

## TITLE: Fezouata Shale animal fossils – understanding their anatomy and preservation

### Contact persons:

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### Context

This project examines fossil arthropods with soft tissues at the early Ordovician Fezouata Biota locality (Van Roy *et al.* 2010; 2015), focusing either on their anatomy and systematics and/or on the taphonomic processes linked to their exceptional preservation. Lausanne houses a large collection of Fezouata fossils, many of which remain undescribed. Projects could involve trilobites or other arthropods, a variety of other animal groups, or trace fossils. There is the possibility of pairing this work with decay experimentation to examine how different conditions might have affected the decay process immediately after death, which can be used as a guide to interpreting soft-bodied fossils, such as those found in the Fezouata Biota (Sansom *et al.* 2010). Projects can be adapted to the students' interests.

### Objectives and Methods

The project will consist of multiple approaches. Examination, photography, drawing and interpretation of fossils found in Lausanne's Fezouata Shale collection will be undertaken with our extensive imaging facilities. Decay experiments could be run on modern crustacean arthropods, which are euthanised and allowed to decay in different conditions, followed by periodic examination to identify the order in which major anatomical features rot away. Results of the decay studies can then be used to help interpret the fossils. This project has the potential to combine laboratory experiments on modern animals, paleontological data collection on fossil arthropods, and quantitative methods (relatively simple statistical analyses).

### Literature

- Van Roy, P., *et al.* 2010. Ordovician faunas of Burgess Shale type. *Nature*, 465, 215-218.
- Van Roy, P., Briggs, D.E.G., & Gaines, R.R. 2015. The Fezouata fossils of Morocco: an extraordinary record of marine life in the Early Ordovician. *Journal of the Geological Society*, 172, 541-549.
- Sansom, R.S., Gabbott, S.E., & Purnell, M.A. 2010. Non-random decay of chordate characters causes bias in fossil interpretation. *Nature*, 463, 797-800.

1 photo dimension H5.5cm x L8.5cm



### WEB sites

<https://wp.unil.ch/paleo>

**Prerequisite** : None