

## Morphoecological explanations of sexual differences in bill shape of bowerbirds (Ptylorhynchidae: Passeriformes)

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Comparison of bill outlines, drawn from the photographs of live and museum specimens of more than 200 species of birds, revealed sexual differences which turned out to be an effective tool in sex identification in monomorphic species. Most of these differences have a functional explanation. Bowerbirds, renowned for the unique courtship behavior of males, show one such example. Males of *Ptilonorhynchus violaceus*, *Chlamydera nuchalis*, *Ch. guttata*, *Ch. cerviniventris*, *Prionodura newtoniana*, *Sericulus chrysocephalus*, *S. aureus* and *Scenopooetes dentirostris*, who build a bower of vertically placed sticks or erect piles of sticks, have proportionally higher mandibles, than females. Males of *Amblyornis macgregoriae*, *A. flavifrons* and *A. inornatus*, building bowers from the layers of thin sticks, show mandibles only slightly higher than females. Males of *Archboldia sanfordi*, who do not build a bower and simply manipulate attractive objects, have mandibles similar in height with that of females. Finally, males of *Ailuroedus melanotis*, *A. buccoides*, *A. crassirostris* and *Archboldia papuensis*, who do not build bowers and rarely manipulate objects, have mandibles lower than females. These differences are obviously related to the extent in which the bill is used by males for building bowers and manipulating objects. Males of *Amblyornis macgregoriae* stay slightly aside of this tendency. Despite their lesser activity in building the bower and manipulating objects in comparison with males of *A. flavifrons*, they have relatively higher mandibles. More field observations are necessary to explain this phenomenon.

