2006). This view is supported by exciting new research from wild birds. Bäckman et al. (2016) have provided the first annual-cycle data of activity of a free-living migratory bird, a red-backed shrike *Lanius collurio*. Intriguingly, the same species had earlier been recorded in captivity (Gwinner and Biebach 1977). The overall timing of migration is well-matched in both studies. However, in agreement with observations from stop-over sites, the wild bird showed relatively few nights with migratory flights, whereas its captive conspecifics showed several months of continued *Zugunruhe*. Another recent study, on European blackbirds *Turdus merula* (Zúñiga et al. 2016), found that radio-tracked wild migrants showed no increase in nocturnal activity until the night of departure from the breeding grounds, whereas captive birds slowly built up *Zugunruhe* over several weeks. The physiological and ecological mechanisms that affect alternations between flight and stopover mode are now under intense investigation, using both *Zugunruhe* and tracks of free-flying birds (Fusani et al. 2009, 2013, Goymann et al. 2010, Eikenaar et al. 2014, Skrip et al. 2015). Dissection of the genetic and environmental regulators of migration will not only aid migration research, but also allow important advances for understanding how genes and environment interact to shape complex behaviour.

We believe that *Zugunruhe* will continue to be a powerful tool in the study of avian migration. If used with circumspection and in combination with new tools, from molecular methods to new tracking technologies (Alerstam 2011, Liedvogel and Lundberg 2014, Ketterson et al. 2015), *Zugunruhe* will reveal new answers to ancient questions about the migration of birds (Alerstam 1990).

Acknowledgements – We thank Jérémie Huguenin, Katharina Foerster, Hans Winkler, and Irby Lovette for earlier work with the stonechat data, for valuable discussions, and for support. We thank Anders Hedenström and Åke Lindström for helpful feedback. Funding was provided by the Max Planck Society and the Hunter R. Rawlings III Cornell Presidential Research Scholars Program at Cornell Univ. BH thanks Lotte Helm for her kind support. We could not write about stonechats without acknowledging the friendship of Eberhard Gwinner, who initiated these studies at the Max-Planck Institute in Andechs. Our article is dedicated to Thomas Alerstam, who has so greatly inspired migration biology, intellectually and through his kindness and enthusiasm.

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