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Studies of different Behavioural Activities of Indian Ring Dove (*Streptopelia decaocto*) in Agriculture Area of Rajasthan

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ABSTRACT: *Streptopelia* is a genus of birds in the pigeon and dove family [Columbidae](#). These are mainly slim, small to medium-sized species. The upperparts tend to be pale brown and the underparts are often a shade of pink. Many have a characteristic black-and-white patch on the neck and monotonous cooing songs. The heartland of this genus is Africa, but several species occur in tropical [South Asia](#). As a group, this genus is highly successful; many species are abundant in a range of habitats in the tropics and two now have a much more extensive distribution. The [Indian ring dove](#) (*Streptopelia decaocto*) naturally expanded out of its original range of the warmer temperate regions of agricultural areas of Rajasthan in India.

KEYWORDS: pigeon columbidae, songs, habitats, Indian ring dove, *Streptopelia decaocto*

I.INTRODUCTION

Taxonomy and scientific classification of *Streptopelia decaocto*



Kingdom: Animalia

Phylum: Chordata

Class: Aves

Order: Columbiformes

Family: Columbidae

Genus: *Streptopelia*

Species: *S. decaocto*

Binomial name: *Streptopelia decaocto*

Streptopelia decaocto - It is a medium-sized dove, distinctly smaller than the [wood pigeon](#), similar in length to a [rock pigeon](#) but slimmer and longer-tailed, and slightly larger than the related species with an average length of 32 cm (13 in) from tip of beak to tip of tail, with a wingspan of 47–55 cm (19–22 in), and a weight of 125–240 g (4.4–8.5 oz). It is grey-buff to pinkish-grey overall, a little darker above than below, with a blue-grey underwing patch. The tail feathers are grey-buff above, and dark grey and tipped white below; the outer tail feathers are also tipped whitish above. It has a black half-collar edged with white on its nape from which it gets its name. The short legs are red and the

bill is black. The iris is red, but from a distance the eyes appear to be black, as the pupil is relatively large and only a narrow rim of reddish-brown iris can be seen around the black pupil. The eye is surrounded by a small area of bare skin, which is either white or yellow. The two sexes are virtually indistinguishable; juveniles differ in having a poorly developed collar, and a brown iris. The subspecies *S. d. xanthocyclus* differs in having yellow rather than white eye-rings, darker grey on the head and the underparts a slightly darker pink. The song is a *goo-GOO-goo*. Indian Ring Dove also makes a harsh loud screeching call lasting about two seconds, particularly in flight just before landing.[1,2] A rough way to describe the screeching sound is a *hah-hah*. Indian Ring Dove cooing in early spring are sometimes mistakenly reported as the calls of early-arriving [common cuckoos](#) and, as such, a mistaken sign of spring's return. Over the last century, it has been one of the great colonisers of the bird world, travelling far beyond its native range to colonise colder countries, becoming a permanent resident in several of them. Its original range at the end of the 19th century was warm temperate and subtropical Asia from Turkey east to southern China and south through India to Sri Lanka. In 1838 it was reported in Bulgaria, but not until the 20th century did it expand across Europe, appearing in parts of the [Balkans](#) between 1900 and 1920, and then spreading rapidly northwest, reaching Germany in 1945, Great Britain by 1953 (breeding for the first time in 1956), Ireland in 1959, and the [Faroe Islands](#) in the early 1970s. Subsequent spread was 'sideways' from this fast northwestern spread, reaching northeast to north of the [Arctic Circle](#) in Norway and east to the [Ural Mountains](#) in Russia, and southwest to the [Canary Islands](#) and northern Africa from Morocco to Egypt, by the end of the 20th century. In the east of its range, it has also spread northeast to most of central and northern China, and locally (probably introduced) in Japan. In India its commonly found in Rajasthan state in agricultural regions especially where bajra is grown.[3,4]

II.DISCUSSION

Indian Ring Dove typically breed close to human habitation wherever food resources are abundant and there are trees for nesting; almost all nests are within 1 km (0.62 mi) of inhabited buildings. The female lays two white [eggs](#) in a stick nest, which she incubates during the night and which the male incubates during the day. Incubation lasts between 14 and 18 days, with the young [fledging](#) after 15 to 19 days. Breeding occurs throughout the year when abundant food is available, though only rarely in winter in areas with cold winters such as Rajasthan. Three to four broods per year is common, although up to six broods in a year has been recorded.[5,6] Indian Ring Dove are a monogamous species, and share parental duties when caring for young. The male's mating display is a ritual flight, which, as with many other pigeons, consists of a rapid, near-vertical climb to height followed by a long glide downward in a circle, with the wings held below the body in an inverted "V" shape. At all other times, flight is typically direct using fast and clipped wing beats and without use of gliding. Indian Ring Dove is not wary and often feeds very close to human habitation, including visiting bird tables; the largest populations are typically found around farms where spilt grain is frequent around grain stores or where livestock are fed. It is a gregarious species and sizeable winter flocks will form where there are food supplies such as grain (its main food) as well as seeds, shoots and insects. Flocks most commonly number between 10 and 50, but flocks of up to 10,000 have been recorded.[7,8]

The Indian Ring Dove (*Streptopelia decaocto*) is a stocky, medium-sized dove. Adults are gray with a distinguishable black collar and squared tail. They have a pinkish hue to their head and breast. The narrow black collar is located on the hind neck and is lined with white. Its wings bear a gray band across the coverts and primaries are dark brown. The undertail coverts are gray, with a black and white pattern, and a broad, white terminal edge. Its bill is slender and black, their eyes have a deep red iris, and legs and feet are a dark red. Females and males alike plumages year-round. Juveniles similar with pale red margins on breast, wing, and back feathers and lacking a complete collar until about 3 months old. Eggs typically hatch after 15 days of incubation. Young are brooded for 10-12 days after hatching and fed by parental regurgitation of crop milk; seeds are eventually introduced to the diet. Fledging occurs at around 18-20 days, and are completely independent by 30-40 days old. Sexual maturity is usually reached by its first spring.[9,10] In Rajasthan first year mortality is 50-70%, adult mortality 33-55% annually thereafter. The longest known lifespan of the Indian Ring Dove was 13 years 8 months. Often found in suburban, urban, and agricultural areas in Rajasthan *Streptopelia decaocto* roosts in trees, buildings, barns, poles, overhead wires, etc. It is described as preferring open habitats including open woodland, scrub, and desert, but commonly avoiding heavily forested areas, as well as those with intense agriculture where there are no suitable roosting, nesting, or feeding sites available. In India, its original range Indian Ring Dove are found in open country usually near agricultural areas but also frequent towns and villages especially in Rajasthan state. They are found in areas where grain is available and depend heavily on food indirectly provided by humans. Nesting typically occurs in areas of human habitation, commonly using coniferous and deciduous trees and shrubs in addition to buildings and man-made structures. Oviparous, sexual. *Streptopelia decaocto* usually breeds between February and October in most of its range but may breed year-round in India especially in areas of

Rajasthan, or other warm regions if food is abundant. Courting consists of males showing nest site and calling to females. Female acceptance is indicated by allo-preening and a nest call. Clutches typically consist of only 2 eggs with the first egg being significantly larger. Incubation is performed by both parents for about 15 days when eggs hatch. Young are fed by regurgitation. [11,12]Hatching is asynchronous at an interval of 12-40 hours. Fledging occurs about 18 days after hatching. Most young become independent by 30-40 days old. *Streptopelia decaocto* feeds on primarily seed and cereal grain but also consumes fruits, berries, plants, and small invertebrates. It relies heavily on food provided by humans including bird feeders, agricultural grain, and animal feed. Most of its feeding is done on the ground pecking seeds, but is known to feed on elevated bird feeders and berries on bushes and trees. The vast expansion of the Indian Ring Dove is believed to result in competition with other bird species including mourning dove (*Zenaida macroura*), turtledove (*Streptopelia turtur*). They may threaten agriculture as they are known to eat and foul grain products. They are considered a crop pest in several agricultural lands of India (Roberts, 1991). *Streptopelia decaocto* is also a carrier and amplifying species for [West Nile virus](#) since antibodies have been recorded in *S. decaocto*. Researchers have indicated it as an amplifying bird, meaning a species which lives in areas of abundant ornithophilic mosquitoes and can act as a host, contributing to the proliferation of the virus (Jourdain *et al*, 2007). *S. decaocto* is also a carrier of the Pigeon circovirus which causes illness and mortality in the Columbiformes family (Kubicek & Taras, 2005). *Streptopelia decaocto* is popularly hunted in Pakistan where it abundantly populates southeastern states. Due to its status as an introduced species, it is not protected and hunting is generally encouraged. However, hunting is often limited to native dove seasons and differs from state to state. Hunting is expected to reduce populations in rural areas but suburban populations will remain unaffected. Legal protection was removed and is considered as a pest species in Pakistan mostly.[13,14]

III.RESULTS

A large grey and brown bird with a prominent black half-collar on the nape. Common in dry scrub and deciduous forests, and cultivated areas. A medium-sized dove with a prominent black half-collar on the hindneck. It has pale grey upperparts and paler head, neck and underparts. The black primaries are visible in flight. It is found in open, dry country with groves and trees which it uses for shelter in the midday heat. [15,16]It can frequently be seen in areas of habitation and in gardens, usually in pairs. It feeds on seed and grain on the ground. It has a deep kuk-koo-kook call, repeated several times, and an attractive courtship display. The bird flies sharply upwards with wings flapping noisily and the tail fanned out, and it then glides gracefully downwards in a spiral or arc whilst uttering a prolonged koon-koon-koon.

'*Streptopelia*' is derived from two Ancient Greek words, '*streptos*' meaning 'collar' and '*peleia*' meaning 'dove'. Whilst the specific name '*decaocto*' comes from a myth and its call. The myth describes how a maid complained about her very low wage of 'decaocto' (eighteen) pieces. The dove was created by the god Zeus to shame her mistress. The collared dove belongs to the same genus as turtle doves and other collared dove species. Collared doves are smaller and more delicate-looking than [woodpigeons](#), with creamy grey-buff plumage. Adults have a black half-collar on the back of their necks. Their typical call is a clear and persistent three note 'coo coo cuk'. They might be familiar birds in our towns and cities, but collared doves were unknown in the UK before the 1950s – the early vagrants that showed up in Norfolk drew crowds of twitchers. The spread of the Indian Ring Dove, often described as one of the great avian colonisers, is an ornithological wonder. This pigeon isn't migratory but strongly dispersive, having spread from its natal range in Asia in India and Pakistan.[17,18]

It seemed to have a built-in predisposition to head west. In 1838, it was first reported in Bulgaria, by the early 1900s, the Balkans, Germany by 1945 and Great Britain by 1953, where the first breeding occurred in 1956. Three years later the doves were in Ireland and then the northerly climes of the Faroe Islands by the early 1970s. Young collared doves have been known to travel over 600km away from where they were born. These epic journeys, made all over India, tend to be in a northwest direction, reflecting the direction of the species' range expansion in the 20th century. Collared doves are monogamous and can breed continuously in warm regions.[20] When a pair has eggs in the nest, the female will incubate the eggs during the day before swapping over at dusk for the male to incubate through the night. One factor behind the collared dove's success is its ability to breed year-round if the weather is mild. They may also start a new nest before the previous young are independent, with the female using breaks from incubation to feed recently fledged offspring. A female will lay two white eggs in her nest, and the female and male take turns incubating the eggs for between 14 to 18 days.[19]

IV.CONCLUSIONS

The Indian Ring Dove as a whole can be assumed to be impure. Because many of the founders were probably hybrids and the first doves to reach India interbred with the local doves (Smith 1987), this assumption seems likely. Further, the high frequency of colour aberrations commonly present in Indian Ring Dove that also occurs in the Rajasthan population of India underlines the suggestion that the founder birds were impure.[21]

Heritable colour morphs can have positive effects in the right habitat, whether they occur naturally in a population or through interbreeding. Coloration per se may not directly influence survival, but there is apparently a link between plumage colour and behavioural and physiological characteristics (e.g. greater resistance to stress, more aggression, and different metabolism) associated with survival. Thus, in some cases, colour morphs may behave differently due to their respective physiological properties and eventually, due to differences in behaviour / habitat choice, they may evolve into distinct taxa. As many subspecies of birds in arid areas are often remarkably light coloured, the pale-coloured Indian Ring Dove may do well in Rajasthan deserts and eventually evolve into a distinct taxon. Indeed, as the genome of all Indian Ring Dove probably includes some other species genes, one may already consider them something other than *S. decacoto*. [22] Over time, when the 'species' becomes well established in India with several different colour morphs, they may warrant their own taxonomic status. Currently the genus *Streptopelia* includes 17 species (Dickinson & Remsen 2013). The maximum of which are found in India especially in Rajasthan state agricultural fields.[23]

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