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SUPPORTING MATERIAL

Figure S1

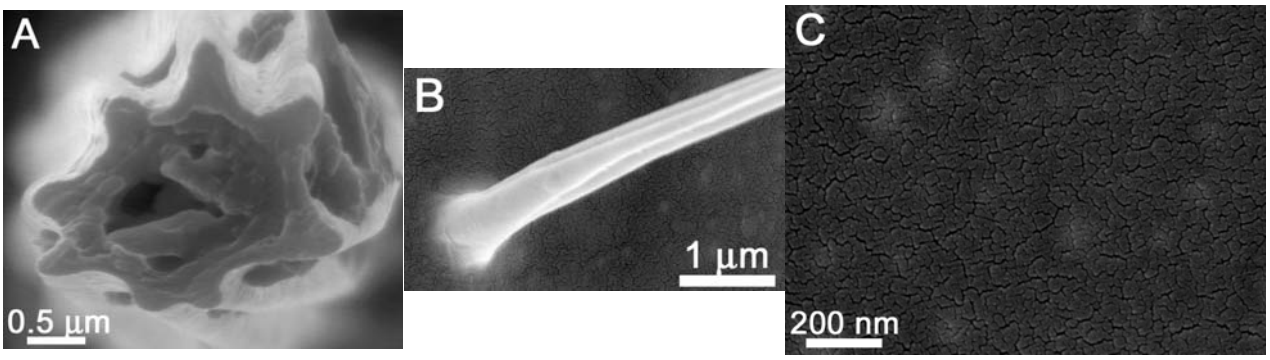

Figure S1. SEM images of: (*A*) a cross-section of a *macrotrichia* obtained near the midpoint of the hair length; (*B*) channels running along the long axis of the *microtrichia* shaft, and (*C*) the underlying wing cuticle surface.

Figure S2

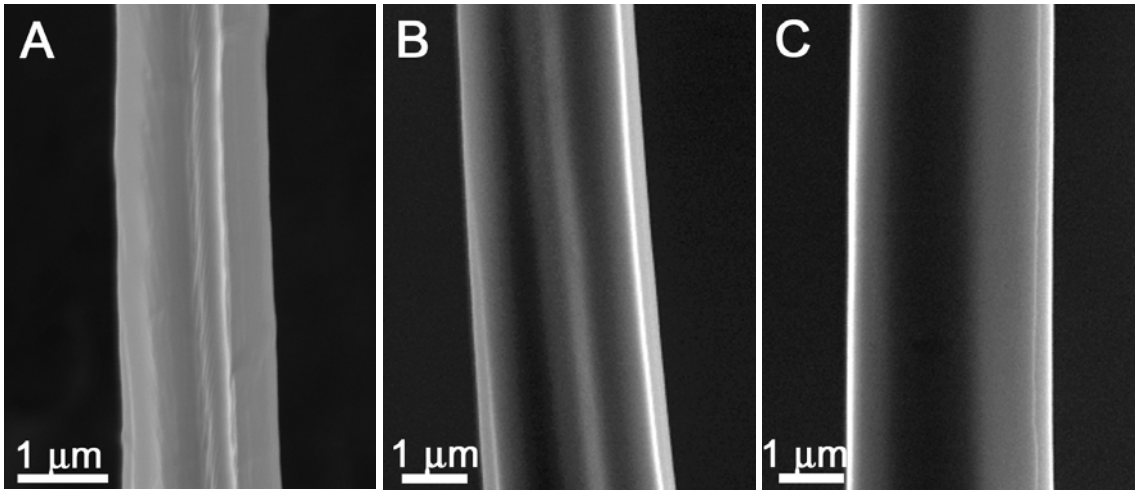

Figure S2. SEM images of: (*A*) a single uncoated hair of the *Micromus tasmaniae* wing. The nano-channels extending along the long axis are clearly visible. (*B*) High resolution SEM image of the macrotrichia shaft after a thin coat of PDMS polymer has been applied. A significant amount of the original topography (channels) remains visible on the hair shaft. (*C*) SEM image of a macrotrichia shaft after a thick application of PDMS polymer coating. None of the original channel topography is evident.

Figure S3

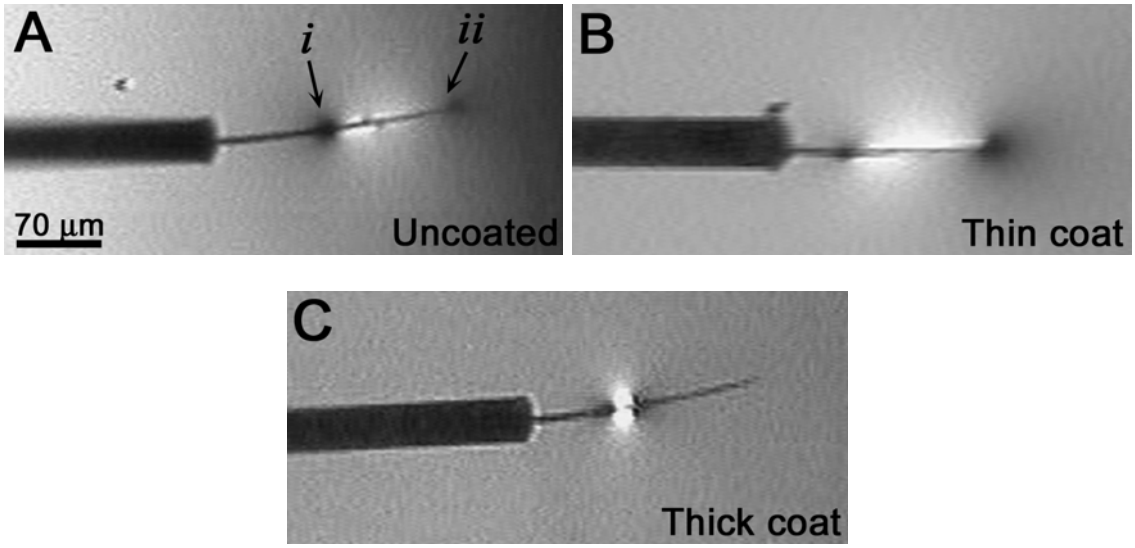

Figure S3. Optical images showing the response of individual uncoated (*A*), thin (*B*) and thick (*C*) PDMS coated lacewing hair coming into contact with a 0.001 M SDS solution. Both (*A*) and (*B*) do not penetrate the surface as observed by the formation of a dimple on the surface of the droplet from point *i* to *ii*. The fully coated macrotrichia (*C*) which has its channel topography removed shows penetration into the solution and demonstrates there is a reduced efficiency in repelling water for hairs without the channels.

Figure S4

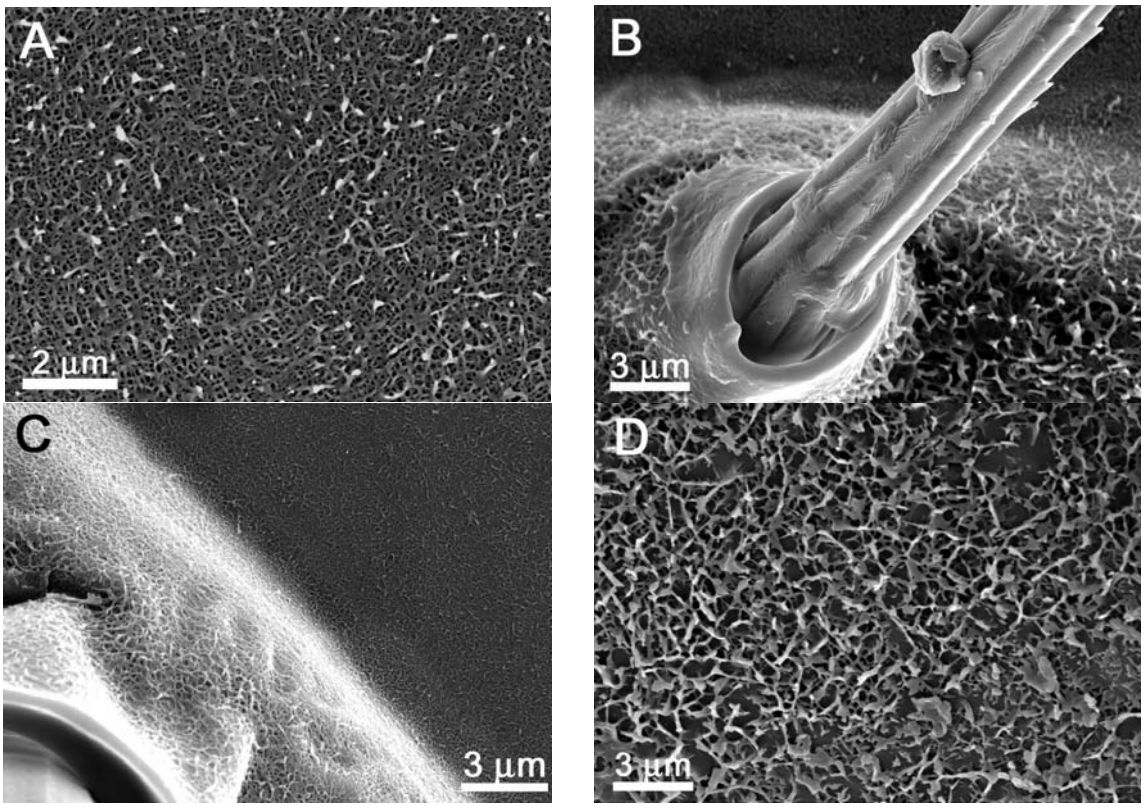

Figure S4. SEM images of four different lacewing species revealing the fine wing membrane structure. (*A*) *Italochrysa insignis*, (*B*) *Chrysopa oculata*, (*C*) *Oligochrysa lutea*, and (*D*) *Glenoleon pulchellus*.