Extremely long mouthparts in flower-visiting insects: form, function and evolution
Extrem lange Mundwerkzeuge blütenbesuchender Insekten: Form, Funktion und Evolution

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Extremely long mouthparts that serve for the uptake of nectar in flower visiting insects provide ample opportunity to examine constraints in organ evolution. The majority of the flower visiting insects are regarded as short-tongued since their mouthparts are shorter than the head, while extremely long proboscides, i.e., exceeding body length, are rare. Advantages of long proboscides have been previously formulated and tested in nectar feeding from long spurred flowers. The study represents the first attempt to evaluate the costs and possible disadvantages of very long mouthparts by comparing insects which have an average-sized tubular proboscis with related species having extremely long mouthparts. The study includes Neotropical butterflies (Hesperiidae, Riodinidae), orchid bees (Euglossini), and South African tangle-veined flies (Nemestrinidae). We found that anatomical costs are optimized in those regions of the proboscis which are disproportionately elongated to the extent that they contain fewer muscles and sensillae compared to corresponding regions in average-sized proboscides of closely related species. Flower handling times and cibarial muscle mass increase in species of butterflies and nemestrinid flies that exhibit extremely long proboscides.

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The importance of urban cemeteries for wild bees – a case study based in Vienna
Die Rolle städtischer Friedhöfe als Habitat für Wildbienen am Beispiel der Stadt Wien

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Cemeteries in big cities provide large extensive green areas, and therefore can play an important role for the local fauna and flora. For wild bees they offer a considerable variety of flowering plants and habitat structures like ruderal areas but also graves used as nesting habitats.