Confirmation of Myrmecochory in the Endangered Sedge
*Carex ciliatomarginata* (*Cyperaceae*):
Disperser Ants and Dispersal Distance

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The genus *Carex* (*Cyperaceae*) consists of approximately 2,000 species worldwide and nearly 300 species in Japan. Although most *Carex* species are barochorous, some are myrmecochorous and dispersal ants have been surveyed in approximately 20 species so far. In the genus, *Siderostictae* is thought to be myrmecochorous, but dispersal ants have not yet been identified. *Carex ciliatomarginata* Nakai is an endangered sedge species belonging to *Siderostictae*. In this study, we conducted field surveys of dispersal mode and dispersal ants associated with *C. ciliatomarginata* on Mt. Hinokuma, Saga, northern Kyushu, Japan. As a result, *C. ciliatomarginata* is confirmed to be a myrmecochorous species because nearly one-third of diaspores were removed by ants within 10 minutes. Dominant disperser ants were *Pheidole noda* Smith and *Paratrechina flavipes* (Smith), and their mean diaspore dispersal distances were 70.8 cm and 10.6 cm, respectively. Diaspore dispersal distance by *P. flavipes* might be too short and may negatively affect the fitness of *C. ciliatomarginata* because fruiting individuals of *C. ciliatomarginata* were distributed approximately 50 cm apart from each other in the field.

**Key words:** *Carex ciliatomarginata*, endangered species, myrmecochory, seed dispersal.

Seed dispersal is crucially important for plants because seed placement directly affects the survival and growth of offspring (e.g., Ueda 1999, Dennis et al. 2007). Some plants employ myrmecochory, i.e., a dispersal mode using ants as seed dispersers (e.g., Beattie 1985).

Seeds of myrmecochorous species have an appendage called an elaiosome, which functions as a reward for ants, and ants transfer the seeds to their nests (Fischer et al. 2008, Giladi 2014). After removing the elaiosome from the seeds, they are placed in or near the ant nests.

The genus *Carex* (*Cyperaceae*) consists of approximately 2,000 species worldwide and most are perennials. Among the nearly 300 *Carex* species distributed in Japan (Hoshino et al. 2011), northern wetland species generally have wide ranges, while southwestern forest species tend to be endemic in limited ranges (Katsuyama 2005).

Although most species of *Carex* are barochorous (Nakanishi 2001, Arase and Uchida 2007), some are myrmecochorous and dispersal ants have been confirmed in approximately 20 species so far (Tanaka et al. 2015).

*Carex ciliatomarginata* Nakai (Sect. *Siderostictae*) is a 20–30 cm tall perennial sedge (Yashiro 2012) distributed in Honshu,
affect the fitness of *C. ciliatomarginata*.

Our present results of the dispersal mode and distance of *C. ciliatomarginata*, as well as the spatial distribution of fruiting individuals will contribute to the development of conservation measures for this endangered sedge species.

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**References**


**Fig. 2.** Frequency distribution of the distances between nearest fruiting individuals of *Carex ciliatomarginata*.  

![Frequency distribution of the distances between nearest fruiting individuals of *Carex ciliatomarginata*.](image)