THE SEASONAL OCCURRENCE, SOIL DISTRIBUTION AND FLIGHT CHARACTERISTICS OF *CURCULIO SAYI* (COLEOPTERA: CURCULIONIDAE) IN MID-MISSOURI

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ABSTRACT

Chestnut trees were once a dominant sight across the deciduous forest of the eastern and central United States, but following a devastating blight in the early 1900's much of the native range for this tree species has been lost. As interest in the restoration of the American chestnut tree increases, and as commercial production of chestnut fruit is being developed using blight resistant cultivars from Asia, a large quantity of both native and hybridized trees are coming into maturity and nut production across the United States.

The two weevil species in the United States, the greater chestnut weevil (*Curculio caryatrypes,* Boheman) and the lesser chestnut weevil (*Curculio sayi*, Gyllenhal) attack ripening chestnut fruit, and they can devastate a chestnut operation. Of these two species, the lesser chestnut weevil (*C. sayi*) has long been reported as the most common and most damaging chestnut pest insect species.

Our study shows a bimodal emergence pattern for *C. sayi*, a finding not previously documented for this species of chestnut weevil. Emergence patterns were consistent over the three years of this study, with the largest numbers of adults appearing in May and September each year. Underground study results indicate a minimum of 15 months in larval diapause prior to adult development for *C. sayi*. Most of the larvae emerged as adults in the second year, though some may hold over to emerge the third year. The flight ability of C. sayi allows them to travel up to 3 kilometers in a single flight, though average distances per flight were closer to 500 meters. There were no major differences in flight ability between the genders.

This study lays the basic biological and ecological ground work required for continued research into *C. sayi*, and for the establishment of educated pest management.