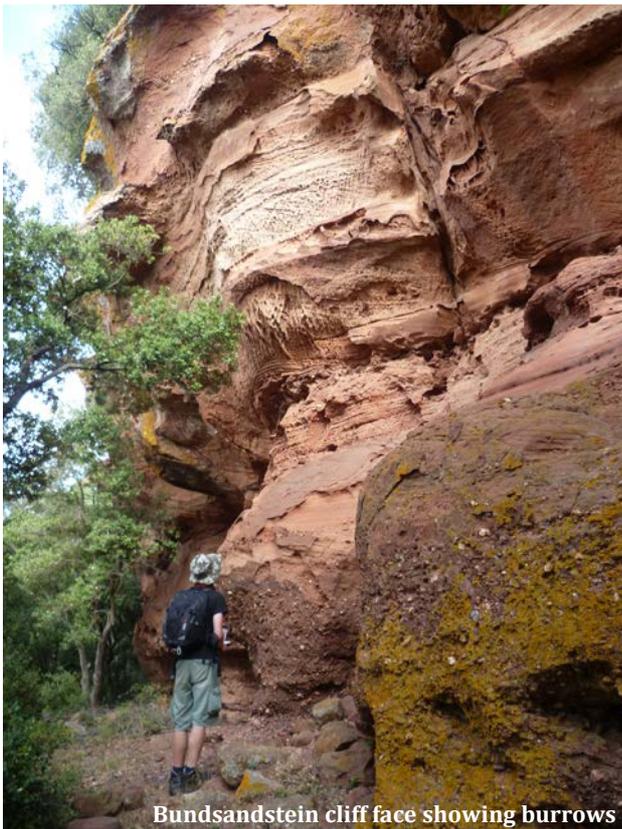


## Roberta Wilkinson - Geological Mapping, Spain, Summer 2015

This summer I spent around 6 weeks living in Prades, a very small picturesque village in Catalonia. I was there to do my 3<sup>rd</sup> year Geological Sciences mapping project research in around 15 square kilometers of the mountains surrounding the village. I spent around 30 days in the field with my mapping partner, collecting data and samples, making notes and taking photographs in order to produce a geological map of the area. We faced a few obstacles- a sprained ankle three kilometers up a mountain leading to a visit to the not-so-local hospital; trying not to get lost despite inaccurate maps which showed paths that didn't exist; and a few worrying encounters with wild boar. But we returned home relatively unscathed! Below is a very brief summary of some of the main findings from my fieldwork.

The basic sequence of rocks in the area is as follows: The oldest rocks (the "basement") are from the Carboniferous, around 300 million years ago. The basement is composed of sedimentary rocks (a large variation, from very fine grained mudrock to layers of conglomerate), which show evidence of metamorphism due to both plate tectonics (regional metamorphism), and due to large intrusions (contact metamorphism) of granodiorite, a type of igneous rock. Essentially, this means that the unit is folded and contains minerals and textures which grew or were caused by the metamorphism.



Bundsandstein cliff face showing burrows

Above this unit lies a sequence of Triassic (around 200 to 250 million years ago) sediments. Note that there is a significant gap in the rock record between these units and the basement, known as an unconformity. The Triassic sediments start with a sandy conglomerate deposited by a river, known as the Bundsandstein. This unit contains some very impressive burrow structures. Above this lies the Muschelkalk unit, which is mainly limestone and dolomite with a thin layer of sands and clays (Mid-Muschelkalk).

In the North West of the area these Triassic sediments lie horizontally on top of the folded basement. However, in the South East of the area I found evidence for large scale faulting, with these sediments outcropping at a lower level and appearing tilted.

Analysing the data I collected will help me to make my interpretation of the geological

history more accurate and quantitative- for example, my measurements of folded beds will help me to determine the precise direction of the compressional forces which caused the deformation, and using a microscope to look at thin sections of samples will allow me to further understand the rocks' formation and processes.