

Streptopelia decaocto

System: Terrestrial

Kingdom	Phylum	Class	Order	Family
Animalia	Chordata	Aves	Columbiformes	Columbidae

Common name Rola-turca (Portuguese, Portugal), Tortora dal collare (Italian, Italy), Turkduva (Swedish, Sweden), Kolchataya Gorlitsa (Russian, Russia), Eurasian collared-dove (English), Indian ring-dove (English), Sierpówka (Polish, Poland), Türkentaube (German, Germany), Tórtola turca (Spanish, Spain), Tourterelle turque (French, France), Turkinkyhky (Finnish, Finland), collared dove (English), Turkse Tortel (Dutch, Netherlands), Tyrkerdue (Danish), Balkáni gerle (Hungarian, Hungary)

Synonym *Columba risoria decaocto*

Similar species

Summary The Eurasian collared-dove (*Streptopelia decaocto*) is an extremely successful invader capable of phenomenal range expansion despite geographic barriers. In Europe, it spread from Turkey and the Balkans colonizing almost every country in Western Europe in a matter of 30 years, becoming viable breeders within two years of invasion. Believed introduced to the West Indies by accidental release of a pet trader in 1974, Eurasian collared-doves have spread throughout the Caribbean. In the early 1980's they invaded Florida and quickly established localities throughout the southeastern United States. Researchers cite factors such as genetic mutation, keen adaptation to human-dominated environments, and high reproductive potential as possible explanations for their abundant range expansion. Negative impacts include competition with endemic birds and potential disease transmission.



[view this species on IUCN Red List](#)

Species Description

The Eurasian collared-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 (Romagosa, 2002; Sibley, 2003).

Lifecycle Stages

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. In Europe first year mortality is 50-70%, adult mortality 33-55% annually thereafter. The longest known lifespan of the Eurasian collared-dove was 13 years 8 months (Romagosa, 2002).

Uses

The Eurasian collared-dove is a popular game bird (Romagosa, 2002).

Habitat Description

Often found in suburban, urban, and agricultural areas *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, Eurasian collared-doves are found in open country usually near agricultural areas but also frequent towns and villages. In Europe and North America, 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 (Romagosa, 2002; Sibley, 2003).

Reproduction

Oviparous, sexual. *Streptopelia decaocto* usually breeds between February and October in most of its range but may breed year-round in India, 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. 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 (Romagosa, 2002).

Nutrition

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 (Romagosa, 2002).

General Impacts

The vast expansion of the Eurasian collared-dove is believed to result in competition with other bird species including mourning dove (*Zenaidura 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 Pakistan (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).

Management Info

Physical: *Streptopelia decaocto* is popularly hunted in the United States 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 in Britain and is considered as a pest species (Romagosa, 2002).

Principal source: [Romagosa, Christina Margarita. 2002. Eurasian Collared-Dove \(*Streptopelia decaocto*\), The Birds of North America Online \(A. Poole, Ed.\). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/630>](#)
[IUCN 2008. 2008 IUCN Red List of Threatened Species. . Downloaded on 10 August 2008.](#)

Compiler: Comité français de l'IUCN (IUCN French Committee) & IUCN SSC Invasive Species Specialist Group (ISSG)

Review: Christina M. Romagosa, Center for Forest Sustainability, Department of Biological Sciences, Auburn University.

Publication date: 2008-03-14

ALIEN RANGE

[1] ANTIGUA AND BARBUDA
[1] BELIZE

[1] CANADA
[1] CUBA
[1] GUADELOUPE
[1] MALTA
[1] MEXICO
[1] SAINT KITTS AND NEVIS
[1] SAINT MARTIN (FRENCH PART)
[1] TURKS AND CAICOS ISLANDS

[1] BAHAMAS
[1] BES ISLANDS (BONAIRE, SAINT EUSTATIUS AND SABA)
[1] CAYMAN ISLANDS
[1] DOMINICA
[1] JAPAN
[1] MARTINIQUE
[1] MONTSERRAT
[1] SAINT LUCIA
[1] TUNISIA
[2] UNITED STATES

BIBLIOGRAPHY

66 references found for *Streptopelia decaocto*

Management information

Coombs, C. F. B., A. J. Isaacson, R. K. Murton, R. J. P. Thearle and N. J. Westwood. Collared Doves (*Streptopelia decaocto*) in Urban Habitats. The Journal of Applied Ecology, Vol. 18, No. 1 (Apr., 1981), pp. 41-62

Dinsmore, James J., 2001. Invasive birds in Iowa: Status, problems, and threats. Journal of the Iowa Academy of Science. 108(4). December, 2001. 212-220.

Summary: Abstract: A total of 18 invasive bird species has been introduced into or have expanded their range to include Iowa. These include ten non-North American species, one North American species that has been displaced and now is established in Iowa, and seven native species that have been released to reestablished Iowa populations. Twelve of those are regularly occurring species in Iowa, and they comprise 3.0% (12 of 404) of the species known from Iowa and 5% (10 of 199) of Iowa's nesting avifauna. These percentages are similar to those found in neighboring states. Several more species are likely to become established in the near future. Two invasive species, European Starling (*Sturnus vulgaris*) and House Sparrow (*Passer domesticus*), are among the most numerous species found in Iowa and have negative effects on other species. Most of the older invasive bird species seem to have little effect on other bird species. Two species, Mute Swan (*Cygnus olor*) and Eurasian Collared-Dove (*Streptopelia decaocto*), are close to becoming established in Iowa. Both have the potential to be harmful to other bird species.

Eraud, Cyril., Jean-Marie Boutin, Denis Roux and Bruno Faivre., 2007. Spatial dynamics of an invasive bird species assessed using robust design occupancy analysis: the case of the Eurasian collared dove (*Streptopelia decaocto*) in France. Journal of Biogeography (J. Biogeogr.) (2007) 34, 1077-1086

Hengeveld, R., 1988. Mechanisms of Biological Invasions. Journal of Biogeography, Vol. 15, No. 5/6 (Sep. - Nov., 1988), pp. 819-828

Hengeveld, Rob., 1998. Control of exotics through ecological understanding. Levende Natuur. 99(1). Jan., 1998. 18-22.

Summary: Abstract: In order to control introduced - exotic - species, we have to know their specific demography leading to the expansion of their range and to the eventual maintenance of their density level. To this end, I analysed the range expansion of the Collared dove (*Streptopelia decaocto*) in Europe during the present century. Thus, I analysed its geographical dynamics, describing this using recently developed models. The results show that species become invaders only when their ecological demands match environmental conditions optimally. For their control, we therefore need to know the weak points in their demographic development and maintenance and alter the conditions such that these become breaking points to the species. Understanding of their demography is therefore essential for their efficient control.

Ortega-Cejas, V., J. Fort, V. M. González., 2004. The Role of the Delay Time in the Modeling of Biological Range Expansions. Ecology, 85(1), 2004, pp. 258-264

Rocha-Camarero, Gregoria & Hidalgo De Trucios., 2002. The spread of the Collared Dove *Streptopelia decaocto* in Europe: colonization patterns in the west of the Iberian Peninsula. Bird Study (2002) 49, 11-16

General information

Arizona Birds Online., 2005. Summer 2005. Published by Arizona Field Ornithologists. Volume 1 Issue 1

Summary: Available from: http://www.azfo.org/documents/AZBirdsV_1_1.pdf [Accessed 11 August 2008]

Barre N.; Feldmann P.; Tayalay G.; Roc P.; Anselme M.; Smith W. 1997. Introduction et extension de la Tourterelle turque *Streptopelia decaocto* dans les Petites Antilles. Alauda 65 (3) 245-250

Barre, Nicolas; Feldmann, Philippe; Tayalay, Georges; Roc, Patrice; Anselme, Maurice; Smith, William., 1997. Introduction and extension of Collared Dove *Streptopelia decaocto* in the Lesser Antilles. *Alauda*. 65(3). 1997. 245-250.

Summary: The Collared Dove population centered on the town of Saint-Claude in Guadeloupe originated from a few birds released in 1976, is showing an important demographic and geographic extension. This species is found over the whole Guadeloupe and nearby islands. Considering the age and the size of this population, we think birds found on Martinique, Dominica, Montserrat and Nevis originated from it. This population is clearly distinct from the Collared Doves released in the Bahamas at the same period which have colonized Cuba and the United-States.

Bean, Diane L., Edith Rojas-Flores, Garry W. Foster, John M. Kinsella, and Donald J. Forrester ., 2005. Parasitic Helminths of Eurasian Collared-Doves (*Streptopelia decaocto*) From Florida. *Journal of Parasitology*: pp. 184-187

Beckett, Susan M.; Komar, Nicholas; Doherty, Paul E. Jr., 2007. Population estimates for Eurasian collared-dove in Northeastern Colorado. *Wilson Journal of Ornithology*. 119(3). SEP 2007. 471-475.

Bergier, Patrick; Franchimont, Jacques; Thevenot, Michel., 1999. Colonisation and geographical expansion of two species of Columbidae in Morocco: Collared Dove *Streptopelia decaocto* and Palm Dove *Streptopelia senegalensis*. *Alauda*. 67(1). 1999. 23-36.

Summary: Abstract: The colonisation of Morocco by Collared Dove *Streptopelia decaocto* and Palm Dove (*Streptopelia senegalensis*) started only 20 years ago. The range expansion has been very rapid in Turtle Doves: in late 1998 the species was present on a wide coastal area covering over 2000 km between Tangier and Dakhla as well as most of the large inland cities. It is now a common species. The expansion of the Palm Dove has been much slower, in late 1998 sightings were scarce and localised, and breeding has only been proven in three different areas.

[BirdLife International](http://www.birdlife.org), 2008. Species factsheet: *Streptopelia decaocto*. Downloaded from <http://www.birdlife.org> on 10/8/2008

Summary: Available from: <http://www.birdlife.org/datazone/species/index.html?action=SpchTMLDetails.asp&sid=2509&m=0> [Accessed 11 August 2008]

Böhning-Gaese, Katrin and Hans-Göthner Bauer., 1995. Changes in Species Abundance, Distribution, and Diversity in a Central European Bird Community. *Conservation Biology* Volume 10 Issue 1, Pages 175 - 187

Chobot, J.; Macko, J. K.; Spakulova, M.; Csizsmarova, G., 1993. Finding of an exotic tapeworm *Aporina* sp. (Anoplocephalidae, Cestoda) in *Streptopelia decaocto* from Slovakia. *Helminthologia* (Bratislava). 30(3-4). 1993. 181-186.

Summary: Abstract: A peculiar tapeworm *Aporina* sp. was recovered from the host *Streptopelia decaocto* (Friv.) in Slovakia in the area of the protected habitat of great bustard *Otis tarda* L. It differs from the related *Aporina delafondi* (Railliet, 1892) from European columbiformes in: 1. atrophied genital distal ducts and bursa cirri and in the absence of genital openings in hermaphroditic and more developed proglottides; 2. lateral distal ducts of undefined function present at both caudal margins of the above mentioned proglottides; 3. uterus extending laterally beyond excretory ducts in pregravid and gravid proglottides; 4. larger size of eggs. This cestode has some morphological characters similar to those of the South American species *A. fuhrmanni* Skryabin, 1915 and *A. alba* Fuhrmann, 1902 and of the North American form of *Aporina delafondi* This is the first finding of the tapeworm of this morphological structure in Europe.

Cole, Luke W.; McCaskie, Guy., 2004. Report of the California Bird Records Committee: 2002 records. *Western Birds*. 35(1). 2004. 2-31.

CONABIO. 2008. Sistema de información sobre especies invasoras en México. *Especies invasoras - Aves*. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.

Summary: English:

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), under the section Novedades for information on updates.

Invasive species - birds is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Aves [Accessed 30 July 2008]

Spanish:

La lista de especies del Sistema de información sobre especies invasoras de México cuenta actualmente con información acerca de nombre científico, familia, grupo y nombre común, así como como hábitat, estado de la invasión en México, rutas de introducción y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la página de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualización, por favor consulte la portada

(<http://www.conabio.gob.mx/invasoras/index.php/Portada>), en la sección novedades, para conocer los cambios.

Especies invasoras - Aves is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Aves [Accessed 30 July 2008]

Cramp, S. (Ed.). 1985. *The birds of the Western Palearctic. Volume 4: terns to woodpeckers*. Oxford University Press, Oxford, UK.

Di Castri, Francesco., A. J. Hansen, M. Debussche., 1990. Biological invasions in Europe and the Mediterranean Basin. Contributor Francesco Di Castri Edition: 2, illustrated Published by Springer, 1990 ISBN 079230411X, 9780792304111 463 pages

Feldmann, Philippe., Edouard Benito-Espinal, Allan R. Keith., 1999. New Bird Records from Guadeloupe and Martinique, West Indies. *Journal of Field Ornithology*: Vol. 70, No. 1, Winter, 1999.

Garrido, O.H. & Kirkconnell, A. 1990. La Tortola *Streptopelia decaocto* en Cuba. *Pitirre* 3:2.

Gibbs, Samantha E.J., Andrew B. Allison, Michael J. Yabsley, Daniel G. Mead, Benjamin R. Wilcox, David E. Stallknecht. Vector-Borne and Zoonotic Diseases. March 1, 2006, 6(1): 57-72. doi:10.1089/vbz.2006.6.57.

Gorski, Wojciech; Antczak, Jacek., 1999. Breeding losses in an urban population of the Collared Dove *Streptopelia decaocto* in Slupsk, Poland. Acta Ornithologica (Warsaw). 34(2). Winter, 1999. 191-198.

Summary: Abstract: During the 25 seasons (1974-1998), the breeding success of Collared Doves was determined by tracing the fates of 7882 nests found in Slupsk, Northern Poland. The kind of losses recognized were: complete nesting failures (CNF) and partial losses (PL), where only one nestling left the nest. Total breeding losses (TBL), were estimated by comparing the estimated total number of eggs laid (TNEL), with the total number of young fledged. In different years CNF varied from 51.8 to 75.7% ($x = 61.1$, $SD = 5.1$, $n = 25$ seasons, $CV = 8\%$) while PL accounted for between 4.3 and 11.8% ($x = 8.2$, $SD = 1.6$, $n = 25$, $CV = 19.5\%$) of all eggs laid. TBL amounted to between 60.9 and 80% ($x = 69.3$, $SD = 4.3$, $n = 25$, $CV = 6.2\%$) of TNEL, and was highest at the beginning (February-April) of the breeding season, and at the end (September-October). The losses suffered during incubation ($x = 70.6\%$, $SD = 10.3$, $n = 25$, $CV = 15\%$) were much higher than at the nestling stage ($x = 29.4\%$, $SD = 10.3$, $n = 25$, $CV = 35\%$). Rooks and Jackdaws were the main nest predators of the Collared Dove population in Slupsk, while Magpies and domestic cats were less effective predators.

Guichard, K. M. & D. Goodwin., 2008. Notes On Birds Collected and Observed in Oman and Hadhramaut. Ibis Volume 94 Issue 2, Pages 294 - 305 Published Online: 3 Apr 2008

Hatzofe, Ohad A and Yoram Yom-Tov A., 2002. Global Warming and Recent Changes in Israel's Avifauna. Israel Journal of Zoology Volume 48, Number 4 / 2002

Hayslette, Steven E., 2006. Seed-size selection in Mourning Doves and Eurasian Collared-Doves. Wilson Journal of Ornithology. 118(1). MAR 2006. 64-69.

Hengeveld, R., 1992. Potential and Limitations of Predicting Invasion Rates. Florida Entomologist. 75(1). 1992. 60-71.

Hengeveld, R., 1993. What to do about the North American invasion by the Collared Dove? Journal of Field Ornithology. 64(4). 1993. 477-489.

Hermant, D.; Frochot, B., 1997. Breeding habitats and spring densities of some Turdinae and Columbidae species in Cote-d'Or (France). Gibier Faune Sauvage. 14(1). March, 1997. 49-64.

Summary: Abstract: The characteristics of Turdinae and Columbidae breeding habitats and their spring densities were studied in 1990, 1991 and 1992 in three different biotopes in the Cote-d'Or department, and compared to those of two other biotopes situated in the same department, that had been sampled in 1986 and 1988. Bird censuses were carried out by point counts, a relative method of census whereby the number of species is given as an index of abundance (IPA), and by a total count of birds on a gridded map. Habitat characteristics were recorded in 397 bird territories (mapping method) and on the 200-m diameter circular plots surrounding 103 listening points. Data were analysed by a Principal Component Analysis (PCA) and a Multiple Component Analysis (MCA). Species density varied from 0.10 pairs of collared turtle doves, *Streptopelia decaocto*, per 10 ha of bocage to 0.95 pairs of blackbirds, *Turdus merula*, per 10 ha of wooded plateau. Among the Turdinae: the blackbird is widespread, whereas the song thrush, *Turdus philomelos*, prefers heterogeneous forest stands and hedges. The mistle thrush, *Turdus viscivorus*, is a forest bird that most frequently occurs in old-growth stands, but never in coniferous forests, nor in hedges or small woods. Columbidae habitats are more varied. The commensal collared turtle dove shares its habitat with man, the turtle dove, *Streptopelia turtur*, prefers bushes in open habitats, the stock dove, *Columba oenas*, does not frequent bocage landscapes, and the wood pigeon, *Columba palumbus*, is abundant everywhere except along river banks and in small poplar stands.

Hudson, R. 1965. The spread of the collared dove in Britain and Ireland. *British Birds* 58:105-139.

Hudson, R. 1972. Collared doves in Britain and Ireland during 1965-1972. *British Birds* 65:139-155.

Huntley, Brian., Yvonne C. Collingham, Stephen G. Willis, and Rhys E. Green., 2008. Potential Impacts of Climatic Change on European Breeding Birds. PLoS ONE. 2008; 3(1): e1439. Published online 2008 January 16. doi: 10.1371/journal.pone.0001439.

[ITIS \(Integrated Taxonomic Information System\), 2008. Online Database *Streptopelia decaocto* \(Frivaldszky, 1838\)](#)

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=177139 [Accessed 12 March 2008]

[IUCN 2010. IUCN Red List of Threatened Species. Version 2010.4.](#)

Summary: Available from: <http://www.iucnredlist.org/search/details.php/48744/all> [Accessed 11 August 2008]

Jourdain, E., Y. Toussaint, A. Leblond, D.J. Bicot, P. Sabatier, M. Gauthier-Clerc., 2007. Vector-Borne and Zoonotic Diseases. March 1, 2007, 7(1): 15-33. doi:10.1089/vbz.2006.0543

Kasperek, Max., 1996. Dispersal and range extension of the Collared Dove (*Streptopelia decaocto*) in Europe. Journal fuer Ornithologie. 137(1). 1996. 1-33.

Kasperek, Max., 1998. Distribution and expansion of the Collared Dove in the near and Middle East. Ornithologische Verhandlungen. 25(5-6). Oct., 1998. 241-279.

Summary: Abstract: Until 1935 the continuous distribution of the Collared Dove only reached westwards as far as Seistan and Beluchistan. In addition, there were three other isolated areas but they were not connected to each other: Mesopotamia, around the Dead Sea, and in the Balkans and Western Anatolia. Some isolated single occurrences had also been reported, e.g. from Isfahan, Antakya, and Cyprus. Such a disjunct pattern of distribution can only be explained through introductions with man (an anthropochoric distribution). The oldest indications of the bird's occurrence are from Mesopotamia in 1700 BC and from Istanbul in the 16th century. From Europe and south-west Asia the earliest undisputed records date only from the middle of the 18th century, from Antakya and Aydin. By the time that ornithological research began in the 19th century, the range of the Collared Dove in the Balkans and Western Anatolia was already what it was in about 1935, when the expansion into Europe began. The attachment between Turks and the Collared Dove was, contrary to the prevailing view, no closer than it was among Christians, so that its naturalization was not necessarily due to this ethnic group. It has been shown that it was kept as a cage bird by Greeks, Bulgars, Turks, Persians and Arabs. As it does not easily breed in captivity, specialized keepers had to take charge of breeding. In 16th century Istanbul, it was the custom to release caged doves on specific feast days, as a good deed. This could have been the means whereby the Collared Dove was able to build up a wild population. During the 20th century the Collared Dove expanded its breeding range considerably through the Near and Middle East: since the 1950s at least, it has been steadily increasing its range to the east in Turkey so that most of Inner Anatolia has now been colonized, the Mesopotamian centre has been absorbed, and isolated occurrences have been recorded in Eastern Anatolia and the Black Sea region. The Turkish breeding population has now reached the Caucasus region, into which the Collared Dove migrated from the north during the 1970s. In Syria, since the middle of the 1970s, the Collared Dove has become established in the valleys of the Euphrates and the Khabur, since the early 1980s in the desert oases (Palmyra), and in the 1990s in the cities of the Mediterranean. On Cyprus, the population of Collared Doves has expanded rapidly since the 1980s and now covers the entire island. Since the 1970s a surge of expansion from the Dead Sea area has been recorded, which has now reached the Nile and the Western Desert on the one hand and Saudi Arabia on the other. The range in Mesopotamia has also been expanding since the 1950s, more rapidly so since the 1970s. Considerable territory has been gained in Qatar, Bahrain and in the United Arab Emirates. In the meantime the Collared Dove has reached Oman where a population increase and range expansion have been observed since the 1970s (or even earlier). The individual phases of expansion have been completely independent events, with different points of origin, different directions, and largely independent chronologies. The three breeding areas in Europe and south-west Asia that were anthropochoric in origin (Mesopotamia, Israel/Palestine, Western Anatolia/Balkans) were the points of origin for these dispersal movements. These three have now merged into a single area.

Kinzelbach, Ragnar., 1993. A historic record of the collared turtledove, *Streptopelia decaocto*, from Pakistan. Zoology in the Middle East. 9(0). 1993. 39-44.

Summary: Abstract: A historic document of the Collared Dove (*Streptopelia decaocto*) in its south Asiatic core area has been found: from the hellenistic period in the Indus valley. From this area the next dated documents are known only from the 16th century on. West of the Zagros and Ararat mountains the Collared Dove for the first time was mentioned in the 16th century as a pet bird at the Ottoman court. The Barbary Dove (*Streptopelia roseogrisea*) also did not occur in northern Africa in antiquity. It was subject to trade since the 16th century in Alexandria, from where it came as a cage bird to Europe.

Komar N, Clark G. G. 2006. West Nile virus activity in Latin America and the Caribbean. Rev Panam Salud Publica. 2006;19(2):112- 117

Summary: Available from: http://journal.paho.org/?a_ID=307&catID= [Accessed 11 August 2008]

Kubicek, O.; Taras, L., 2005. Incidence of pigeon circovirus in Eurasian collared-dove (*Streptopelia decaocto*) detected by nested PCR. Acta Veterinaria Brno. 74(3). SEP 2005. 361-368.

Levesque, A., Jaffard, M.-E. 2003. La tourterelle turque en Guadeloupe : statut, répartition, propositions de gestion. Rapport AMAZONA et DIREN Guadeloupe: 12 p.

Mary, Bomberger Brown & John S Tomer., 2002. The Status of the Eurasian Collared-Dove in Oklahoma. Bull. Oklu. Ornithol. Sor. 355-8. 2002

Moali, Aissa; Isenmann, Paul., 2007. Eurasian Collared Dove *Streptopelia decaocto* breeding in 2007 in Tamanrasset (Central Sahara, Algeria) and the species extension in the Sahara [Article] Alauda. 75(3). 2007. 247-248.

Moali, Aissa; Moali-Grine, Nadia; Fellous, Amina; Isenmann, Paul, 2003. Spatial expansion of Collared Dove *Streptopelia decaocto* and presence of Wood Pigeon *Columba palumbus* in urban parks in Algeria. Alauda. 71(3). 2003. 371-374.

Summary: Abstract: Spatial expansion of Collared Dove *Streptopelia decaocto* and presence of Wood Pigeon *Columba palumbus* in urban parks in Algeria. Collared Dove began colonizing Algeria in 1994. In 2002 the species was already common and widespread in the northern part of the country. Woodpigeon started colonizing urban parks from 1995, an habitat extension known for a long time in various parts of Europe but which has only been recorded recently in the Mediterranean part of its range.

Monroe, Burt L., Jr., Richard C. Banks, John W. Fitzpatrick, Thomas R. Howell, Ned K. Johnson, Henri Ouellet, J. V. Remsen and Robert W. Storer., 1989. Thirty-Seventh Supplement to the American Ornithologists Union Check-List of North American Birds. The Auk, Vol. 106, No. 3 (Jul., 1989), pp. 532-538

Moulton, Michael P., 1985. Morphological Similarity and Coexistence of Congeners: An Experimental Test with Introduced Hawaiian Birds. Oikos, Vol. 44, No. 2 (Apr., 1985), pp. 301-305

Museum national d Histoire naturelle [Ed]. 2003-2006. *Streptopelia decaocto* Inventaire national du Patrimoine naturel.

Summary: Available from:

http://inpn.mnhn.fr/isb/servlet/ISBServlet?action=Espece&typeAction=10&pageReturn=ficheEspeceDescription.jsp&numero_taxon=3429 [Accessed 9 April 2008]

National Audubon Society. 2002. The Christmas Bird Count Historical Results. [Accessed December 17, 2009].

Summary: Available from: <http://www.audubon.org/bird/cbc>

NatureServe Explorer, 2008. An Online Encyclopedia of Life: *Streptopelia decaocto* - (Frivaldszky, 1838) Eurasian Collared-Dove

Summary: Available from: <http://www.natureserve.org/explorer/servlet/NatureServe?searchName=Streptopelia%20decaocto> [Accessed 11 August 2008]

O Connor, R. J., M. B. Usher, A. Gibbs and K. C. Brown., 1986. Biological Characteristics of Invaders among Bird Species in Britain [and Discussion] Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences, Vol. 314, No. 1167, Quantitative Aspects of the Ecology of Biological Invasions (Dec. 15, 1986), pp. 583-598

Poling, T. D. & Hayslette, S. E., 2006. Dietary Overlap and Foraging Competition Between Mourning Doves and Eurasian Collared-Doves. *Journal of Wildlife Management*: Vol. 70, No. 4 pp. 998-1004

Robel, Detlef., 2000. Distribution of Collared Dove *Streptopelia decaocto* in north-west Africa. *Ornithologischer Anzeiger*. 39(2-3). September, 2000. 236-237.

Summary: Abstract: The present expansion of Collared Dove in Morocco, Algeria and Tunisia is described. *Streptopelia decaocto* has spread in Morocco from Meknes (1986) along the Atlantic coast south to Dakhla and Ad-Deheb (1998) and inland to Boulmane, Erfoud and Merzouga. It reached Algeria in 1994, where the first breeding pair was recorded in 1996. In Tunisia the first birds have been observed in Bizerte (1991); other records are documented from Tunis. New observations come from Tozeur in Central Tunisia (1999), but these are probably escaped birds.

Roberts, T.J. 1991. *The birds of Pakistan. Vol 1. Regional studies and non-passeriformes*. Oxford University Press, Oxford, UK.

Romagos, Christina Margarita. 2002. Eurasian Collared-Dove (*Streptopelia decaocto*), *The Birds of North America Online* (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: <http://bna.birds.cornell.edu/bna/species/630>

Summary: Informative species profile with emphasis on *Streptopelia decaocto* in North America.

Available from: <http://bna.birds.cornell.edu/bna/species/630/articles/introduction> [Accessed 25 September 2008]

Romagos C. M., Labisky R. F 2000. Establishment and Dispersal of the Eurasian Collared-Dove in Florida. *Journal of Field Ornithology*: Vol. 71, No. 1 pp. 159-166

Romagos, C.M. & T. McEneaney. 2000. Eurasian Collared-Dove in North America and the Caribbean. *North American Birds* 53: 348-353.

Sibley, D.A., 2003. The Sibley Field Guide to Birds of Eastern North America. Chanticleer Press, Inc., New York, ISBN: 067945120x, p 210.

Summary: A field guide to birds of North America with physical description and distribution data.

Simberloff, Daniel & William Boecklen., 1991. Patterns of Extinction in the Introduced Hawaiian Avifauna: A Reexamination of the Role of Competition. *The American Naturalist*, Vol. 138, No. 2 (Aug., 1991), pp. 300-327

Smith, P. W. 1987. The Eurasian Collared-Dove arrives in the Americas. *American Birds* 41: 1370-1379.

Sol, Daniel., Sarah Timmermans and Louis Lefebvre., 2002. Behavioural flexibility and invasion success in birds. *Animal Behaviour* Volume 63, Issue 3, March 2002, Pages 495-502

Terregino, Calogero; Cattoli, Giovanni; Grossele, Barbara; Bertoli, Elena; Tisato, Ernesto; Capua, Ilaria., 2003. Characterization of Newcastle disease virus isolates obtained from Eurasian collared doves (*Streptopelia decaocto*) in Italy. *Avian Pathology*. 32(1). February 2003. 63-68.

The Royal Society for the Protection of Birds (RSPB)., 2008. Collared Dove

Summary: Available from: <http://www.rspb.org.uk/wildlife/birdguide/name/c/collaredove/> [Accessed 11 August 2008]

UNEP-WCMC Species Database., 2008. *Streptopelia decaocto* (Frivaldszky, 1838)

Summary: Available from:

<http://www.unep-wcmc.org/isdb/Taxonomy/tax-common-result.cfm?source=animals&displaylanguage=eng&Common=24558&Country=&tabname=names> [Accessed 11 August 2008]

van den Bosch, F., R. Hengeveld and J. A. J. Metz., 1992. Analysing the Velocity of Animal Range Expansion. *Journal of Biogeography*, Vol. 19, No. 2 (Mar., 1992), pp. 135-150

Vaurie, Charles., 1961. Systematic notes on Palearctic birds. No. 49, Columbidae, the genus *Streptopelia*. *American Museum novitates* ; no. 2058. American Museum novitates ; no. 2058. New York, N.Y. : American Museum of Natural History

Summary: Available from: <http://digitallibrary.amnh.org/dspace/handle/2246/3435> [Accessed 11 August 2008]