P703

The Patterns on the Seasonality and Population Size of Carrion Beetles (Coleoptera, Silphidae) in Mt. Sokrisan, Korea

Young Bok Cho

Natural History Museum, Hannam University, Daejeon 306-791

The Silphidae is a relatively small family of beetles with about 210 species on worldwide but interest in them has always been substantial because of the semisocial behavior displayed by species in the genus *Nicrophorus*. This members have the behavioral adaptation to inter small vertebrates in the ground. Males and females independently wander on the ground and fly, to find carcasses which will food for their larvae. If males find a suitable carcass, they release a pheromone to call female. After a male pairs with a female on a carsass, they cooperate to bury it in a chamber in the soil, where the carcass is rolled into a ball and treated with oral and anal secretions of the burying beetles. Most silphids are scavengers on carrion that are important roll to responsible for breaking the dead organisms down and recycling back into the ecosystem, but a few are phytophagous. or prey on insect larvae. Most silphids are active at night, which maybe be a strategy to reduce competition from flies that are primarily diurnal. The monitoring survey on the seasonality and the population size of carrion beetles was done near Beobjusa Temple area, Mt. Sokrisan, Boeun-gun, Naesokri-myeon, Chungcheongbok-do, Korea, from May 2003 to July 2004. Three methods, FIT (flying intercepting trap), Pit-fall trap, and Web trapping, were used for them. 50% ehtylene glycol was used for preserving the samples in FIT and Shrimps were used for attracting silphids in Pit-fall trap and Web trapping. A total of nine species (*Oiceoptoma thoracicum, Eusilpha jakowlewi, Calosilpha brunneicollis, Necrodes littoralis, Ptomascopus morio, Nicrophorus concolor, N. quadripunctatus, N. maculifrons,* and *N. praedator*) were observed in this mountain by above methods. Total species numbers observed in the survey area are about 33.3% species of Korean fauna (27 species). As the result by FIT and Pit-fall trap methods for the seasonality of the silphid members during May to December, 2003. *N. quadripunctatus* was shown the most high individual abundance and the highest peak of population appearance in August from the investigated area. *P. morio* was shown the secondly high individual abundance even though low abundance and the similar seasonal appearance with above species. But *N. concolor, N. maculifrons,* and *C. brunneicollis* was shown the low individual abundance and the different seasonal appearance pattern against *N. quadripunctatus*, in which their seasonal appearance were the high peak in June and then decreased generally. The other species was observed very poorly as impossible to estimate in survey area. To know the population size of the members of silphids, the web trapping method by counting the number of capture and recapture of individuals within the circle of diameter 106m was used for during five days daily. Eight species of silphids were observed and counted during this period. Among them, the population size of *N. quadripunctatus* in the investigated area, was estimated with the density of 65 individuals/100m^2. In this species, 73 individual was captured and 12 were recaptured during survey period. The other members were observed poorly by web trapping method as like the same low abundance as the methods of FIT and Pit-fall trap and so the density of them is doubted. I can infer the natural history of silphids carefully through this monitoring survey as following: 1. *N. quadripunctatus* is the most dominant species in Korean peninsula. 2. The reason that *P. morio* was shown the similar seasonal appearance with *N. quadripunctatus* is to get the benefit of parasitic oviposition on the nest of *N. quadripunctatus* with the most individual abundance. 3. The reason of the different seasonal appearance in the other observed members is to avoid the food resources competition with *N. quadripunctatus*. 4. Through web trapping, the incoming routes of new individuals into survey area are affected clearly by some factors of the niche differentiation (e.g. slope, vegetation, and it's density).