

**THE FUNCTION AND DIRECTION OF GROOMING
IN WHITE-HANDED GIBBONS
(*HYLOBATES LAR*)**



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ABSTRACT

All primates groom, whether autogrooming or allogrooming. Grooming is often looked at as a social behaviour but is rarely considered on an evolutionary level. Therefore, an evolutionary model of the fitness benefits of grooming was proposed and applied to four gibbon groups in Khao Yai National Park. The study took place from September 2006 to August 2007, with a total of 89 days (574.75 hours) of direct observation. The study included three established pairs and one new pair of gibbons; all but the new pair had offspring and one group contained an extra-male who is father to all except the adult female of the group. We propose that gibbons groom to incur fitness benefits and that these benefits are direct, indirect, or socially indirect (an indirect benefit is incurred through one individual engaging in a social behaviour which induces a behaviour change in another individual). We assume that the receiver of grooming incurs some fitness benefit in the form of hygiene, without which grooming behaviour would not occur. As per our predictions, we found that the adult female of a new pair groomed the adult male more than he groomed her, and in doing so is trying to induce a behaviour change in the adult male, which adds both a direct and social indirect fitness benefit to her. The adult male of an established pair groomed the adult female more than she groomed him which adds both a direct and social indirect benefit to him. When compared between groups, the adult female of the new pair groomed the adult male more than all the adult females groomed the adult males of the established pairs. We found that the adult male groomed the juvenile more than the adult female did and he incurs a direct benefit through parental care. The sub-adult male groomed other group members more than did the juvenile which adds an indirect benefit and social indirect benefit to the sub-adult. Finally, the extra-male of Group N groomed the sub-adult and the adult female more than they groomed him, which adds a direct and social indirect benefit; unexpectedly, the adult male groomed the extra-male more than the extra-male groomed him, which may have added a social indirect benefit to the adult male. Although further study is needed to make strong conclusions about the directions of grooming within a gibbon group, our results fit the predictions made and demonstrate an evolutionary function of grooming in gibbons.

KEY WORDS: GIBBON / GROOMING FUNCTION / GROOMING DIRECTION / FITNESS BENEFITS /

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