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**Andrew Whittle\*** ([awhitt12@kennesaw.edu](mailto:awhitt12@kennesaw.edu)), Department of Mathematics and Statistics, Kennesaw State University, 1000 Chastain Road, #1204, Kennesaw, GA 30144, and **Erika Asano** and **Michael Fuller**. *Using integro-difference equations to model the effect of growing season length on the spread of the Eurasian collared dove in North America.*

The Eurasian collared dove (*Streptopelia decaocto*) established breeding populations in Florida in the mid-1980s and is now spreading across North America. Records from the spread of the collared dove across Europe, in the mid 20th century, suggest that the dispersal of the collared dove may be leptokurtic. Mathematical ecologists use integro-difference equations to model this type of invasion pattern. However, integro-difference models typically assume that population-level parameters, such as growth rate, are spatially homogeneous. We extend the integro-difference approach by considering the latitudinal effect on the length of agricultural growing season, which directly affects the collared doves breeding season. We consider the effect of spatial heterogeneity on the velocity of the invasion wave front, the density of local populations, and the ultimate boundary of the species' range. Our model incorporates information on life history (mating system, breeding period, number of offspring fledged) and the observed distribution of dispersal distance. Using our model and observations on the post-invasion population trends of native dove species; we discuss the potential future distribution of the collared dove and the consequences for native species. (Received September 25, 2006)