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A Case-Study of Ontology-Driven Semantic Mediation of Flower-Visiting Data from Heterogeneous Data-Stores in Three South African Natural History Collections

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Abstract

The domain complexity and structural- and semantic heterogeneity of biodiversity data, as well as idiosyncratic legacy data-creation processes, present significant integration and interoperability challenges. In this paper we describe a case study of ontology-driven semantic mediation using records of flower-visiting insects from three natural history collections in South Africa. We establish a conceptual domain model for flower-visiting, expressed in an OWL ontology, and use it to semantically enrich the three data-stores. We show how this enrichment allows for the creation of an integrated flower visiting data set. We discuss how this ontology captures both implicit and explicit knowledge, how it can be used to identify and analyze highlevel flower-visiting behaviour, and ultimately to construct flower-visiting and pollination networks.