

# Eastern Curlew Horoku-Shigi (Jpn) *Numenius madagascariensis*

## Morphology and classification

**Classification:** Charadriiformes Scolopacidae

Total length: 615mm (535-680)  
 Wing length: 326.7mm (312-340)  
 Tail length: 119.2mm (115-126)  
 Culmen length: 180.5mm (138-206)  
 Tarsus length: 90mm (81-96)  
 Weight: 1047g (740-1301)

Total and tarsus lengths after Enomoto 1941, and other parts were measured from individuals captured for satellite-tracking study in Brisbane, Australia in 1997-1999.

**Appearance:**

Pale brown overall with vertical dark brown stripes. Brownish hue is stronger than the Eurasian Curlew.

**Vocalization:**

Call sounds like "Carlew, Carlew".

## Distribution and Habitat

**Distribution:**

Eastern Curlews breed in the wetlands from the middle reaches of the Amur to Kamchatka and winter in mudflats from Southeast Asia to Australia. However, some of them winter in Japan.

**Habitat:**

Although the breeding ground of Eastern Curlews lie in bogs of sphagnum moss, they actually build nests in more arid patches such as sedge grassland adjacent to those bogs, where they use for foraging. It is assumed, therefore, that they occur densely in sites with both habitats for nesting and feeding (Ueta & Antonov 2000). Outside of the breeding season, the species uses mudflats where it forages for crabs with its long bills.

## Life history



**Breeding system:**

Eastern Curlews are assumed to be monogamous. It seems that the male and female incubate and take care of the chicks.

**Nest:**

Eastern Curlews build nests on raised dry sites, such as hammocks in the wetlands using dead grass collected from the surroundings.



Photo 1. Nest at a dry site in the wetland

**Clutch size and egg size and color :**

Clutch size is four eggs. The eggs have reddish brown flecks on an ochre ground.

**Incubation, chick-rearing periods and fledging rate: :**

Incubation period is about four weeks. Chicks leave the nest when their down dries up after hatching and begin to forage for small organisms, such as insects in the wetlands along with their parent birds. It takes more than four weeks for the chicks to start flying.

**Migration:**

Eastern Curlews are assumed to be monogamous. It seems that the male and female incubate and take care of the chicks.



Photo 2. Chicks of Eastern Curlews have straight bills in contrast with the adults

## Topics of ecology, behavior and conservation

● Non-stop flight across the sea

Eastern Curlews migrating between Russia and Australia were satellite-tracked as a joint-government study of Japan and Australia from 1998 to 2000. The study showed that Eastern Curlews flew non-stop from Australia to Taiwan, the east coast of China and Japan in spring and that they flew non-stop from the east coast of China to Indonesia in autumn (Figs.1 and 2, Driscoll & Ueta 2002). Although it would be safer to fly along island chains, strong fliers, such as curlews might give efficiency priority over safety.



Photo 3. An Eastern Curlew with a satellite transmitter mounted on the back.

Figure 2 shows the date and time and the flight distance for one of the individuals that we tracked.

The bird flew at a speed of about 50 km/h based on the result of the satellite tracking. Therefore, it flew non-stop more than 5000 km at least for 4 days from March. 5 to 9, though it is possible that it took a rest on New Guinea.

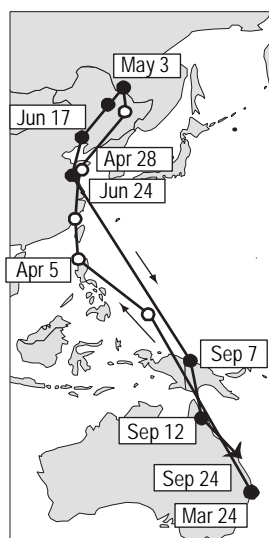


Fig. 1. Migration routes of Eastern Curlews in spring (○) and autumn (●).

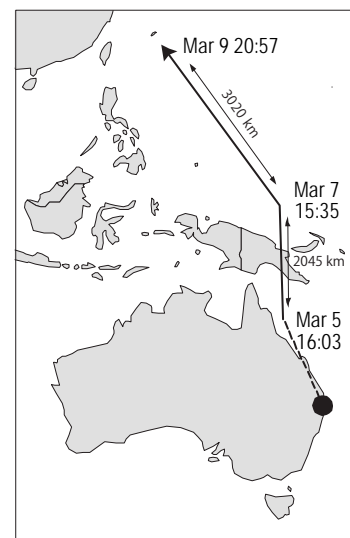


Fig. 2. Transoceanic route of an Eastern Curlew migrating from Australia via Daito Island, Japan to its breeding grounds of Russia.

● Behavior of turning back along the way

As many as half the Eastern Curlews (18 of 37 birds) that we tracked aborted the spring migration (Figure 3). Although the possibility remains that the transmitter mounted on their back was a burden, Finn et al. (2001) and Driscoll (pers. comm.) argue that Eastern Curlews tend to turn up again a little after they have set out on their spring migration in Australia. In addition, they report that 25-30% of the wintering population spends the summer in Australia. Some of other Scolopacidae also stay in Australia during the summer, instead of returning to the breeding grounds, but they account for less than 10% of the wintering population. It is assumed, therefore, that the behavior of turning back along the way is characteristic of Eastern Curlews.

In order to explain the reason why Eastern Curlews frequently discontinued the migration, I examined in the computer simulation the conditions under which the behavior was adaptive (Fig 4; Ueta 2000). The result showed that the abandonment of migration was adaptive when the annual mortality rate was 30%, but it was not adaptive at all when the rates were 50% and 80%. It is suggested that the abandonment of migration is adaptive for large species, such as Eastern Curlews whose annual mortality rate is low and migration involves many risks, but it is not adaptive for small migratory birds with a high annual mortality rate

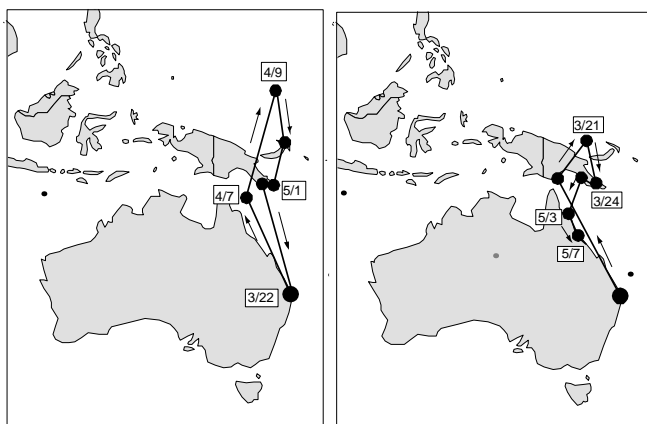


Fig. 3. Two cases of Eastern Curlews which stopped their migration on the way and returned to the wintering grounds of Australia.

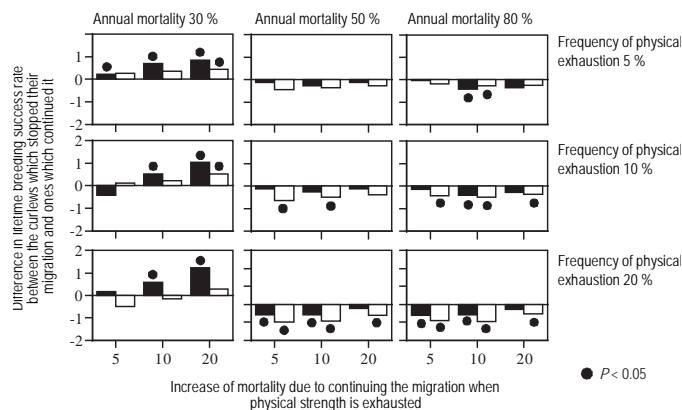


Fig. 4. Differences in the fitness between Eastern Curlews which stopped their migration and ones which continued it based on a computer simulation. ■: On the assumption that annual mortality is decreased due to the abandonment of migration, □: On the assumption that annual mortality does not change.

● Navigation during the migration

Eastern Curlews can rely on no landmarks, such as shorelines when crossing over the sea. The satellite tracking showed that they flew in a straight line across the ocean. And on the way, they seem able to make correction for wind drift. The tracked birds were hit by a typhoon on migration and some of them were swept eastwards from the normal route in 1997. These birds returned to the wintering grounds. This incident suggests that they can not only keep their flight direction constant but also orientate themselves and return to the wintering site, even if blown off course. When we observe vagrant birds that arrive in Japan, we wonder if they will be able to return to their breeding grounds, but there may be nothing to worry about. They probably orient themselves as Eastern Curlews did.

Literature

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Languages of literature cited other than English: [J] in Japanese,

Author

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I have been to Russia and Australia on the joint research of Eastern Curlews, working together in the multi-national party. As a poor speaker of English, I was more comfortable in Russia because I was not under the stress of communicating in English. However, the research locations in Russia was extensive wetlands that is extremely hard to move about, compared to sandy beaches in Australia where it was easy to walk. I was out of luck in the first year of the study, because I thought it was easier to buy a pair of long boots in Russia for the study. The new boots gave me a lot of shoe sores.  
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