Novel devices for wearable applications in Ecology: A research frontier.

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Wearable Systems are computer science and engineering tools of immediate application to other research fields. Ecology is a research field where this kind of technology can be applied to improve research quality, specially improving the efficiency in data sample in extreme conditions. This sort of technology also improves the safety when exposed to such conditions. Field research in canopy ecology often includes risk exposure, such as tree climbing. Therefore, scientists should be provided with novel tools to extract information faster and more efficiently. These devices consequently decrease the risk exposure time during the researches. Though, the novelty of wearable technology has refrained its widespread usage among ecologists, due to pure lack of knowledge about it. In order to measure the reach of this topic, a search in Scopus platform realized on June 5th, 2018, combining the keywords “Wearable” and “Ecolog*” in every date available. The search has obtained only 188 results. The same query was submitted to the “Web of Science” main collection, but no result was returned. The first articles on this topic were registered in 1998. From 1998 to 2005, only five documents were registered on this platform. Between 2005 and 2009, the platform registered a total of 15 documents, with a peak in 2006 with 7 documents. Between 2010 and 2013, the platform registered from 6 to 10 documents per year. In 2014, 16 documents were registered. In 2015, the platform returned 26 registered documents. In 2016, 40 results were found. In 2017, 34 registers were found. From a qualitative point of view, only seven were directly related to field research in ecology and only three present novel devices designed to improve field research. The advance in this area depends on the establishment of a cooperative relationship between researchers from technology development and field research. Ou research group works within this perspective, producing a wearable prototype for canopy research.

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