

2-7. Reproductive Development and Seasonal activity of *Copris ochus* (Motschulsky) (Coleoptera: Scarabaeidae) in Je-Ju Island

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Seasonal activity of a population of the native dung beetle, *Copris ochus* (Motschulsky), was studied at a site in Je-Ju Island, South Korea. Mainland populations of *C. ochus* have declined steadily during recent years, but for unknown reasons, the species has remained abundant on Je-Ju Island.

Beetles were collected by sampling freshly dropped cattle dung and using the pitfall trap at roughly monthly intervals from May 2000 to September 2001. Beetles were killed in ethanol and dissected to determine their reproductive condition. Like other scarabaeids, the ovary of *C. ochus* consists of a single ovariole located on the left dorsal side of the beetle. Eggs develop sequentially and are laid singly in a ball of dung (a brood). Physiological age-grading techniques were used to assess the proportions of beetles that were newly emerged, nulliparous or parous, as well as those that were resorbing oocytes. The assembled data indicates that the species is univoltine, and that the main period of adult emergence occurs in late July and August rather than in spring (March-May) as was thought hitherto. Oviposition begins in August-September, by which time the population is at its maximum and consists of a complete range in the reproductive age classes. With the decrease the temperature in late September, dissections revealed that many female beetles commenced resorbing oocytes. These findings suggest that beetles may pass the winter either as juveniles or as over-wintering adults.