



# INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH

IN SCIENCE, ENGINEERING, TECHNOLOGY AND MANAGEMENT

Volume 10, Issue 3, March 2023



INTERNATIONAL  
STANDARD  
SERIAL  
NUMBER  
INDIA

**Impact Factor: 7.580**



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# Distribution and Abundance of *Streptopelia* and their Nestling Preferences within Shekhawati Region 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 Eurasian collared dove (*Streptopelia decaocto*) naturally expanded out of its original range of the warmer temperate regions from southeastern Europe to Japan to colonise the rest of Europe, reaching as far west as Great Britain by 1960 and Ireland soon after. It has also been introduced into the U.S. and, as of 1999, it had been reported from 22 states and was still spreading rapidly. Many species of this dove is found in Shekhawati region of Rajasthan, India

**KEYWORDS:** *Streptopelia*, distribution, nestling, Shekhawati, Rajasthan, region, pigeon, extensive, monotonous

## I. INTRODUCTION

The genus *Streptopelia* was introduced in 1855 by the French ornithologist Charles Lucien Bonaparte.<sup>[1]</sup> The name is from the Ancient Greek στρεπτός (*streptós*) – literal meaning "twisted" but, by extension, "wearing a torc" (i.e., twisted metal collar) – and πέλεια (*péleia*) meaning "wild dove".<sup>[2]</sup> Also in 1855, the English zoologist George Robert Gray designated the type species as *Streptopelia risoria*, the Barbary dove.<sup>[3][4]</sup> Although *Streptopelia risoria* has been confirmed as a valid name by the International Commission<sup>1</sup> on Zoological Nomenclature,<sup>[5]</sup> the Barbary dove may be a domesticated form of the African collared dove (*Streptopelia roseogrisea*).<sup>[6]</sup>

A DNA sequence analysis has concluded that the genus consists of three distinct lineages. One contains the laughing dove and the spotted dove, which have long been recognized as having distinct morphology and behavior.<sup>2</sup> The second group contains most of the other species, except for the Malagasy turtle dove and the pink pigeon, which appear to be the surviving species of an endemic Madagascar/Mascarenes radiation and have at times been placed in other genera. The two-species lineages appear to be each other's closest relatives and cannot be firmly assigned to either *Columba* or *Streptopelia*<sup>3</sup> (although overall they seem to be close to the latter). Thus, it might be best to split the two minor lineages off as distinct genera, namely *Spilopelia* for the first (which, although not having priority over *Stigmatopelia*, which occurs earlier on the page,<sup>[7]</sup> is chosen on the first reviser principle) and *Nesoenas* for the second.<sup>[8]</sup>

The genus contains 15 species which can be seen in Shekhawati region of Rajasthan, India

due to migration from distance places<sup>4</sup> to Bharatpur bird sanctuary and roaming upto Shekhawati region of Rajasthan :<sup>[9]</sup>

- European turtle dove *Streptopelia turtur*
- Dusky turtle dove, *Streptopelia lugens*
- Adamawa turtle dove, *Streptopelia hypopyrrha*
- Oriental turtle dove *Streptopelia orientalis*
- Sunda collared dove, *Streptopelia bitorquata*
- Philippine collared dove, *Streptopelia dussumieri*
- Eurasian collared dove, *Streptopelia decaocto*



- Burmese collared dove, *Streptopelia xanthocyclus*<sup>[10]</sup>
- African collared dove, *Streptopelia roseogrisea*
- White-winged collared dove, *Streptopelia reichenowi*
- Mourning collared dove, *Streptopelia decipiens*
- Red-eyed dove, *Streptopelia semitorquata*
- Ring-necked dove, *Streptopelia capicola*
- Vinaceous dove, *Streptopelia vinacea*
- Red collared dove, *Streptopelia tranquebarica*

The genera *Spilopelia* and *Nesoenas* were formerly placed in *Streptopelia*, but have since been separated out to make the genus monophyletic.<sup>[8][9]</sup>

The Eurasian collared dove 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 European turtle dove, with an average length of 32 cm (13 in)<sup>[14]</sup> 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,<sup>5</sup> 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.<sup>6</sup> The two sexes are virtually indistinguishable; juveniles differ in having a poorly developed collar, and a brown iris.<sup>[11][9]</sup> 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.<sup>[8]</sup>

The song is a *goo-GOO-goo*. The Eurasian collared dove also makes a harsh loud screeching call lasting about two seconds, particularly in flight just before landing. A rough way to describe the screeching sound is a *hah-hah*.<sup>7</sup>

Eurasian collared doves 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.<sup>[9]</sup>

The Eurasian collared dove is not migratory, but is strongly dispersive. 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<sup>8</sup> 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),<sup>9</sup> 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.<sup>[11][15][9][10]</sup> It has also reached Iceland as a vagrant (41 records up to 2006), but has not colonised successfully there.<sup>[16]</sup>

Eurasian collared doves 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.<sup>10</sup> 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.<sup>11</sup> Breeding occurs throughout the year when abundant food is available, though only rarely in winter in areas with cold winters such as northeastern Europe. Three to four broods per year is common, although up to six broods in a year has been recorded.<sup>[9]</sup> Eurasian collared doves are a monogamous species, and share parental duties when caring for young.<sup>[29]</sup> 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. The Eurasian collared 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.<sup>12</sup> 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.<sup>[9]</sup> In Shekhawati region also they migrate in flocks of large numbers.<sup>13</sup>

### II.DISCUSSION

The spotted dove (*Spilopelia chinensis*) is a small and somewhat long-tailed pigeon that is a common resident breeding bird across its native range on the Indian subcontinent and in Southeast Asia. The species has been introduced to many parts of the world and feral populations have become established. This species was formerly included in the genus *Streptopelia* with other turtle-doves, but studies suggest that they differ from typical members of that genus. This dove is long tailed buff brown with a white-spotted black collar patch on the back and sides of the neck. The tail tips are white and the wing coverts have light buff spots.<sup>14</sup>

There are considerable plumage variations across populations within its wide range. The species is found in light forests and gardens as well as in urban areas. They fly from the ground with an explosive flutter and will sometimes glide down to a perch. It is also called the mountain dove, pearl-necked dove, lace-necked dove, and spotted turtle-dove. The ground colour of this long and slim dove is rosy buff below shading into grey on the head and belly. There is a half collar on the back and sides of the neck made of black feathers that bifurcate and have white spots at the two tips.<sup>15</sup> The median coverts have brown feathers tipped with rufous spots in the Indian and Sri Lankan subspecies which are divided at the tip by a widening grey shaft streak.<sup>[10][7]</sup> The wing feathers are dark brown with grey edges. The centre of the abdomen and vent are white. The outer tail feathers are tipped in white and become visible when the bird takes off. Sexes are similar, but juveniles are duller than adults and do not acquire the neck spots until they are mature. The length ranges from 28 to 32 centimetres (11.2 to 12.8 inches).<sup>[7][16][17]</sup>

Abnormal plumages such as leucism can sometimes occur in the wild.<sup>[18]</sup> The spotted dove in its native range in Asia is found across a range of habitats including woodland, scrub, farmland and habitation.<sup>16</sup> In India it tends to be found in the moister regions, with the laughing dove (*S. senegalensis*) appearing more frequently in drier areas. These doves are mostly found on the ground where they forage for seeds and grain or on low vegetation.<sup>[9]</sup> The species has become established in many areas outside its native range. These areas include Hawaii, southern California,<sup>[19]</sup> Mauritius,<sup>[20]</sup> Australia<sup>[21]</sup> and New Zealand.<sup>[22]</sup>

In Australia they were introduced into Melbourne in the 1860s and have since spread but there is insufficient evidence that they compete with native doves. They are now found in streets, parks, gardens, agricultural areas, and tropical scrubs in diverse locations throughout eastern Australia and around the cities and major towns across southern Australia.<sup>[21]</sup> The original populations appear to be *S. c. chinensis* and *S. c. tigrina* in varying proportions.<sup>[23][24]</sup> Spotted doves move around in pairs or small groups<sup>[25]</sup> as they forage on the ground for grass seeds, grains, fallen fruits and seeds of other plants.<sup>[26]</sup> They may however take insects occasionally and have been recorded feeding on winged termites.<sup>[27]</sup> The flight is quick with regular beats and an occasional sharp flick of the wings. A display flight involves taking off at a steep angle with a loud clapping of the wing and then slowly gliding down with the tail spread out.<sup>[9]</sup> The breeding season is spread out in warm regions but tends to be in summer in the temperate ranges.<sup>[9]</sup> In Hawaii, they breed all year round, as do all three other introduced species of doves.<sup>17</sup> Males coo, bow and make aerial displays in courtship.<sup>[28]</sup> In southern Australia, they breed mostly from September to January, and in the north in autumn.<sup>[29]</sup> They nest mainly in low vegetation, building a flimsy cup of twigs in which two whitish eggs are laid. Nests are sometimes placed on the ground or on buildings and other structures.<sup>[30][31]</sup> Both parents take part in building the nest, incubating and feeding the young. The eggs hatch after about 13 days and fledge after a fortnight.<sup>[9]</sup> More than one brood may be raised.<sup>[32]</sup> The vocalizations of the spotted dove include cooing softly with a *Krookruk-krukroo... kroo kroo kroo* with the number of terminal *kroos* varying in the Indian population and absent in *tigrina*, *chinensis* and other populations to the east.<sup>[9]</sup> The species has been extending its range in many parts of the world. Populations may sometimes rise and fall rapidly, within a span of about five years.<sup>[33]</sup> In the Philippines, the species may be outcompeting the *Streptopelia dussumieri*.<sup>[34][35]</sup> Their habit of flushing into the air when disturbed makes them a hazard on airfields, often colliding with aircraft and sometimes causing damage.<sup>[36][37]</sup> Many of these species are hence found dead in Bharatpur and Shekhawati due to migration and hence collision with aircrafts.<sup>18</sup>

### III.RESULTS

The Oriental turtle dove or rufous turtle dove (*Streptopelia orientalis*) is a member of the bird family Columbidae. The species has a wide native distribution range from Europe, east across Asia to Japan. The populations show variations in the patterning of plumage and have been designated into at least six named subspecies. Populations in the higher latitudes tend



to migrate south in winter, while those closer to the tropics are sedentary. Vagrants have been recorded in North America.<sup>19</sup> The species is predominantly granivorous and forages on the ground. The summer breeding season in the temperate zone can be protracted. In southern India, the breeding season is in winter. In display, the male flaps its wing noisily and shoots up before gliding down with outspread tail.<sup>[12]</sup> Nests take about two days to build with the male gathering material and the female placing it. The nest is more substantial than in some other doves and is placed at mid-canopy height. In Japan, nests built at a greater height tended to be prone to predation.<sup>[13]</sup> Males were found to incubate in the day and the female by night.<sup>20</sup> Two white eggs, as for all pigeons and doves, are laid in a twig nest in a tree. Incubation begins immediately after the first egg is laid.<sup>21</sup> The eggs hatch in 15 to 16 days and the chicks take about 15 to 17 days to fledge (in Japan). Both parents feed the altricial chicks with crop milk. Multiple broods may be raised and nests built by the pair or by others may be reused. Nest reuse may possibly increase the chances of predation.<sup>[14][15]</sup> In Japan the principal predators of nestlings and eggs were crows and magpies and to a lesser extent cats and snakes.<sup>[16]</sup> Many species are conserved in Bharatpur bird sanctuary to make its survival which move to Shekhawati also.<sup>22</sup>

The laughing dove (*Spilopelia senegalensis*) is a small pigeon that is a resident breeder in Africa, the Middle East, South Asia, and Western Australia where it has established itself in the wild after being released from Perth Zoo in 1898.<sup>[2]</sup> This small long-tailed dove is found in dry scrub and semi-desert habitats where pairs can often be seen feeding on the ground. It is closely related to the spotted dove (*Spilopelia chinensis*) which is distinguished by a white and black chequered necklace. Other names include laughing turtle dove,<sup>23</sup> palm dove and Senegal dove while in Asia the name of the little brown dove is often used. The species is usually seen in pairs or small parties and only rarely in larger groups. Larger groups are formed especially when drinking at waterholes in arid regions.<sup>24</sup> Small numbers assemble on trees near waterholes before flying to the water's edge where they are able to suck up water like other members of the pigeon family.<sup>[17]</sup> Laughing doves eat the fallen seeds, mainly of grasses, other vegetable matter and small ground insects such as termites and beetles.<sup>[18][19]</sup> They are fairly terrestrial, foraging on the ground in grasslands and cultivation. Their flight is quick and direct with the regular beats and an occasional sharp flick of the wings characteristic of pigeons in general.<sup>[11]</sup> The male in courtship display follows the female with head bobbing displays while cooing. The male pecks its folded wings in "displacement-preening" to solicit copulation from the female. A female accepts by crouching and begging for food. The male may indulge in courtship feeding before mounting and copulating. Pairs may preen each other.<sup>[20]</sup> Males may also launch into the air with wing clapping above their backs and then glide down in a gentle arc when displaying. The species has a spread out breeding season in Africa. Almost year-round in Malawi and Türkiye;<sup>[21]</sup> and mainly May to November in Zimbabwe, February to June in Egypt and Tunisia. In Australia the main breeding season is September to November.<sup>[15]</sup> The nest is a very flimsy platform of twigs built in a low bush and sometimes in crevices or under the eaves of houses.<sup>25</sup> Both parents build the nest with males bringing the twigs which are then placed by the female. Two eggs are laid within an interval of a day between them and both parents take part in building the nest, incubating and feeding the young. Males spend more time incubating the nest during the day.<sup>[22]</sup> The eggs are incubated after the second egg is laid and the eggs hatch after about 13 to 15 days.<sup>[11][23]</sup> Nesting adults may feign injury to distract and draw predators away from the nest.<sup>[24]</sup> Multiple broods may be raised by the same pair in the same nest. Seven broods by the same pair have been noted in Türkiye.<sup>[20]</sup> Initially the altricial hatchlings are fed with regurgitated crop-milk, a secretion from the lining of the crop of parent birds.<sup>[25]</sup> The young fledge and leave the nest after about 14 to 16 days.<sup>[26][27]</sup> The Jacobin cuckoo sometimes lays its egg in the nests of the laughing dove<sup>26</sup> in Africa.<sup>[28]</sup> Many of the doves lay eggs in other species doves in Shekhawati region in Rajasthan as seen by the investigator.<sup>27</sup>

Feral populations in Australia are sometimes infected by a virus that causes symptoms similar to that produced in parrots by psittacine beak and feather disease.<sup>[29]</sup> Several ectoparasitic bird lice have been found on the species and include those in the genera *Coloceras*, *Columbicola*, *Bonomiella* and *Hohorstiella*.<sup>[30]</sup> A blood parasite *Trypanosoma hanna* has been recorded in the species.<sup>[31]</sup> Southern grey shrike have been observed preying on an adult laughing dove in northwestern India while the lizard buzzard is a predator of the species in Africa.<sup>[32][33]</sup> South African birds sometimes show a beak deformity in which the upper mandible overgrowth occurs.<sup>[34]</sup>

The red collared dove (*Streptopelia tranquebarica*), also known as the red turtle dove, is a small pigeon which is a resident breeding bird in the tropics of Asia. The male has a blue-grey head and a red-brown body. The female is much plainer, with pale brown plumage similar to that of the larger Eurasian collared dove. The red-eyed dove (*Streptopelia semitorquata*) is a dove that is a widespread and common in Sub-Saharan Africa. It has been listed as Least Concern on the IUCN Red List since 2004.<sup>[1]</sup> This species builds a stick nest in a tree and lays two white eggs. Its flight is quick, with the regular beats and an occasional sharp flick of the wings, which are characteristic of pigeons in general, also seen in Bharatpur and Shekhawati region in Rajasthan.<sup>28</sup>



The ring-necked dove (*Streptopelia capicola*), also known as the Cape turtle dove or half-collared dove, is a widespread and often abundant dove species in East and southern Africa. It is a mostly sedentary bird,<sup>[2][3]</sup> found in a variety of open habitats. Within range, its penetrating and rhythmic, three-syllabled crooning is a familiar sound at any time of the year.<sup>[3]</sup> Its name is derived from the semi-collar of black feathers on the lower nape,<sup>[4]</sup> a feature shared with a number of *Streptopelia* species. Like all doves, they depend on surface water. They congregate in large flocks at waterholes in dry regions<sup>[2]</sup> to drink and bathe.<sup>[5]</sup> They are monogamous, territorial nesters.<sup>[6]</sup> Males display by flapping up a steep gradient before spiraling down<sup>[2]</sup> with wings and tail spread out. From a perch or on the ground, the male will engage in a bowing display synchronized with a rolling crooning, “uk-carrroooo, ...”,<sup>[4]</sup> while the throat is inflated.<sup>[6]</sup> A pair will give a double *coo* with a long second syllable when selecting a nest site.<sup>[6]</sup> The female takes two to three days to construct the flimsy platform nest. It is made of twigs and leaf petioles that are carefully selected by the male<sup>[5]</sup> (as in other dove species) and delivered to her at the nest site.<sup>[2]</sup> The nest is placed 2 to 10 meters above the ground on a horizontal branch fork.<sup>[2]</sup> Quite often, an old nest of another species may be used.<sup>[6]</sup> Two to four pure white eggs are laid and both sexes participate in the incubation, which takes about two weeks. Chicks are fed regurgitated food by both parents<sup>[5]</sup> and fledge after about 16 days.<sup>[2][6]</sup> Several broods (up to five) may be raised in a single season.<sup>[6]</sup> The Barbary dove, ringed turtle dove, ringneck dove, ring-necked turtle dove, or ring dove (*Streptopelia risoria*) is a domestic member of the dove and pigeon family (Columbidae).<sup>29</sup>

Although the Barbary dove is normally assigned its own systematic name, as *Streptopelia risoria*, considerable doubt exists as to its appropriate classification. Some sources assert confidently that it is a domesticated form of the Eurasian collared dove (*Streptopelia decaocto*), but the majority of evidence points to it being a domesticated form of the African collared dove (*Streptopelia roseogrisea*).<sup>30</sup> It appears that it can hybridize freely with either species, and its status as a species must therefore be regarded as doubtful. However, because of the wide use of both the common and systematic names, it is best to consider it separately from either of the putative parent species. Their time of domestication is also uncertain. While Linnaeus described them in 1756, they may have been imported into Italy from North Africa in the late 16th century.<sup>[1]</sup>

Barbary doves are easily kept and long-lived in captivity, living for up to 12 years. However, there have been cases of doves living over 20 years,<sup>[2]</sup> and, in one case, of a dove living for 29 years.<sup>[3]</sup> In recent years they have been used extensively in biological research, particularly into the hormonal bases of reproductive behaviour, because their sequences of courtship, mating and parental behaviour have been described accurately and are highly consistent in form. Dove fanciers have bred them in a great variety of colours; the number of colours available has increased dramatically in the latter half of the 20th century,<sup>31</sup> and it is thought that this has been achieved by interbreeding with *Streptopelia roseogrisea*. Some of these doves carry a mutation that makes them completely white. These white Barbary doves are most commonly used in stage magic acts. White Barbary doves are also traditionally released in large public ceremonies, since it is a peace symbol in several cultures, and “dove releases” are also sometimes found at weddings and funerals. However, a release dove is, in fact, usually a homing pigeon, as Barbary doves lack the homing instinct. They can also be found as gregarious in Shekhawati region in Rajasthan.<sup>32</sup>

The *coo* of the Barbary dove is created by muscles that vibrate air sent up from the dove's lungs. These muscles belong to the fastest known class of vertebrate muscles, contracting as much as 10 times faster than muscles vertebrates use for running. This class of muscles is usually found in high speed tissue such as a rattlesnake's tail. Barbary doves are the first bird species to have been found to have this class of muscle.<sup>[4]</sup>

#### IV.CONCLUSIONS

Seeds make up 99 percent of a Mourning Dove's diet, including cultivated grains and even peanuts, as well as wild grasses, weeds, herbs, and occasionally berries. They sometimes eat snails. Mourning Doves eat roughly 12 to 20 percent of their body weight per day, or 71 calories on average. Typically nests amid dense foliage on the branch of an evergreen, orchard tree, mesquite, cottonwood, or vine. Also quite commonly nests on the ground, particularly in the West. Unbothered by nesting around humans, Mourning Doves may even nest on gutters, leaves, or abandoned equipment. A flimsy assembly of pine needles, twigs, and grass stems, unlined and with little insulation for the young. Over 2 to 4 days, the male carries twigs to the female, passing them to her while standing on her back; the female weaves them into a nest about 8 inches across. Mourning Doves sometimes reuse their own or other species' nests. Mourning Doves feed on the ground and in the open.<sup>33</sup> They peck or push aside ground litter, but don't scratch at the ground. Males have favorite “cooing perches” they defend from other males. Members of a pair preen each other with gentle nibbles around the neck as a pair-bonding ritual. Eventually, the pair will progress to grasping beaks and bobbing their heads up and down in unison. Mourning Doves are common across the continent and generally have prospered as people settled the landscape, however populations declined



by an estimated 0.4% per year from 1966 to 2019 for a cumulative decline of about 20%, according to the North American Breeding Bird Survey. Partners in Flight estimates the global breeding population at 150 million and rates the species 6 out of 20 on the Continental Concern Score, indicating a species of low conservation concern. Mourning Doves are the continent's most popular game bird: hunters may shoot more than 20 million each year. Because of the birds' popularity, game managers monitor their numbers to set hunting limits. Although Mourning Doves seem to tolerate hunting pressure, they also face the less visible problem of lead poisoning. Mourning Doves forage on the ground, and in heavily hunted areas they eat fallen lead shot (records show some doves have eaten up to 43 pellets). Studies have found this problem is especially bad around fields planted to attract the doves, where 1 in 20 doves wind up eating lead. Many of them are researched in Shekhawati region and Bharatpur bird sanctuary as they migrate from long distances.<sup>34</sup>

## REFERENCES

1. Bonaparte, Charles Lucien (1855). "Coup d'oeil sur les pigeons (quatrième partie)". *Comptes Rendus Hebdomadaires des Séances de l'Académie des Sciences* (in French). 40: 15–24 [17].
2. ^ Jobling, James A. (2010). *The Helm Dictionary of Scientific Bird Names*. London: Christopher Helm. p. 367. ISBN 978-1-4081-2501-4.
3. ^ Gray, George Robert (1855). *Catalogue of the Genera and Subgenera of Birds Contained in the British Museum*. London: British Museum. p. 150.
4. ^ Peters, James Lee, ed. (1937). *Check-list of Birds of the World*. Vol. 3. Cambridge, Massachusetts: Harvard University Press. p. 88.
5. ^ ICZN (International Commission on Zoological Nomenclature) (2008). "Opinion 2215 (Case 3380), *Streptopelia risoria* (Linnaeus, 1758) (Aves, Columbidae): priority maintained". *Bulletin of Zoological Nomenclature*. 65: 327–328. doi:10.21805/bzn.v65i4.a2.
6. ^ Baptista, L.F.; Trail, P.W.; Horblit, H.M.; Boesman, P.; Garcia, E.F.J. (2020). del Hoyo, J.; Elliott, A.; Sargatal, J.; Christie, D.A.; de Juana, E. (eds.). "African Collared-dove (*Streptopelia roseogrisea*)". *Handbook of the Birds of the World Alive*. Lynx Edicions. Retrieved 16 February 2020.
7. ^ Sundevall, Carl (1872). *Methodi naturalis avium disponendarum tentamen. Försök till fogelklassens naturenliga uppställning*. Stockholm: Samson and Wallin. p. 100.
8. ^ Johnson, K.P.; De Kort, S.; Dinwoodey, K.; Mateman, A.C.; Ten Cate, C.; Lessells, C.M.; Clayton, D.H. (2001). "A molecular phylogeny of the dove genera *Streptopelia* and *Columba*". *Auk*. 118 (4): 874–887. doi:10.1642/0004-8038(2001)118[0874:AMPOTD]2.0.CO;2.
9. ^ Gill, Frank; Donsker, David; Rasmussen, Pamela, eds. (2020). "Pigeons". *IOC World Bird List Version 10.1*. International Ornithologists' Union. Retrieved 27 February 2020.
10. ^ "Species Updates – IOC World Bird List". Retrieved 2021-06-18.
11. BirdLife International (2018). "*Spilopelia senegalensis*". *IUCN Red List of Threatened Species*. 2018: e.T22690445A132060894. doi:10.2305/IUCN.UK.2018-2.RLTS.T22690445A132060894.en. Retrieved 13 November 2021.
12. ^ Dove spreading love over WA. 7 June 2013, WAToday website
13. ^ Brisson, Mathurin Jacques (1760). *Ornithologie, ou, Méthode contenant la division des oiseaux en ordres, sections, genres, especes & leurs variétés* (in French and Latin). Vol. 1. Paris: Jean-Baptiste Bauche. pp. 125–127, Plate 8 fig 3. The two stars (\*\*) at the start of the section indicates that Brisson based his description on the examination of a specimen.
14. ^ Allen, J.A. (1910). "Collation of Brisson's genera of birds with those of Linnaeus". *Bulletin of the American Museum of Natural History*. 28: 317–335. hdl:2246/678.
15. ^ Linnaeus, Carl (1766). *Systema naturae: per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus, differentiis, synonymis, locis* (in Latin). Vol. 1, Part 1 (12th ed.). Holmiae (Stockholm): Laurentii Salvii. p. 283.
16. ^ Peters, James Lee, ed. (1937). *Check-List of Birds of the World*. Vol. 3. Cambridge, Massachusetts: Harvard University Press. pp. 98–100.
17. ^ Johnson, K.P.; De Kort, S.; Dinwoodey, K.; Mateman, A.C.; Ten Cate, C.; Lessells, C.M.; Clayton, D.H. (2001). "A molecular phylogeny of the dove genera *Streptopelia* and *Columba*" (PDF). *Auk*. 118 (4): 874–887. doi:10.1642/0004-8038(2001)118[0874:AMPOTD]2.0.CO;2.





18. ^ Sundevall, Carl (1872). *Methodi naturalis avium disponendarum tentamen*. Försök till fogelklassens naturenliga uppställning (in Latin). Stockholm: Samson and Wallin. pp. 100, 186. Although the title page is dated 1872, the part containing pages 100 and 186 was published in 1873.
19. ^ Gill, Frank; Donsker, David; Rasmussen, Pamela, eds. (2020). "Pigeons". IOC World Bird List Version 10.1. International Ornithologists' Union. Retrieved 9 March 2020.
20. ^ Hartert, E (1916). "Notes on pigeons". *Novitates Zoologicae*. 23: 78–88.
21. ^ Ali, S.; S.D. Ripley (1981). *Handbook of the Birds of India and Pakistan. Volume 3 (2nd ed.)*. New Delhi: Oxford University Press. pp. 155–157.
22. ^ Javed, S (1992). "Albinism in little brown dove". *Newsletter for Birdwatchers*. 32 (3&4): 12.
23. ^ Whistler, Hugh (1949). *Popular handbook of Indian birds (4th ed.)*. London: Gurney and Jackson. pp. 397–398.
24. ^ Ticehurst, CB (1923). "The Birds of Sind. (Part V.)". *Ibis*. 65 (3): 438–473. doi:10.1111/j.1474-919X.1923.tb08108.x.
25. ^ Frith, HJ; JL McKean; LW Braithwaite (1976). "Sexual cycles and food of the doves *Streptopelia chinensis* and *S. senegalensis* in Australia". *Emu*. 76: 15–24. doi:10.1071/MU9760015.
26. ^ Kumar, Ashoke (1977). "Assisted migration of birds by ships". *Journal of the Bombay Natural History Society*. 74 (3): 531–533.
27. ^ Siegfried WR; LG Underhill (1975). "Flocking as an anti-predator strategy in doves". *Animal Behaviour*. 23 (3): 504–508. doi:10.1016/0003-3472(75)90126-8. S2CID 53172303.
28. ^ Sathesnan SM; Prakash Rao; H Datye (1990). "Biometrics and food of some doves of the genus *Streptopelia*". *Journal of the Bombay Natural History Society*. 87 (3): 452–453.
29. ^ Adang, KL; Ezealor AU; Abdu PA; Yoriyo KP (2008). "Food habits of four sympatric columbids (Aves:Columbidae) in Zaria, Nigeria". *Continental Journal of Biological Sciences*. 1: 1–9.
30. ^ Biricik, Murat; Ahmet Kılıç; Rüştü Şahin (1989). "Fortpflanzungsverhalten der Palmtaube (*Streptopelia senegalensis*): Paarbildung bis Eiablage". *Journal für Ornithologie*. 130 (2): 217–228. doi:10.1007/BF01649756. S2CID 45204809.
31. ^ Biricik, Murat (1997). "Winterbrut freilebender Palmtauben *Streptopelia senegalensis*". *Journal für Ornithologie*. 138 (3): 335–336. doi:10.1007/BF01651560. S2CID 20538661.
32. ^ Biricik, Murat; Ahmet Kılıç; Rüştü Şahin (1993). "Brutablösung bei freilebenden Palmtauben (*Streptopelia senegalensis*)". *Journal für Ornithologie*. 134 (3): 348–351. doi:10.1007/BF01640432. S2CID 25116410.
33. ^ Nene, RV (1979). "Incubation and incubation period in the Indian Little Brown Dove *Streptopelia senegalensis*". *Journal of the Bombay Natural History Society*. 76 (2): 362–363.
34. ^ Manakadan, Ranjit (1995). "Distraction display in the Little Brown Dove *Streptopelia senegalensis* (Linn.)". *Journal of the Bombay Natural History Society*. 92 (2): 265.





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