 a.m. on10th Nov |
| | Whimbrel (*Numenius phaeopus*) | 1 | Mudflats | Right leg | 9.45 a.m. on 24th Sep | 12.20 p.m. on10th Oct |
| | Little Stint (*Calidris minuta*) | 1 | Mudflats | Left wing | 7.40 a.m. on 7th Dec | 79.20 a.m. on 10th Dec |
| 2012 | Whimbrel (*Numenius phaeopus*) | 1 | Mangroves | Right leg | 8.10 a.m. on 9th May | 1.20 p.m. on20th Oct |
| | Grey Plover (*Pluvialis squatarola*) | 1 | Sandy beach | Left wing | 9.20 a.m. on 11th Feb | 9.45 a.m. on11th Feb |
| | Common Redshank (*Tringa totanus*) | 1 | Sandy beach | Right wing | 7.20 a.m. on19th Mar | 7.40 a.m. on19th Mar |

observed on 28th October, 2008. The injury was not serious and the bird was observed resting on the edge of mudflats under the protection of two other Lesser Sand Plovers. During 2010, three injured Lesser Sand Plovers (two birds with left leg injury and one bird with damaged right wing) were observed from the study area.

In addition to the Black-headed Gull, Lesser Sand Plover and Whimbrel, Little Stint (Calidris minuta), Grey Plover (*Pluvialis squatarola*) and Common Redshank (*Tringa totanus*) were observed with injuries. The Little Stint was a regular visitor to KVCR during winter season and an injured bird was sighted during the post monsoon season in 2011.

A juvenile Black-headed Gull (*Larus ridibundus*) with right wing muscles injury was sighted in 2011. The bird was observed with severe injury on the primaries and was unable to fly. Sathyaselvam (personal comm.) recorded similar type of injuries on Brown-headed Gulls (*Larus brunnicephalus*), Caspian Tern (*Sterna caspia*), Eurasian Wigeon (*Anas penelope*), Gadwall (*Anas strepera*), Lesser Sand Plover (*Charadrius mongolus*), Marsh Sandpiper (*Tringa stagnatilis*) and Common Redshank (*Tringa totanus*) recorded in Chilka lake during 2005 to 2009.

Anthropogenic activities like poaching (using fishing gears like Kandha nets, prawn gharries *etc*) while migrating or moving from one wetland to another might have supplemented the actual cause of these injuries. Recently, Kannan and Pandiyan (2012) reported that shorebird trapping, lime shell mining and pesticide contamination are major threats to shorebirds in Pulicat lake of Andhra Pradesh. Exposure to harmful chemicals may be another reason for the development of wounds. Hampton and Yamamoto (2002) reported the death of thousands of migrants including shorebirds, from California, due to exposure to harmful chemicals. Hampton *et al.* (2003) described that oiling of birds is another potentially significant cause of deaths of migrant shorebirds. Aquaculture underwent rapid growth worldwide between the 1970s and early 1980s, and expanded along the coasts of India during the 1990s. Presence of such artificial farms may be another reason for accidental injuries of migrant shorebirds like Common Redshank, Common Greenshank etc. as they feed mainly on small shallow water or deep shallow water organisms.

Entanglement has been reported in 56 species of marine and coastal birds (Laist, 1997). The study revealed that entanglements appeared to be the most common factor among pelicans and gannets and a few coastal gull species followed by albatrosses, petrels and shearwaters for injuries. The greatest cause of entanglements in seabirds was from monofilament line and fishing net. Other commonly reported entanglements were due to fishing hooks, six-pack yokes, wires and strings (Laist, 1997). A study on gannets (*Sula bassana*) showed that entanglement accounted for 13-29% of deaths in these birds at Helgoland, German Bight (Derraik, 2002). Research on gannets also suggested that a small percentage of adults and chicks die from entanglement in debris woven into their nests (Laist, 1997). In depth studies, need to be carried out to find out the actual cause of injuries to these migrating shorebirds.

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