Palaeolithic silcrete extraction and exploitation, Saint-Pierre-Eynac, France

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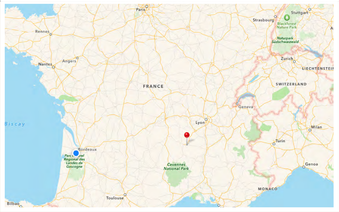


Project

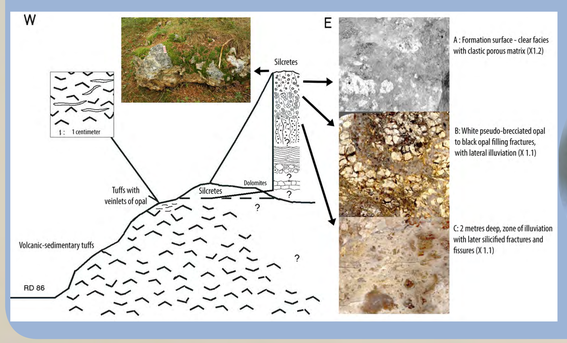
Early results from a new silcrete extraction site, Saint-Pierre-Eynac (SPE), Massif Central, France; within mostly volcanic regional geology, it represents a rare siliceous outcrop..

Fieldwork 2013-14 identified a rich workshop at the source of this stone, known from Palaeolithic, Mesolithic and Neolithic regional assemblages. Regional assemblages include Levallois products and blades, exported < 40 km distant.

GEOLOGY

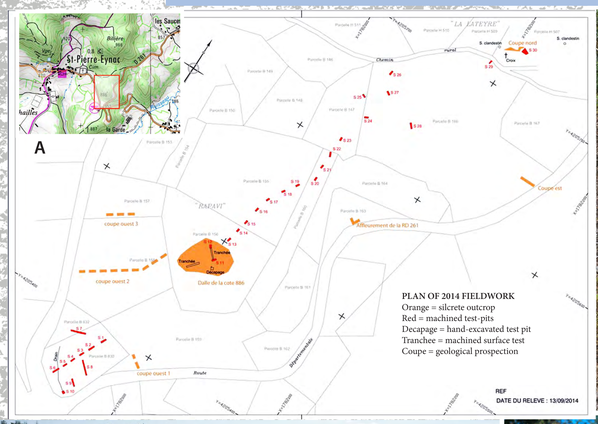
Complex phreatic formation, affected by different phases of faulting.

Present-day outcrops occur above Miocene volcanic sedimentary deposits, and are spatially varied, reflecting different exposures of a vertically heterogeneous formation.

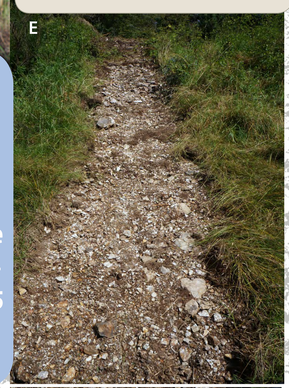


Raw material characteristics

This silcrete has varying quality between and within outcrops. It ranges from flint-like crypotocrystalline (high % silica/chalcedony), to 'breccia'-like (inclusions, voids/geodes, micro-faulting, re-silicification). Both the archaeological assemblage and preliminary experiments demonstrate difficulty in knapping, requiring great force to strike, but with a tendency to shatter. Bulbs and cones of percussion are often shallow and direction of flake scars illegible, worsened by post-depositional alteration/ weathering.



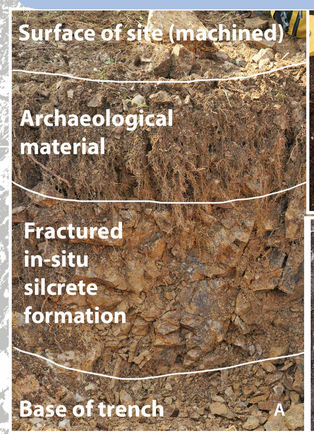
Figures
A) Location of fieldwork.
B) Sondages in field (on hill slopes).
C) Surface of hill top extraction site.
D) Flake from south-west cutting.
E) South-west cutting surface.



Fieldwork

Palaeolithic artefacts were known from informal collections, but 2013 hill slope transect survey found few worked lithics.

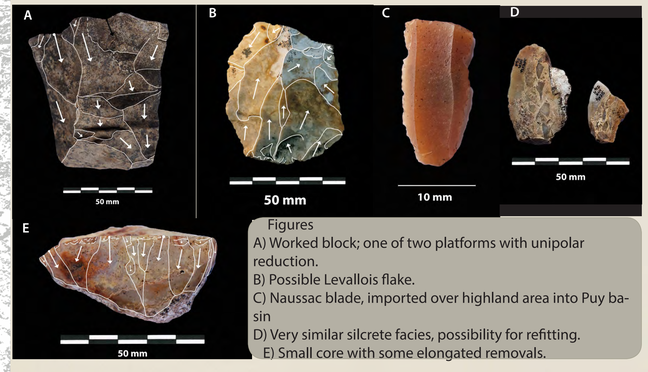
2014 test-pits at the hill summit outcrop found an extensive but very rich lithic spread. Based on test-pit samples (one 1 m2 and one .25m 2), artefact density (inc. <20mm lithics) ranges from c.1100 – 2000 lithics for upper 10cm / m2. Extrapolating to wider area (c.225 square metres), a conservative estimate is >200,000 lithics.



Figures
A) Machined section at hill top showing thin archaeological layer above natural rock.
B) Surface of 0.25 m test square 'E' (hill top site) at start of excavation.
C) Surface of test square 'E' at 10 cm depth; smaller size and more densely-packed.
D) Section of test square 'E'; no clear stratigraphy.

Archaeology

A high percent of debitage is non-diagnostic, possibly due to mechanical factors. +4000 lithics have been analysed to date. Cores (<1% of sample) vary from minimally tested blocks to more carefully worked, but frequently only partially reduced. One imported flint blade fragment has been identified, from a source c. 40 km distant. There are possibilities for refitting based on distinctive facies, but no examples have been identified yet.



Figures
A) Worked block; one of two platforms with unipolar reduction.
B) Possible Levallois flake.
C) Naussac blade, imported over highland area into Puy basin
D) Very similar silcrete facies, possibility for refitting.
E) Small core with some elongated removals.

Future work

Silcrete is little-studied in Europe, and – taking into account the challenges described above – SPE offers a chance to examine diachronic silcrete exploitation in a regional context. 2015 fieldwork will involve clarification of site formation processes and expand the sample spatially with collection from the whole hill top surface, focused on cores to avoid problems with non-diagnostic debitage. A second 0.25 m test-pit will be dug next to an outcrop. Systematic experimental knapping will quantify the influence of mechanical properties on the nature of the assemblage.

Comparisons with stratified regional Palaeolithic assemblages will aim to identify chronologically-specific techniques, potentially allowing diagnostic and more generic elements to be linked. Consideration of the overall stages of reduction will determine if phases of activity are missing between SPE and known regional sites.

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