

# Migratory bird activity in the bay of Lake Titicaca, Puno, Peru

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Lake Titicaca is located between Peru and Bolivia at an altitude of 3,808 m and covers an area of 8,167 km<sup>2</sup>. This aquatic ecosystem is a very important habitat for both resident and migrant species of birds. The first migrants arrive around mid-August. They remain in the area until April, when they begin the northward migration to their breeding areas.

Field work for the present study was undertaken between, and including, January and March 1990, in a feeding and staging area of 40 ha known as 'Chejona', south of the city of Puno.

The aim of this study was to determine the foraging habitats used most by two species of tattlers (Greater Yellowlegs *Tringa melanoleuca* and Lesser Yellowlegs *Tringa flavipes*), one calidrine sandpiper (Baird's Sandpiper *Calidris bairdii*) and one phalarope (Wilson's Phalarope *Phalaropus tricolor*).

The study area was surveyed twice monthly with binoculars. The area was subdivided into three distinct foraging habitats: (1) the water surface, (2) the lakeshore and (3) marshes.

*Phalaropus tricolor* was the most abundant species, with an average number per visit of 280 birds, but a daily maximum of 1,200 phalaropes was also recorded (Table 1). *Calidris bairdii* was the least abundant species, with a daily average of 28 birds recorded and a peak number of 49. At most times, all species foraged together, along with many ducks, geese and swans. The only exception to this was *Tringa melanoleuca*; some individuals were occasionally seen to forage alone.

As shown in Table 2, the four species spent 36–72% of their foraging time at the lake shore and the remainder in the marshes. Some phalaropes were seen on the water surface, but it was not a commonly used foraging habitat. Rather, the phalaropes spent 64% of the time in the marshes.

Most of the birds' foraging occurred during the early morning hours, although all species continued to feed extensively at mid-day and only slightly less during the late afternoon/early evening hours (Table 2).

**Table 1.** Maximum numbers of birds seen over the study period and average number of birds seen per visit in the study area.

Species	Maximum number	Average number
<i>Tringa melanoleuca</i>	79	32
<i>Tringa flavipes</i>	160	75
<i>Phalaropus tricolor</i>	1,200	280
<i>Calidris bairdii</i>	49	28

**Table 2.** Foraging habitats used by shorebirds in the Chejona area of Lake Titicaca between, and including, January and March 1990.

Species	Habitat <sup>a</sup>			% time in habitat		
	WS	L	W	06:00–08:00	12:00–14:00	16:00–18:00
<i>T. melanoleuca</i>	0	72	28	96	93	84
<i>T. flavipes</i>	0	56	44	97	95	87
<i>C. bairdii</i>	0	46	41	98	96	94
<i>P. tricolor</i>	13	36	64	93	90	82

<sup>a</sup> WS = water surface; L = lake shore; W = wetland.