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[\[PDF \(884K\)\]](#) [\[References\]](#)**Utilization of leaves in paddy fields and around levee for making cocoons by a water beetle *Hydrophilus affinis* Sharp**Hiroshi Jinguji¹⁾ and Hiroshi Tsuyuzaki²⁾

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Summary:

The water beetle *Hydrophilus affinis* inhabits paddy fields where it uses the leaves of weeds for constructing cocoons within which it lays its eggs. Recently, abundance of *H.affinis* has decreased markedly in many regions of Japan and some prefectures have classified it as an endangered species. We considered whether this decline in abundance had occurred in response to the reduced occurrence of weeds in paddy fields and along the paddy levee separating fields. In order to acquire basic data for the conservation of this species, the relationship between *H.affinis* and weeds was investigated with particular emphasis on cocoon production. Weed leaves drooping from paddy levees were most frequently used for cocoon production with the cocoon found in plots along paddy levee numbering 9.3m^{-2} , which was significantly greater than the 0.5m^{-2} observed for inside-paddy plots (Mann-Whitney *U* test, $P < 0.01$). Forty weed species belonging to 18 families were found growing along the paddy levee, of which 16 species belonging to 11 families were used for producing cocoons. Analysis using Jacobs' selectivity index showed that *H.affinis* exhibited a highest preference for *Commelina communis*, *Phalaris arundinacea*, etc.

The site of cutting the leaves ranged from between the water surface to 1cm below. The size of the leaves used for producing cocoons ranged from 23mm to 34mm in length and 9mm to 20mm in width with the numbers of eggs in a cocoon ranging from 69 to 81. The number of eggs did not vary with weed species or leaf size.

Keywords: *Hydrophilus affinis*, egg cocoon, levee weed, leaf wrapping, en-dangered

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