Bosnian Pyramid of the Sun Foundation

Geological & Archaeological Sample Register

Date; April 2019

Sample reference No.: S002

Location; Ravne3 Tunnels, Visoko

Sample Description; Speleothem,
Small freshwater stalagmite
Cone shaped

Composition;
$CaCO_3$, calcium carbonate

Sample dimensions;
Height; 11cm
Base Ø; 10
Weight; 1750g

Horizontal cave depth; 30 m

Mean annual precipitation;
1,958 mm

Mean annual temperature; 9.0 °C

Stratigraphic context;

Located at approximately 482 metres ± 4 m elevation. Ravne3 tunnels exists within the Ravne conglomerate. This rock unit rests above the local Lašva series - Middle/Upper Miocene lacustrine sediments composed of marls and calcareous sandstones. An angular unconformity exists between the younger, horizontally bedded Ravne conglomerate and the older northerly dipping Lašva beds. Ravne oligomictic orthoconglomerate is loosely consolidated with carbonate cement. Base of cavities and caves within the conglomerate at the Ravne3 location occur along the stratigraphic boundary between the underlying marls and the conglomerate. Stalagmite S002 occurs raised, approximately 30 cm above the contact boundary, resting on unconsolidated conglomerate fill and cave fall.

Thickness of Ravne conglomerate bed at sample S002 locality no greater than 10 m.

Photo of Stalagmite S002 outside of Ravne3 Tunnels, seen with laminated carbonate shelfstone surrounding base.

Subterranean map of explored Ravne3 Tunnels. Sample S002 location indicated by *

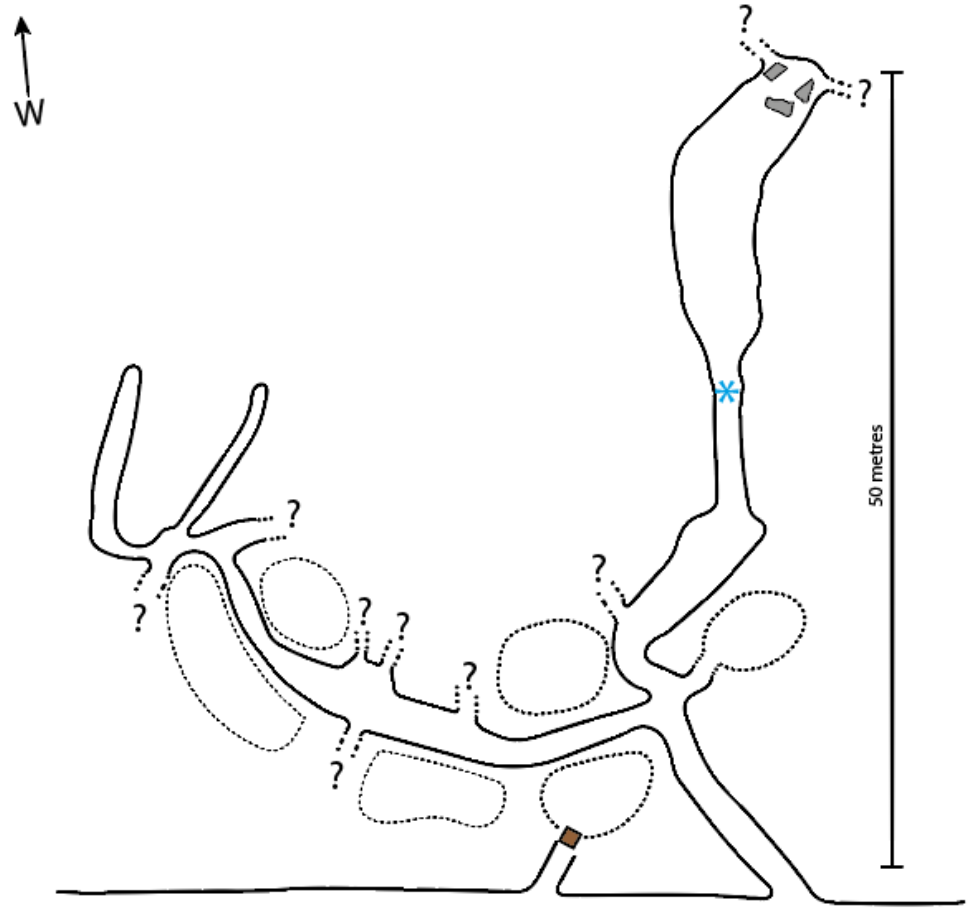


Photo of cone shaped S002 stalagmite in situ. h.11 cm.

Photo of cavity beyond S002 stalagmite. Looking west by northwest

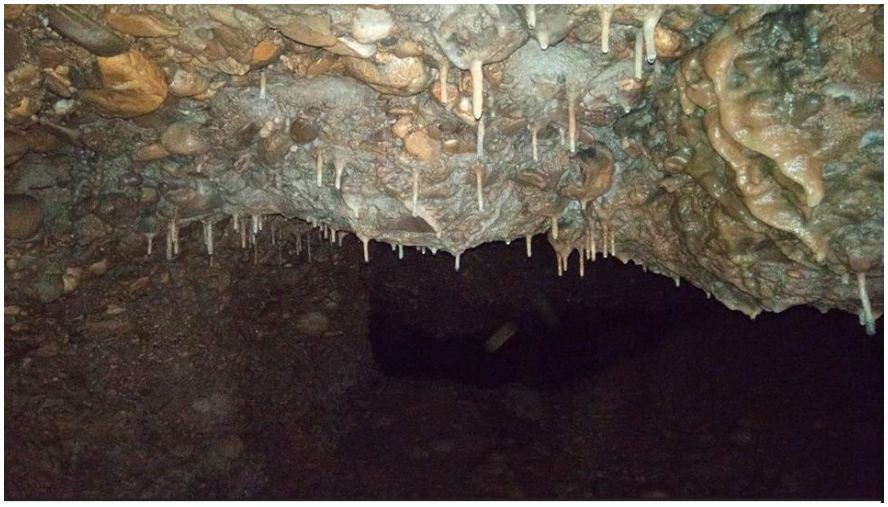


Photo of soda straw stalactites and Flowstone above stalagmite S002 sample site. Size of stalactites 7-11 cm. Evidence of past breakage.

Photo of Stalagmite S002 being extracted from Ravne Tunnels

Stalagmite sample preparation for U-Th geochronological analysis – May 2019

Method

Sample was prepared by cutting the speleothem into two halves, cutting parallel to the base long axis.

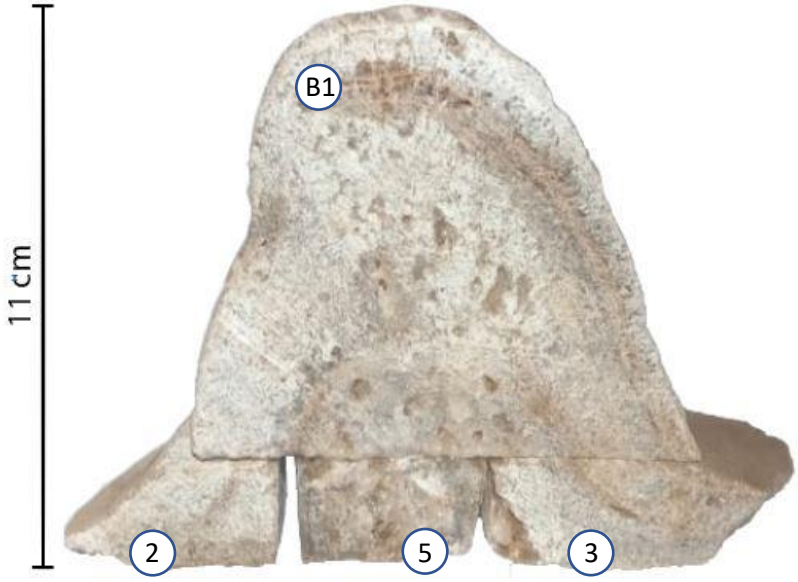
One of the halves (A1) was retained for polishing with its base and connecting lithics from underlying strata intact (granules/small pebbles of oligomictic conglomerate, sand, clay)

Second half was cut across the base, removing majority of the connecting underlying conglomerate.

A third cut was made 2.5 cm above the new baseline, coinciding with the upper extent of a large, central, calcite crystal, producing part (B1).

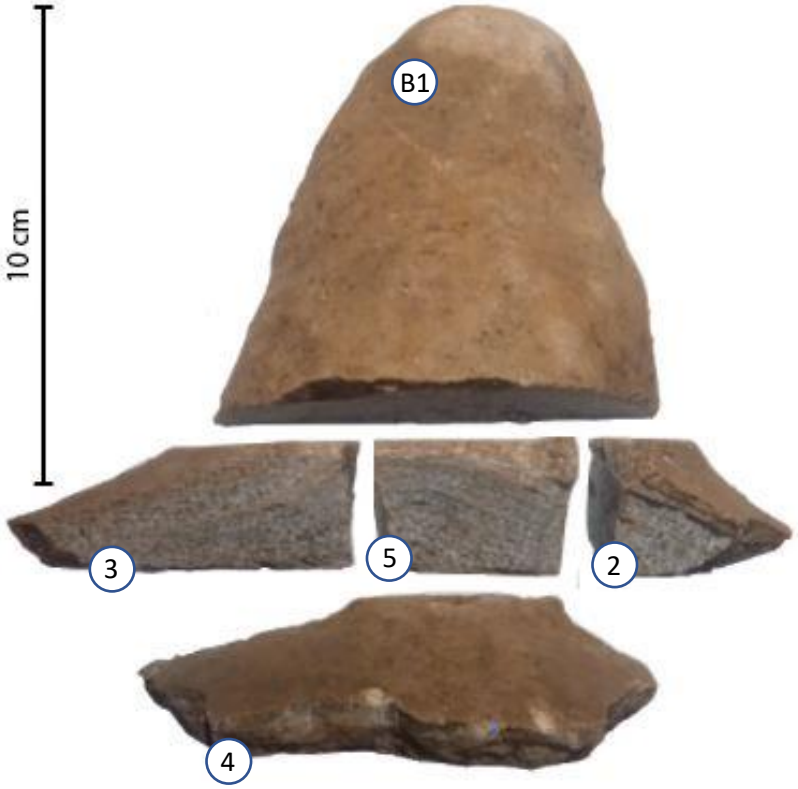
Remaining material was cut into four parts. (2), (3), & (4) being the lower outer parts of the stalagmite, and part (5) retaining the lower inner most part of the stalagmite and the aforementioned well-formed calcite crystal. Several grams of calcite were removed from the crystal for U-Th geochronological analysis.

Stalagmite sample S002/A1; Half of stalagmite S002, with base. Two major horizons composed of finer grouped clay-rich laminations marking discontinuities and evolution from a button to cone shape stalagmite.



Stalagmite sample S002/B; Half of stalagmite S002, with absolute base removed and lower 2.5 cm cut into four smaller parts in order to reach well-formed calcite crystal within the sample core(5). (4) not seen.

Stalagmite samples S002/B2,3,4,& 5; Looking down onto the top of the samples. Visible surface is where lateral cut was made to produce (B1)



Stalagmite sample S002/B1,2,3,4, &5; Exterior view of stalagmite samples.