

ON THE BIONOMICS AND POPULATION DYNAMICS OF  
*DASTARCUS LONGULUS* (COLEOPTERA: COLYDIIDAE)

YANG Zhong-qi<sup>1</sup>, LI Meng-lou<sup>2</sup> and Michael T. SMITH<sup>3</sup>

<sup>1</sup>Institute of Forest Ecology, Environment and Protection, Chinese Academy of Forestry, Beijing 100091, China

<sup>2</sup>Forestry Institute, Northwest University of Agricultural and Forest Science and Technology, Yangling 712100, Shaanxi, China

<sup>3</sup>Beneficial Insects Introduction Research Lab., ARS, USDA, Newark, DE 19713, USA

Email: [yangzq@prot.forestry.ac.cn](mailto:yangzq@prot.forestry.ac.cn)

It is difficult to control ALB by current techniques. The parasitoid beetle *Dastarcus longulus* Sharp (Coleoptera: Colydiidae) has been found to be effectively natural enemies in many forest stands in Shaanxi Province. Therefore, it was selected as a good potential natural enemies for biological control of ALB. For mass rearing the parasitoid, its biology, behavior and parasitic characteristics should be surveyed. The investigation was carried on mainly by stumpage dissection and indoor rearing. *D. longulus* could develop two sisters generations per year, and the second generation was reproduced from the first sisters generation. The life span of its adult could reach three years. In theory, a pair of adults and its all offsprings could procreate 54 generations in the three years. But following its survival years of adult beetles prolonged, the egg number decreased gradually and the falling ratio was about 15.6% annually. The incubation period of the parasitoid was 10-15 days, the larva stage lasted for 5-15 days, and the pupa (in cocoon) period was 12-28 days (on an average 22.7 days). Compared on egg number, the second mixed generation developed from the first ten-day of July to the last ten-day of September were 25.5% higher than that of the first sisters generation from mid April to mid July in average. The parasitic peak of the first sisters generation was in the first ten-day of June, and that of mixed generations was in the first ten-day of August. The distribution of its larva population of the two generations was typical positive skew distribution pattern or the ramp distribution, Namely, the mortality of larva population was very relatively high before the second instar. The cocooning popation period of mixed generation was within 19 days mostly, but that of the first sisters generation lasted longer time, some even prolonged for 42 days. The emergence periods of adult of the first sisters generation and the mixing generations were 26 days and 14 days respectively. The population daily increase rates of every developmental stage conformed to Logistic model, which was the ecology countermeasure population of r-strategy type.