OIKOS 106: 501–508, 2004

Species and sex biases in ectoparasitism of dragonflies by mites

Marc J. Lajeunesse, Mark R. Forbes and Bruce P. Smith

Lajeunesse, M. J., Forbes, M. R. and Smith, B. P. 2004. Species and sex biases in ectoparasitism of dragonflies by mites. – Oikos 106: 501–508.

An important problem in understanding the evolution of parasite host range is determining the extent to which parasite fitness varies among host species and the factors affecting that fitness variation. We present a detailed investigation on the patterns of host use and successful parasitism of two dragonfly species by the ectoparasitic water mite, *Limnochares americana* Lundblad. In our field surveys, we found both species biases and sex biases in parasitism by mites, which appear explained by differences in exposure. Differential habitat use by dragonflies helped explain male biases in parasitism in both host species, but was not useful in explaining species biases in parasitism. Species biases in parasitism may be explained by more subtle variation in habitat use not explored in this study, or perhaps by differences in timing of emergence, as we found for the two dragonfly species. Despite species differences in parasitism in nature, we found that mites attached equally successfully to both dragonfly species during experimental infestations. However, mites failed to engorge more often on the dragonfly species less often used as a host in nature. This host species also was more likely to have dead mites in natural infestations as compared to the other host species, which was more often and more heavily parasitized. Our results are consistent with previous research suggesting parasites are less successful on less often used hosts. Such research has implications for understanding determinants of host range for animal parasites.

M. J. Lajeunesse and M. R. Forbes, Dept of Biology, 209 Nesbitt Building, Carleton Univ., 1125 Colonel By Drive, Ottawa, Canada, K1S 5B6 (mforbes@ccs.carleton.ca). Present address of MJL: Dept of Botany, 25 Willcocks Street, Univ. of Toronto, Toronto, Ontario, Canada M5S 3B2. – B. P. Smith, Biology Dept, Ithaca College, 953 Danby Road, Ithaca, NY, 14850-7278, USA.