THE STATUS OF THE BRISTLE-THIGHED CURLEW ON THE YUKON DELTA NATIONAL WILDLIFE REFUGE, ALASKA

by Brian J. McCaffery and Gene Peltola, Jr.

INTRODUCTION

The Bristle-thighed Curlew Numenius tahitiensis has been, and still remains, one of the most enigmatic of North American birds. Discovered in 1769 on the island of Tahiti, the curlews' breeding grounds remained unknown until 1948, when the first nests were found in the low mountains north of Mountain Village in western Alaska (Kyllingstad 1948). Only one nest has been reported since then, and it was found very near the earlier nests (D.D. Gibson, pers. comm.). Kyllingstad (1948) surmised that the bulk of the world's Bristle-thighed Curlew breeding population nested in these mountains (Figures 1 and 2), but this suspicion has never been confirmed. Gill and Handel (1981) summarize what is known about the species' distribution in Alaska, but the information is extremely fragmentary. The geographic range and the total size of the breeding population is a continuing mystery. Furthermore, information concerning migration ecology and wintering status is also very sparse. Although the species is known to winter throughout the central Pacific archipelagos, the small sizes of, and vast distances between, the islands on which the curlews occur have so far precluded systematic attempts to study them. Despite the assumed rigors of their spectacular overseas migration from Alaska to the central Pacific, virtually nothing is known about staging areas, pre-migratory requirements or landfalls during either spring or fall migration.

The purpose of this paper is to report the results of our first season's efforts which were intended to determine whether historical reports and hearsay reports of Bristle-thighed Curlew nesting were still valid. The long-term objectives of the study in the Yukon Delta National Wildlife Refuge (YDNWR) are to determine: 1) the nesting distribution of Bristle-thighed Curlews on the refuge; 2) if curlews continue to nest in areas previously identified as nesting areas; 3) the habitats used for nesting on the refuge; 4) the population parameters which characterize the curlews using the refuge for nesting and migration; 5) the estimated number of Bristle-thighed Curlews nesting on the refuge; 6) the annual contribution of the refuge population of curlews to the total...
Bristle-thighed Curlew population; 7) the pre- and post-migrational requirements of this species and, more specifically, if those requirements are obtained within the refuge boundaries; and 8) where the Bristle-thighed Curlews which summer on the YDNWR spend the winter.

LOCATIONS AND METHODS

Field work in 1985, in search of Bristle-thighed Curlews, occurred in the mountains north of the Yukon River near the villages of St. Mary's and Mountain Village (Figure 2). These mountains represent the southern end of the Nulato Hills, an extensive system of rugged terrain which runs from the Yukon north to the base of the Seward Peninsula. We undertook 4 trips to 3 locations in this region: 1) St. Mary's and the Andreafsky Hills from 7-20 June; 2) the headwaters of the Pikmiktalik River from 25-29 June; and 3) the ridges immediately east of Curlew Lake from 1-3 July. These three sites are described more fully below. In addition, BJM made observations during the 1985 spring migration at St. Mary's, and N. Henneula (pers. comm.) observed curlews while censusing birds for the YDNWR in the upper Andreafsky River drainage.

St. Mary's and the Andreafsky Hills. St. Mary's is located on the west bank of the Andreafsky River about 4 km from its confluence with the Yukon River. Three km upstream from St. Mary's, the North and East Forks of the Andreafsky merge. To the north of the village, the Andreafsky Hills, a 22-km long ridge system with several summits above 240 m, run in a SW-NE direction.

The major vegetation type in this vicinity is moist tundra. This tundra is dominated by cottongrass tussocks Eriophorum sp., but lichens, mosses, dwarf birch Betula nana, crowberry Empetrum nigrum, and various ericaceous species are common. On the higher ridges of the Andreafsky Hills, the tundra is drier and the vegetation is shorter than at lower elevations nearby, cottongrass is absent, and mosses and lichens dominate. These ridges run parallel to the mountains north of Mountain Village, only 30 km away, in which Bristle-thighed Curlews have been previously reported. We surveyed the elevation, geomorphology, flora and avifauna of the two ridge systems to be strikingly similar.

Pikmiktalik River. The headwaters of the Pikmiktalik River lie approximately 80 km NNE of St. Mary's. However, since the mountains run to the NE, the site is only 6 km E of the western escarpment of the Nulato Hills. Our base camp was at an elevation of 325 m, and was surrounded by montane ridges with several summits above 500 m. Cottongrass tussocks cover the flats between ridges as well as the lower more gentle slopes. Lichens and mosses are major components of this association. Willows Salix spp. between 0.5 and 2 m were scattered on the hillsides, generally below 300 m. Cottongrass tussocks are also prevalent on the plateaux and broad saddles connecting the higher ridges wherever the slope is minimal. Dwarf birch is present throughout the entire area, extending somewhat farther upslope than the willows into the higher tundra which is characterized by an extensive and varied cover of lichens. The lichen flora is found on all the ridgetops and summits in the area as well as on the adjacent steep slopes.

Curlew Lake. Curlew Lake is located approximately 30 km north of Mountain Village. The first Bristle-thighed Curlew nests ever discovered were found in 1948 on the ridges just to the east of the lake, and the area was fully described by Kyllingstad (1948) and Allen and Kyllingstad (1949). We visited this area in order to get a rough estimate of Curlew density at a locale from which they had been previously reported.

At all three sites, 1-3 investigators walked through a variety of tundra habitats, keeping track of all curlews seen, curlew behaviour, and (when appropriate) the direction of flight. At the end of each day's work, all sightings were plotted on maps. Based on our perception of curlew observability and mobility, we eliminated sightings which we subjectively decided were likely to be of the same bird. The remaining sightings served as the basis for our admittedly crude, subjective, and tentative density estimates.

RESULTS

Andreafsky Hills

Although Bristle-thighed Curlews were seen flying north over St. Mary's in May (BJM), none were observed during our field work in the Andreafsky Hills. A variety of tundra habitats was surveyed, including ridge-tops, rolling tussock tundra, and old river terraces. Due to their strong similarity to the ridges near Curlew Lake, over 17 of the 22 km of summit ridges in the Andreafsky Hills were carefully searched for curlews without success. However, in all tundra habitats in the area, we did find breeding Whimbrels Numenius phaeopus. The linear density of Whimbrels along ridge-top tundra at this site was 0.56/km.

Pikmiktalik River

Bristle-thighed Curlews were widely distributed below 300 m and one nest was discovered (see Behavioural Observations). Curlews were found on steep lichen-dominated slopes and on gentler slopes covered with cottongrass tussocks and low willow thickets. They were not seen in the marshy flats separating the Pikmiktalik and Pastolik drainages. In contrast to Kyllingstad's (1948) findings above Curlew Lake, we did not find curlews on the higher dry ridge-tops in the Pikmiktalik region. However, elevation may be a factor limiting curlew distribution at this site. The ridges draining to the Pikmiktalik and neighboring streams average much higher (summits > 300 m) than those near Curlew Lake (most summits < 300 m). Our tentative estimate of Bristle-thighed Curlew density in occupied habitat is one per square km.

Three Whimbrel pairs were located and one nest was discovered. Two pairs were occupying the marshy saddle separating the Pikmiktalik and Pastolik drainages where Bristle-thighed Curlews were not observed. The third pair was located on a fairly steep slope with cottongrass tussocks and low willow thickets. A Bristle-thighed Curlew was seen at this location.

Curlew Lake

Our base camp was 3.2 km SE of Curlew Lake at an elevation of just over 150 m. On 2 July, four field crews explored the ridges to the north, the southwest, and the east, as well as...
Bristle-thighed Curlews were observed, yielding
approximately 0 km$^2$ were surveyed and 56
a density of 0.9 per km$^2$. This estimate is very
close to the estimated curlew density at the
highest ridge, 1 km$^2$; the density at the
both locales, curlews were not encountered
above 300 m. However, since ridges above 300 m
occupy a much smaller fraction of the landscape
near Curlew Lake, curlews are more generally
distributed throughout all available habitats
at that site. Fifteen curlews were observed
above 150 m at the southwestern tip of the
ridge immediately east of Curlew Lake. Both
adults mobbed the observers and dove within 2 m
of their heads.

**DISCUSSION**

The discovery of nesting Bristle-thighed
Curlews in the low drainage east of camp.

**Behavioural Observations**

A Bristle-thighed Curlew nest was discovered on
the afternoon of 25 June on a steep slope 200 m
above a willow-lined creek at an elevation of
approximately 850 m. The nest was located on
hummocky tundra less than 5 m from a meter-high
willow thicket, and less than 1 m from a
smaller isolated willow 20 cm high. Shortly after
discovering the nest, we realized that a
pair of Long-tailed Jaegers was nesting only 20
m away. This proximity between Long-tailed
Jaegers and the nests of large shorebirds
has been reported previously, and does not
appear to be random (McCaffery 1982). Both
pairs of birds were disturbed by our presence.

We approached the curlew nest within 10 m and
the incubating bird did not flush. Its mate
and both jaegers were mobbing us; since we didn't
want the jaegers to get the curlew's eggs, we
continued past the nest without stopping at it.
At our closest approach to the nest, the
attack-mobbing curlew dove within 1 m of
Peltola's head. After we left the area, the
incubating jaeger returned to its nest, but the
non-incubating member of each pair continued
circling and screaming, occasionally diving at
one another. The curlew eventually landed,
whereupon the jaeger dove at it two more times.
On both occasions, the curlew crouched, pulled
its neck back against its shoulders,
half-spread its wings, and sang briefly.

On 2 July, all 4 Curlew Lake field crews
counted at least one pair of curlews which
behaved as if eggs or young were present. No
nests or chicks were found on that day, but on
3 July, Peltola's crew discovered a chick at an
elevation of 150 m at the southwestern tip of the
ridge immediately east of Curlew Lake. Both
adults mobbed the observers and dove within 2 m
of their heads.

On the Pikmitikitik trip, the only interaction
involving these two species was noted on the
evening of 25 June when two Bristle-thighed
Curlews, a Whimbrel, and two Lesser Golden
Plovers flew in a wild chase over the marshy
saddle. However, neither the beginning nor the end of the chase was
observed. On the Curlew Lake trip, the
two species of Numenius curlews were found in very
close proximity to one another east of camp. On
three separate occasions, Bristle-thighed
Curlews landed within 1 meter of single
Whimbrels and elicited no observable
response.

### Table 1. Comparison of Numenius curlew density

<table>
<thead>
<tr>
<th>Species</th>
<th>Andreafsky Hills</th>
<th>Curlew Lake</th>
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</thead>
<tbody>
<tr>
<td>Bristle-thighed Curlew</td>
<td>0.00</td>
<td>0.75</td>
</tr>
<tr>
<td>Whimbrel</td>
<td>0.56</td>
<td>0.10</td>
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them is somewhat puzzling. Again our observations are not yet sufficiently extensive to address these questions.

At both Curlew Lake and at the headwaters of the Pimektalik River, Bristle-thighed Curlew densities were approximately 1 per km². These are rough breeding density estimates since at both sites we encountered (and counted) curlews which were apparently not breeding.

Our studies of the Bristle-thighed Curlew in the southern Nulato Hills will continue in 1986. We have 3 primary objectives for the second field season: 1) to describe more fully the distribution of the Bristle-thighed Curlew and the whimbrel on a regional basis in terms of geographic range and habitat use, 2) to develop a sampling protocol which will allow us to quantify behavioural interactions between the two species, and 3) to refine our censusing techniques so as to produce an accurate breeding density estimate for numerous curlews on the YDNWR.

ACKNOWLEDGEMENTS

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REFERENCES


McCaffery, B.J. and Gene Peltola, Jr., U.S. Fish and Wildlife Service, Yukon Delta National Wildlife Refuge, P.O. Box 346, Bethel, Alaska, U.S.A.

A COMPARISON BETWEEN COUNTS AT ROOST SITES AND ON FEEDING GROUNDS OF OYSTERCATCHERS AND CURLEWS IN SPAIN

by J. Dominguez

INTRODUCTION

The possibility that there are differences at study sites between the numbers of waders counted at roosts and on their feeding grounds, and its implications, has received rather little attention. Goss-Custard (1981) compared the 2 counting methods for Oystercatchers Haematopus ostralegus at 2 estuaries in Britain, and Barrett and Barrett (1984) made a similar comparison between roosting and feeding ground counts of several species at one part of the Firth of Forth estuarine complex in Scotland. This note documents roosting and feeding site counts at an estuary in north-west Spain.

METHODS

During the 12 months from September 1984 to September 1985, I made monthly counts of Oystercatchers and Curlews Numenius arquata on the Ortigueira estuary in Galicia, north-west Spain. During low water both species fed on wide sand and mudflats, some covered with eel-grass Zostera, the largest being 920 ha. Feeding birds were usually scattered over the tidal flats, rather than in tight flocks. At high tide Oystercatchers roosted on a small bare sandy island. Curlews sometimes roosted on this island, and sometimes on others covered with low vegetation.

Both high water and low water counts were made on the same days. Counts of birds on the feeding grounds were made within 3 h of low water, from a car at various vantage points around the estuary. All intertidal areas were counted, but this sometimes took up to 3 days of low tides to achieve (see also Figure 1). Roost counts were made within 1 h of high water, and on a day when low water counts were made.

RESULTS AND DISCUSSION

Eleven pairs of counts for Oystercatchers and 7 pairs for Curlews are shown in Figure 1. Some