Preface to the special contribution “Out of the tropics: ecology of temperate primates”

Goro Hanya · Cyril C. Grueter · Yamato Tsuji

Published online: 15 February 2013
© Japan Monkey Centre and Springer Japan 2013

The distribution of most non-human primates falls largely into tropical regions, but some non-human primate taxa, e.g. some langurs, macaques, baboons, gibbons and lemurs, have successfully colonized temperate regions in East Asia, north and south Africa, Madagascar and South America (Fleagle 1999). Therefore, it is expected that these species exhibit a variety of adaptations that help them to cope with the ecological demands associated with living in marginal temperate habitats. Temperate-living primates are not necessarily less studied than tropical-living ones; for example, Japanese macaques have been studied at many study sites in the Japanese Archipelago for more than 60 years (Nakagawa et al. 2010), and their unique adaptations to coldness and strong seasonality, which are key characteristics of temperate habitats, have been well documented (Hori et al. 1977; Hanya 2004; Hanya et al. 2007). However, there have been few attempts to relate these findings to studies in tropical areas and to generalize the characteristics of temperate forests and the ecological strategies of primates that live there. The recent remarkable progress in primate field studies in continental temperate Asia, in particular China, now enables us to synthesize the compiled findings and obtain a better understanding of the general characteristics of temperate primates.

For that purpose, we organized a symposium under the name of this special contribution at the XXIII Congress of the International Primatological Society in Kyoto on 16th September 2010. This special contribution is derived from the talks delivered at the symposium and complemented with additional papers. Five papers (Hanya et al. 2013; Sayers 2013; Grueter et al. 2013; Fan et al. 2013; Minhas et al. 2013) are included in the current issue, and more will follow in a subsequent one. We have included original case studies on the ecology of various temperate primates, such as macaques, colobines and gibbons. Each study examines how temperate-specific biotic and abiotic factors affect basic ecological adaptations, such as diet, activity budgets, ranging patterns and social organization. We have also included two papers that use a comparative approach and contrast temperate and tropical primates in terms of their habitat and diet, respectively.

These papers amalgamate and integrate the current knowledge which until now has been scattered over the literature and present hypotheses that predict the sorts of adaptations that are required for primates to live and thrive in temperate forests. We believe that this special contribution marks a milestone in this interesting, yet-to-be-explored topic and will encourage further research on a more diverse range of taxa and in various geographic areas, thereby scrutinizing the validity of the ideas and hypotheses presented in our papers.

We would like to thank all the contributors, editors and reviewers for their enthusiasm to make these important works available. The preparation of this special contribution was supported by the Kyoto University Foundation to Y.T. All the manuscripts were reviewed internally by the three of us before being submitted to the journal, after which they were reviewed in the same way as regular papers in this journal.

G. Hanya (✉) · Y. Tsuji
Primate Research Institute, Kyoto University, Kanrin 41-2,
Inuyama, Aichi 484-8506, Japan
e-mail: hanya@pri.kyoto-u.ac.jp

C. C. Grueter
School of Anatomy, Physiology and Human Biology,
The University of Western Australia, Crawley, Australia

References

- Fan PF, Ai HS, Fei HL, Zhang D, Yuan SD (2013) Seasonal variation of diet and time budget of Eastern hoolock gibbons (*Hoolock leuconedys*) living in a northern montane forest. *Primates* 54
- Fleagle JG (1999) *Primate adaptation and evolution*, 2nd edn. Academic, London
- Grueter CC, Li D, Ren B, Li M (2013) Overwintering strategy of Yunnan snub-nosed monkeys: adjustments in activity scheduling and foraging patterns. *Primates* 54
- Hanya G (2004) Diet of a Japanese macaque troop in the coniferous forest of Yakushima. *Int J Primatol* 25:55–71
- Hanya G, Kiyono M, Hayaishi S (2007) Behavioral thermoregulation of wild Japanese macaques: Comparisons between two subpopulations. *Am J Primatol* 69:802–815
- Hanya G, Tsuji Y, Grueter CC (2013) Fruiting and flushing phenology in Asian tropical and temperate forests: implications for primate ecology. *Primates* 54
- Hori T, Nakayama T, Tokura H, Hara F, Suzuki M (1977) Thermoregulation of Japanese macaque living in a snowy mountain area. *Jpn J Physiol* 27:305–319
- Minhas RA, Ali U, Awan MS, Ahmed KB, Khan MN, Dar NI, Qamar QZ, Ali H, Grueter CC, Tsuji Y (2013) Ranging and foraging of Himalayan grey langurs (*Semnopithecus ajax*) in Machiara National Park, Pakistan. *Primates* 54
- Nakagawa N, Nakamichi M, Sugiura H (eds) (2010) *The Japanese macaques*. Springer, Tokyo
- Sayers K (2013) On folivory, competition, and intelligence: generalisms, overgeneralizations, and models of primate evolution. *Primates* 54