

Original Paper

Observations on Nest Parasitic Behavior in Birds

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Abstract

Du Fu's poem "Two Yellow Orioles Singing Green Willows, a Line of Egrets in the Blue Sky" is familiar to everyone, but the public knows little about the yellow orioles in the poem. Taking the description of the living habits of black-naped oriole and Asian koel as the starting point, this paper discusses the nest parasitism behavior of cuckoos and the current situation of the declining population of cuckoos in modern society, and then call for the protection of nature and animals.

Keywords

orioles, asian koel, cuckoo, nest parasitism

From ancient times to the present, birds can be seen everywhere in the daily life environment, and they are widely distributed around the natural ecology and human settlements. From Du Fu's poems to pigeons in city parks, from bird-shaped ornaments in the Neolithic period to the decorative patterns on bronze wares in the Shang and Zhou Dynasties, and then to paintings and porcelain in historical periods, the figures of birds can be found everywhere. It shows that birds integrate into the diverse scenes of human life with their diverse forms and habits. However, human beings only stay in the habitual visual cognition of birds and lack a systematic and in-depth understanding of their biological nature.

At a time when the ecological environment is getting more and more attention, exploring the living habits of these birds can not only give us a more comprehensive understanding of these winged neighbors, but also help arouse human attention to nature and animal protection, and prompt us to reflect on the way of living in harmony with nature.

This paper starts with the common black-naped orioles and Asian koels to explore the nesting parasitic behavior of cuckoos and the decline of cuckoo populations in modern society.

1. Orioles and Asian Koel

It's the annual Bird Week again, and since 2022, when I saw the Oriole couple every day for more than two weeks, I have always wanted to tell the story of the birds with their babies.

Black-naped Oriole (*Oriolus chinensis*), in ancient China it was often called the yellow oriole, the yellow warbler, the warbler, the yellow bird, and the Cang Geng, which is the highlight bird of the beautiful *bel canto* in classical poetry, and the Du Fu poem of "two yellow orioles singing green willows, and a line of egrets on the blue sky" is well known. When the yellow bird flies, the dazzling bright yellow of the body feathers is used in the "Book of Songs" in the 11th ~ 6th centuries BC in the rhetorical rise of "Cang Geng is flying, shining its feathers". The yellow oriole is a medium-sized oriole, with a body length of 23~28cm, red eyes, a pink beak, and a wide black eye pattern around the headrest, which is very similar to a winter ear protection headband, and the protagonist of Tolstoy's "Resurrection" Katyusha is wearing this headband during the Taisho period in Japan, so when it is called Katyusha in Japanese, it is a headband in addition to the name of the person, the former Soviet song and rocket artillery. Most of the wings and tail feathers are black, the male has bright yellow body feathers, the female has some green, and the sub-adult has black stripes on the ventral surface. The sound is a flute sound as clear as flowing water, and it is often sung in a relatively hidden place in the canopy during the breeding period. The black-naped oriole is omnivorous, and in addition to preying on insects and larvae, it also likes to eat a variety of berries. Its flight is very fast, coming and going, up and down, like a golden shuttle in the forest.



Figure 1. Parents Work Hard during the Breeding Season

In the Indian subcontinent, the cuckoo bird representing spring and romance is not the migratory cuckoo (Chinese name big cuckoo), which is widely spread across Eurasia, but the noisy cuckoo (*Eudynamys scolopacea*) called Asian koel, koel is a foley word, its song, gradually rising, and stopping abruptly after pulling to a highest note composed of two syllables of ko-el. The rhythmic chirping is woven into the long lyrical poem "The Cloud Messenger" by the Sanskrit poet Kalidasa during the Gupta dynasty of the 4th and 5th centuries. It is the state bird of Jharkhand, one of the 28 states of federal India. Beginning in April, the cuckoo species that can be heard in Fujian Museum migrating from the south are the larger noisy cuckoos, except for another Plaintive cuckoo. The

cuckoos all cries loudly and often chirp for a long time. The Asian koel is a large cuckoo, with a body length of 39~46cm, the male is black, and the female is gray-brown mixed with white, with a light green beak and red eyes. The species is nest parasitic on crows, drongos and orioles. In China, the parasitic nest behavior of Asian koel is currently mostly recorded in Hong Kong.

In the observation of the Black-naped Oriole and the Asian Koel, it was noticed that the Asian Koel, which was mainly black in color and raised by the Black-naped Oriole, along with the four young Black-naped Orioles, even after leaving the nest, still frequently accompanied each other and engaged in group activities, and their behavior patterns were not significantly different from those of other similar individuals who were also close relatives. They sometimes search for insect eggs on the back of leaves, and sometimes communicate with each other and rehearse new chirps, brimming with vitality.

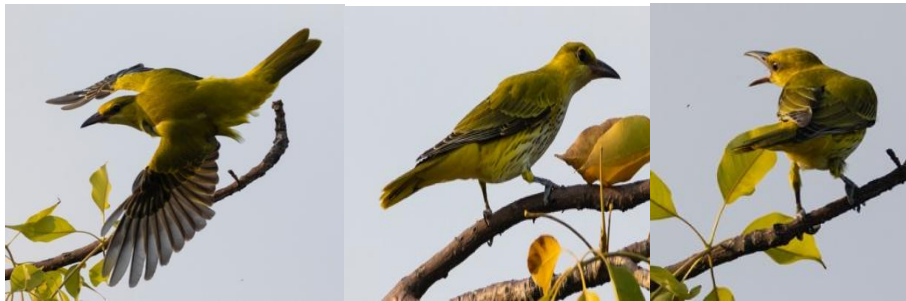


Figure 2. Oriole sub-adult Bird



Figure 3. Asian koel sub-adult



Figure 4. Three of the Four Little Orioles and a Small Asian Koel

2. The Nest Parasitism Behavior of Cuckoo

Cuckoo mainly feeds on insects, and is especially fond of caterpillars, i.e. lepidopteran larvae, which are an important part of forest pest control.

There are 9 genera and 20 species of cuckoos in China, of which 3 species nest breeds, and the Greater coucal, a national second-class protected wild animal with its own baby in the West Lake area, is one of these three species. 17 species are nest parasitic breeding, that is, they do not build nests, do not hatch eggs, do not bring up chicks, but lay eggs in the nests of other birds, and the foster parents incubate eggs and brood on behalf of them, which is the nest parasitism of birds. Among the 17 species of parasitic cuckoos, Asian koel is one of the three non-exclusive nestlings, which can be fed by prosthetic relatives in the nest together with the host chicks. The chicks of the remaining 14 species of parasitic cuckoos are exclusive, back arching the eggs or chicks of the host out of the nest and enjoying the feeding of their parents.

Nest parasitism, why only 1% of living birds have evolved this way of reproduction? This question was discussed at length in Darwin's "On the Origin of Species" in the 19th century, and it is still the subject of a great deal of research. The process of laying eggs of parasitic female cuckoos is extremely fast, quietly no more than 10 seconds, while it usually takes 20~60 minutes for birds to lay eggs. They have been seizing the "time to commit the crime" to ensure that their eggs are synchronized with the host and that the appearance of the eggs tends to be similar.

One explanation for this phenomenon is that if the host learns to memorize the shape of its own chicks to distinguish between cuckoo chicks, it may pay a lifetime price, because if the host of the first breeding is parasitized by the cuckoo, it will recognize the cuckoo chicks as its own chicks, and the

consequences are undoubtedly serious. Nest parasitic behavior is represented by the great cuckoo. British naturalist Gilbert White believes that the behavior of the great cuckoo is unnatural, "a great insult to the first nature of nature, maternal love". Over the past 50 years or so, the population of the great cuckoo has declined at an alarming rate. Most parasitic cuckoos are migratory birds, and if many local resident birds are reproducing much earlier due to global warming, if they do not keep up with this change, there will be fewer hosts and nests for long-distance migratory cuckoos to reach their breeding grounds. This is likely to be one of the reasons for the decline in the rhododendron population. An ornithologist specializing in nest parasitism lamented that the disappearance of the common cuckoo is doubly sad, because we have lost not only the messenger that heralded the coming of spring, but also some of the most amazing natural sights on the planet – the image of the little Oriental reed warbler feeding its chicks with its head buried in the beak of the giant cuckoo baby. It should also be mentioned that, unlike cuckoos, parasitic cowbirds of the family Icteridae can have a parasitism rate of up to 80~100% in some areas of the Americas (or for some species of birds), which can lead to the endangerment or even extinction of some birds. The extinction of species due to nest parasitism has attracted great attention from many bird conservation scientists.

3. Conclusion

The arrival of Bird Week once again focuses our attention on the world of birds. Looking back at the living conditions of orioles and noisy cuckoos and the unique nest parasitic behavior of cuckoo birds, our understanding of bird brooding patterns has gradually deepened. In the pursuit of harmonious coexistence with birds, the key is to respect the laws of nature. Love birds and protect birds, don't put the loads of human ethical criterion on nature, if you intervene, how to intervene? This is surely worthy of more scientific research and common thoughts.

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