

The sites

Differentiation of sites / locations

Sites within the Renggeri marls normally are not a single ammonite chrone or subchrone. In general the marl does not show any striking structuring. Therefore, a differentiation by locations within a site was attempted. Mostly it was done by a description of the place, by measuring distances to a certain fixed point or additionally by taking pictures.

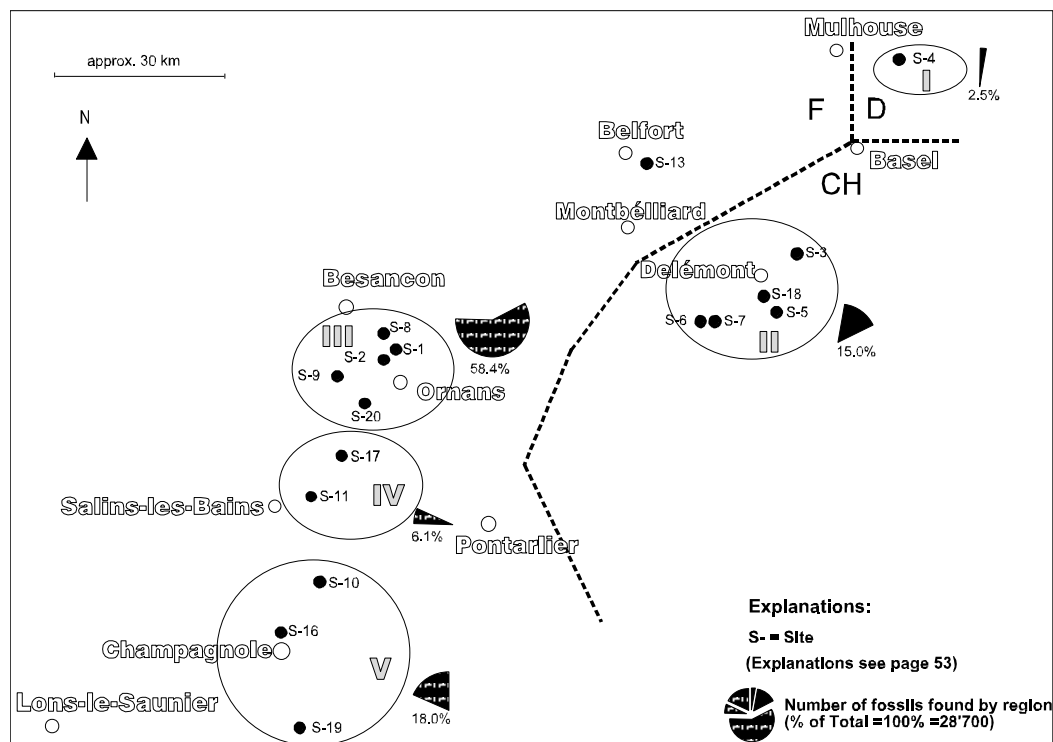
The search area

As the searched areas geographically show quite a distance from north to south it partly was grouped by region to see whether the fauna will show a regional difference moving to the Southwest by subchrone. In general the sites are along the French / Swiss Jura Mountains from the Northeast to the Southwest.

Looking at the analysed fauna profiles ([page 72/73](#)) one can get the impression, possibly not in general, that the share of the *Hecticoceratids* is getting bigger in the direction of southwest.

The best or most yielding fossil places had been artificial outcrops (road constructions, artificial ponds as water reservoirs or a house construction). However all of them have the disadvantage of being closed after a short while and being grown over to day.

In principle most / all of my findings were from the following outcrops:



Searched area: The approximately geographical distribution of the locations.

Fossils of location 13 (Belfort) have been purchased from a dealer only. Though there is a very big marly clay pit in this area, absolutely no fossils could be found. There were no other places found in this area.

Champagnole / F (S-No.16)

Champagnole / bridge

Location: North of the village, at the road to Salin les Bains.

At the first visit there was only a bridge standing freely in the countryside with an access for trucks. Above the road level (total width of the bridge) there was about 2 m of Renggeri marl (autumn 1993). By next spring the total complex (roundabout, connection to main road) was finalised and planted with grass as is usual in France.

Not a single *Ochetoceras/Oxycerites* could be found here, which means younger Renggeri marls than Châtillon (CH) or Tarcenay/road.



Champagnole/bridge top

Connection of the new road passing by Champagnole / direction of Salins les Bains.



Chapois farm / F (S-No.10)

To the right of a storage building.



Another outcrop nowadays is used as a garbage disposal. In 1995/96 the disposal was covered with clays of the *Scarburgense* subchrone. At the same time about 200 m to the south, a hollow was excavated which in my opinion has brought truly *Scarburgense* subchrone.

Epeugney / F (S-No.09)

Location: south of the village.

This outcrop looks very similar to Villers-s/s-Montrond. At the base there is a small drainage ditch (north of the village), which belongs to the *Scarburgense* subchrone. The same applies for a small outcrop 2-300 m to the west at a small pond. The utmost top of this site might belong to *Cordatum* subchrone, possibly already to *Densiplicatum* subchrone.

Eternoz / F (S-No.17)

Location: Approx. 2-300 m east of the village

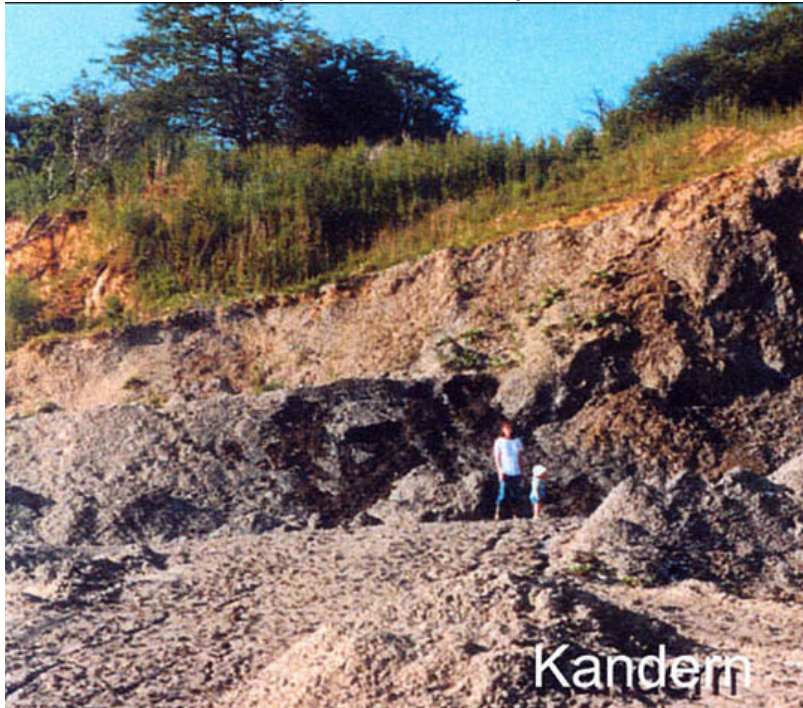


There are several small outcrops (max. 3-4 m high and wide) which according to the fauna belong to *Praecordatum* subchrone. Only the upper part of the slope where fossils only can be found exceptionally might belong to the *Costicardia*, possibly *Cordatum* subchrone.

Kandern / D (S-No.04)

Kandern/bottom

Location: Northern part of the brick pit.

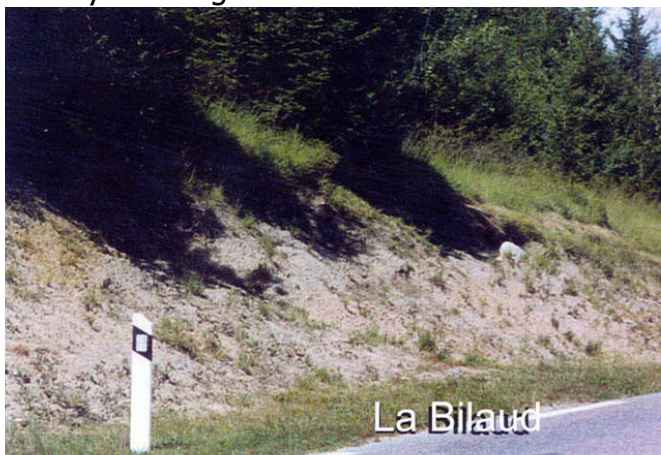


The digging place is approximately 5 m above the *Macrocephalus* layer. 2 m above these layers one can find broken pieces of *Kosmoceras* or *Horioceras/Distichoceras*, but no *Pachyceras* at all. It is interesting that on this level, a broken piece of a possible *Q.paucicostatum* has been found (it is unsure whether the horizon is within or above *Distichoceras*).

At this level all *Kosmoceras*, *Horioceras/Distichoceras* have disappeared already. *Creniceras* and *Ochetoceras* or *Eochetoceras* yet (?) are not existent. It is interesting that at this level a "*Cardioceras*" with a sharp venter has been found, looking nearly identical to the one found at Tarcenay/bottom or Les Cloutiers. It was the only piece from Kandern, which approximately looked like this.

La Billaud / F (S-No.19) (= La Billode of de Loriol ?)

Location: Right side of the road Salins-les-Bains to the direction of Morez (N5), shortly before a railway crossing.



This inconspicuous, very small outcrop at the road has yielded surprisingly many fossils of the Scarburgense subchrone (possibly incl. beginning *Praecordatum* subchrone).

Les Cloutiers / F (S-No.08)

Location: About 500 m north-west of the village of Tarcenay. Building of 3 ponds as a water reservoir.



The first clear *Creniceras* appears together with different species of *Oxycerites* (*Ochetoceras*). It is remarkable that one ammonite very similar to *Cardioceras* (*Scarburgiceras*) *praecordatum* was found here. (See Kandern and Tarcenay/bottom).

Highly interesting is a *Mirosphinctes* (plate 20.1 / fig. 2), which show ribs at the centre part of the shell and becomes absolutely smooth on the outer parts and therefore is called "*praekobyi*". This might be the precursor of *Mirosphinctes kobyi*. Whether this means there is a development line "*praekobyi*" / *kobyi* / *Pseudogregoryceras* (loosing ribs from outer parts of the shell to the centre, after that getting protruding ribs / parabolae *Mirosphinctes praekobyi*, *Gregoryceras n.sp.* / *tichei* / *iten*), a different line with *Mirosphinctes* - *Euaspidoceras* (building of naps up to spines)

In my opinion it is difficult to judge. It would mean that the precursor of *Pseudogregoryceratids* are leading back to *Lamberti* subchrone, possibly further down. Unfortunately there was no according outcrop to be found in the search area.

As a consequence the subgenus "*Mirosphinctes*" or the found types would have to be defined new (incl. delimitation from "*Euaspidoceratids*").

A pending problem is: *Euaspidoceras babeanum* or *Euaspidoceras lyra* already appear at the borderline *lamberti* / *Scarburgense* subchron. The inner whorls of *E.babeanum* show strong ribbings thus in my opinion *M.praekobyi* cannot be the precursor of the *Euaspidoceratids*. On the other hand the question could not be answered which is the precursor of *M.praekobyi*.

Liesberg / links CH (S-No.03), Liesberg/left:

Location: Upper pit



Liesberg: upper quarry

Liesberg / left is understood to be a 2 m distance from the base, which is the Anceps-/Athleta bank. The extremely rare *Oxycerites* only could be found directly above the base. A surprise is the missing of the *Peltoceratids*, which only appear later at Liesberg/middle part (*Praecordatum* subchrone).

Liesberg/middle part:

Location: Upper pit

This location is about 27 m from the base (*Anceps / Athleta* bank) and has yielded a small amount of fossils incl. *Scarburgiceras praecordatum* (Gygi 1990, plate 4 / 8 or plate 6 / 4). More into the direction of the base finding fossils is very exceptional. The same is for the part to the right, which is the Terrain à chailles (according to R.A.Gygi this already belongs to Cordatum subchrone), where fossils are exceptionally rare or badly preserved.