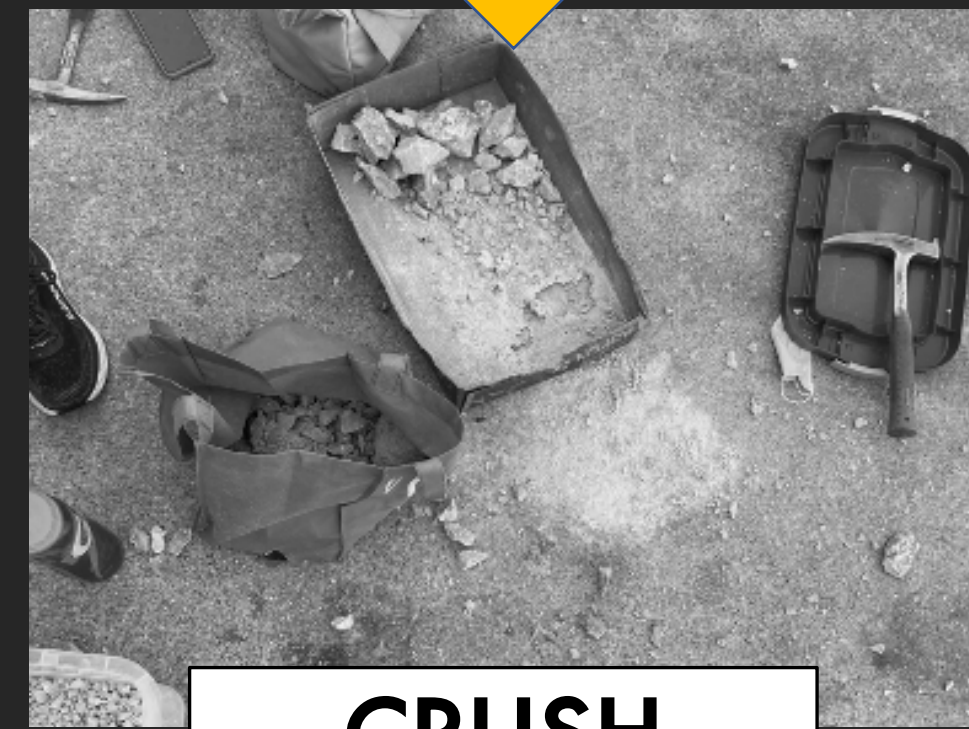




EXTRACT



CRUSH



SIEVE



DISSOLVE



ANALYZE

# Conodonts in the Nature Park: Exploring Our History

## Emily G. Kaiser & Lannea Allen

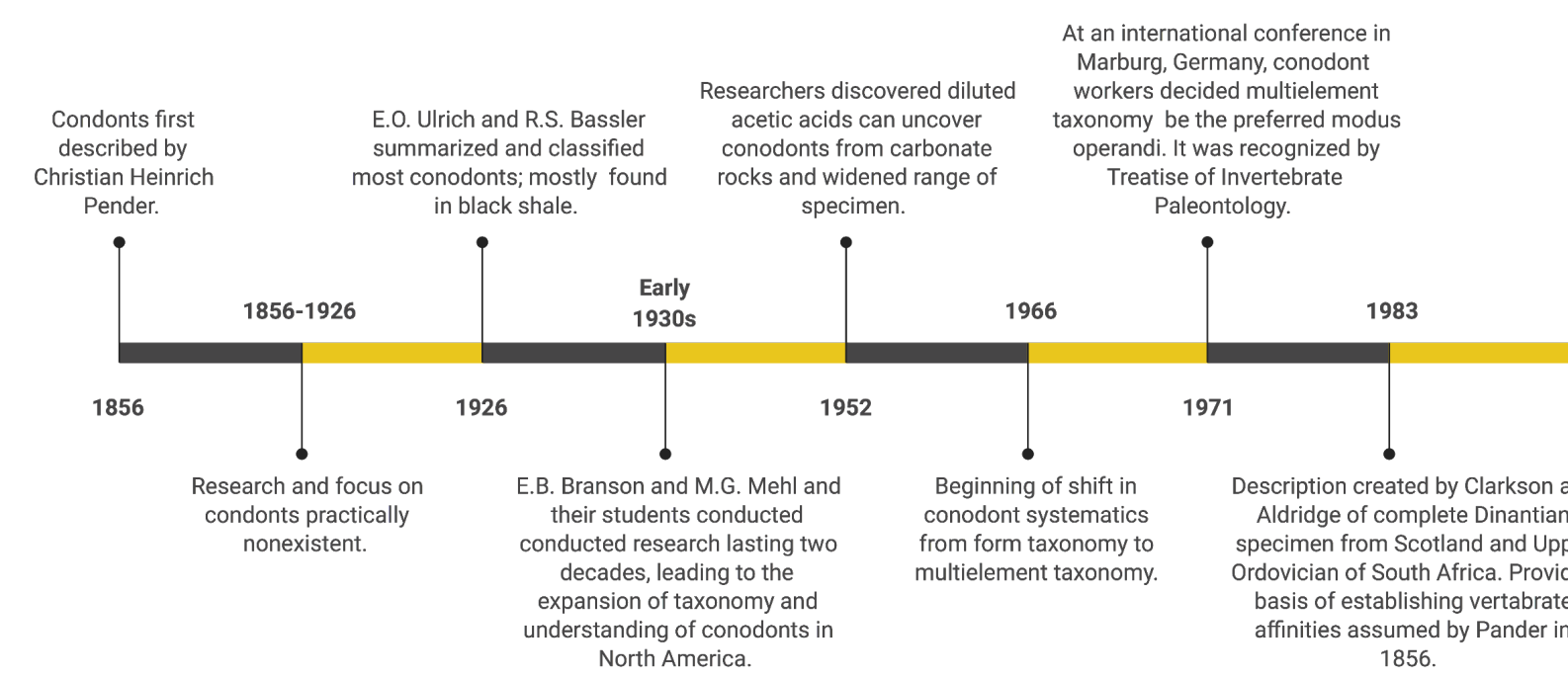


StoryMaps Presentation:  
<https://qrco.de/bcNj5i>



### INTRODUCTION

Conodonts are primitive chordates akin to modern-day hagfish. The elements paleontologists examine are used for dating purposes.

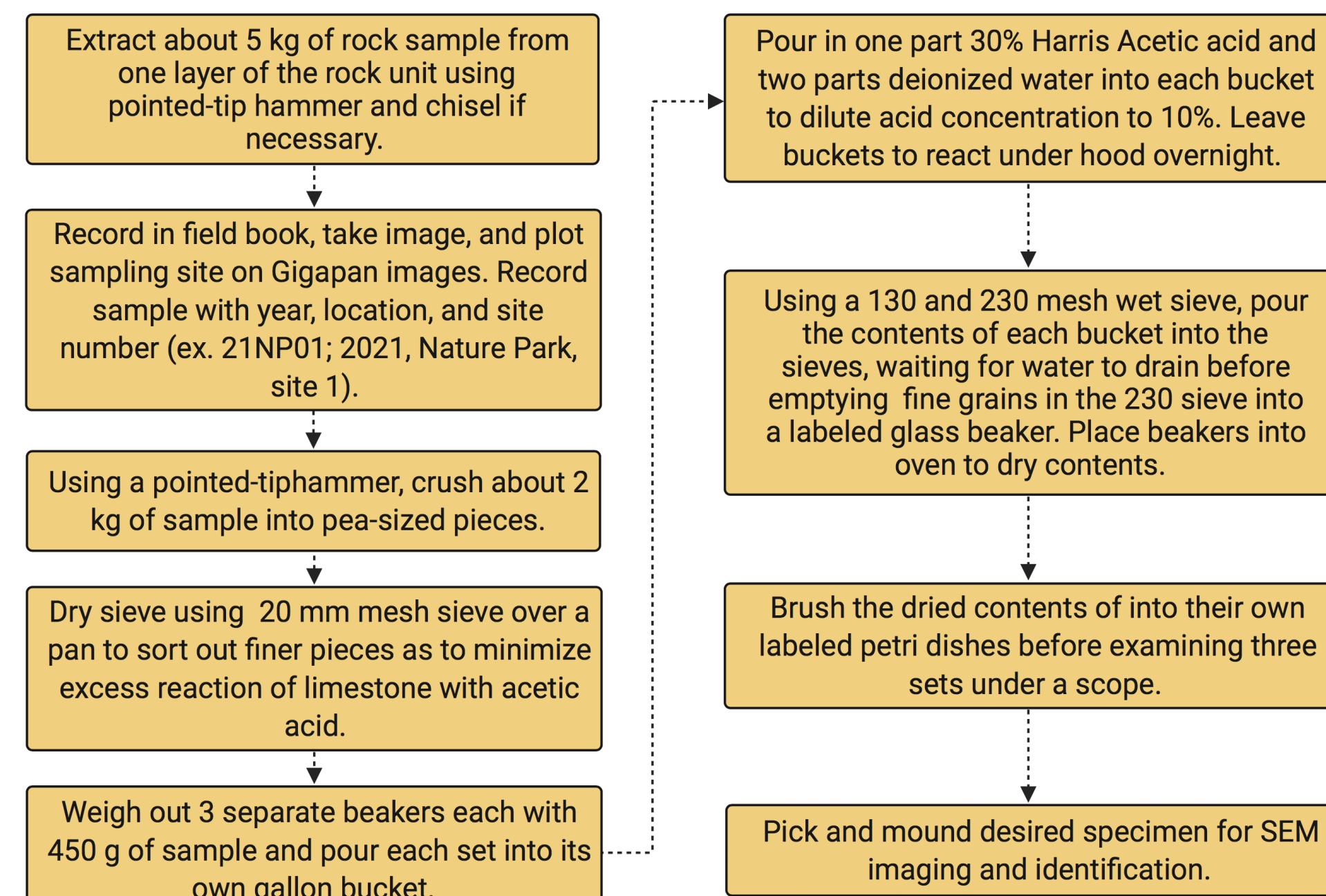


### Objectives:

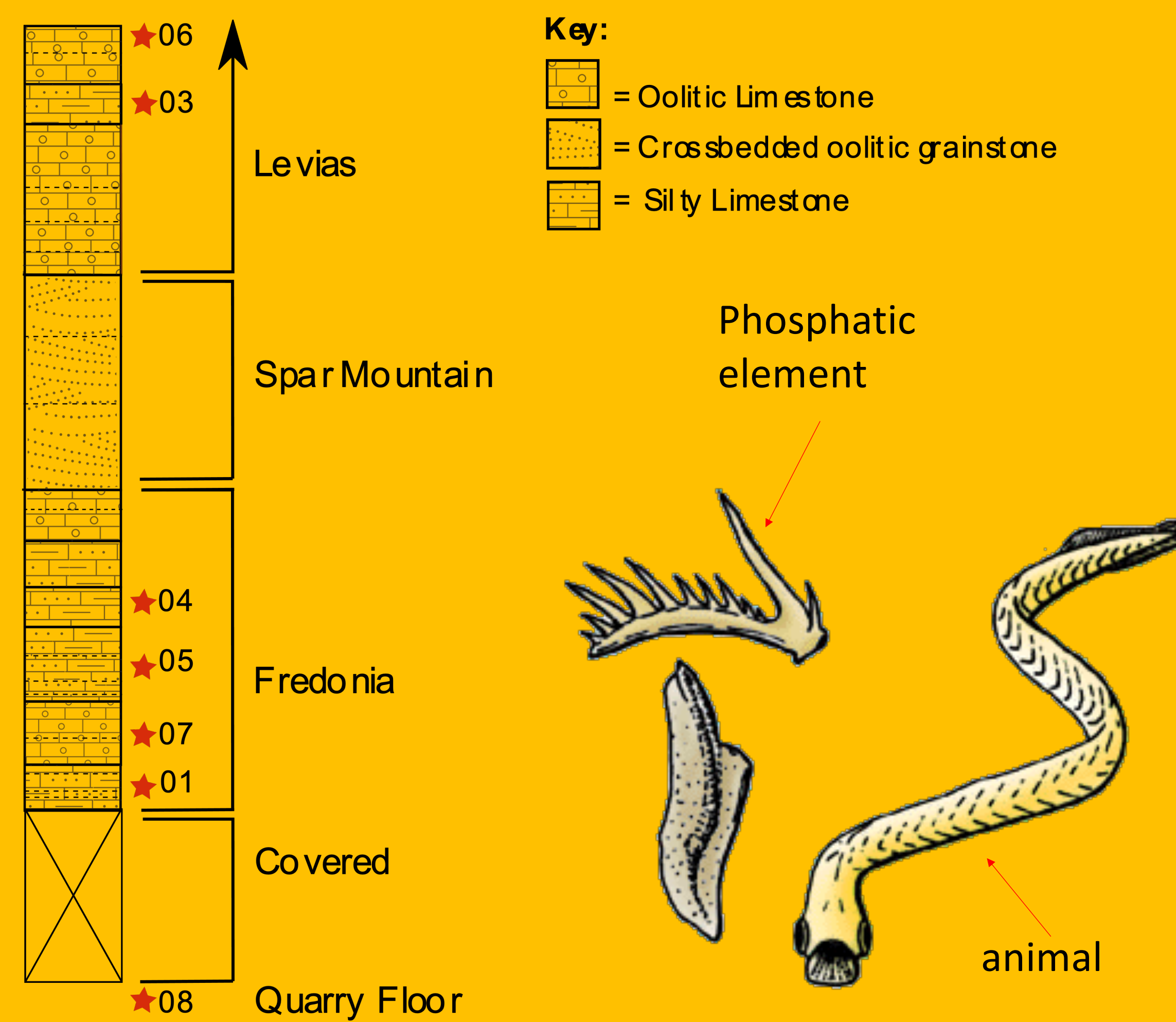
1. Determine if the DePauw Nature Park contains conodonts.
2. Identify specimens to determine the age of the rocks in the nature park.
3. Determine whether the specimen found in the nature park match the species found in the Ste. Genevieve Limestone in previous studies.

### METHODS

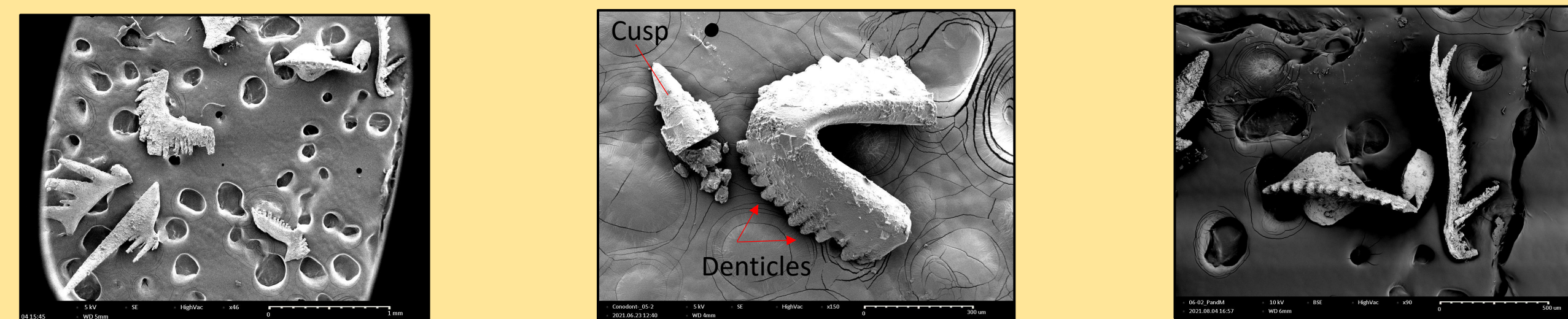
#### Collection and Preparation of Conodonts from Limestone



### STRATIGRAPHIC COLUMN OF THE DEPAUW NATURE PARK



### SEM IMAGING



#### M ("Micheliform") Series

'Ice pick-like'; used to latch onto food and pull it into throat

#### S ("Symmetry Transition") Series

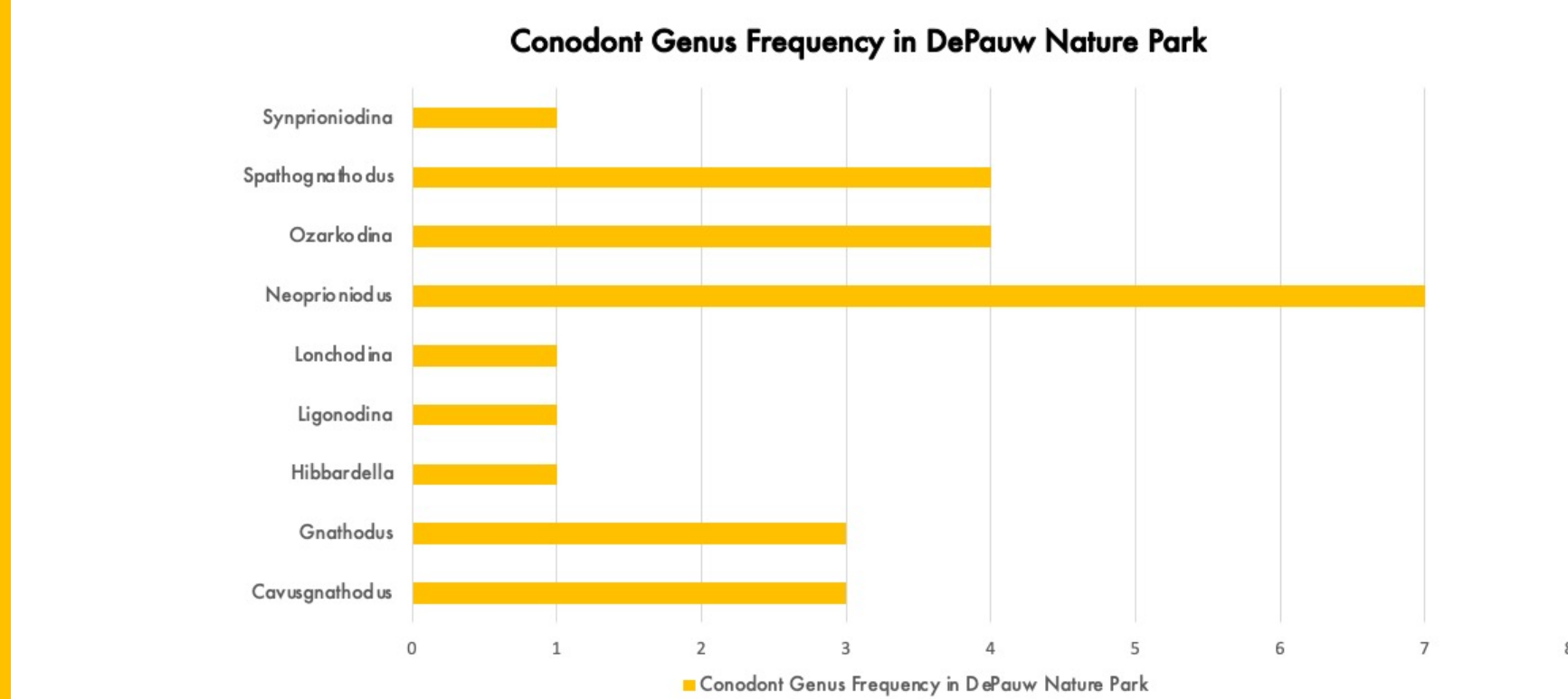
Thin, pencil-like elements; further back in animal's throat

#### P ("Pectiniform") Series

These are the 'grinders' and can be found in the back of the animal's throat. Differentiated by a platform. Elements from P series are key for the identification process due to wide diversity of diagnostic properties such as cusp and denticle arrangement.

(Sweet and Donoghue, 2001)

### RESULTS



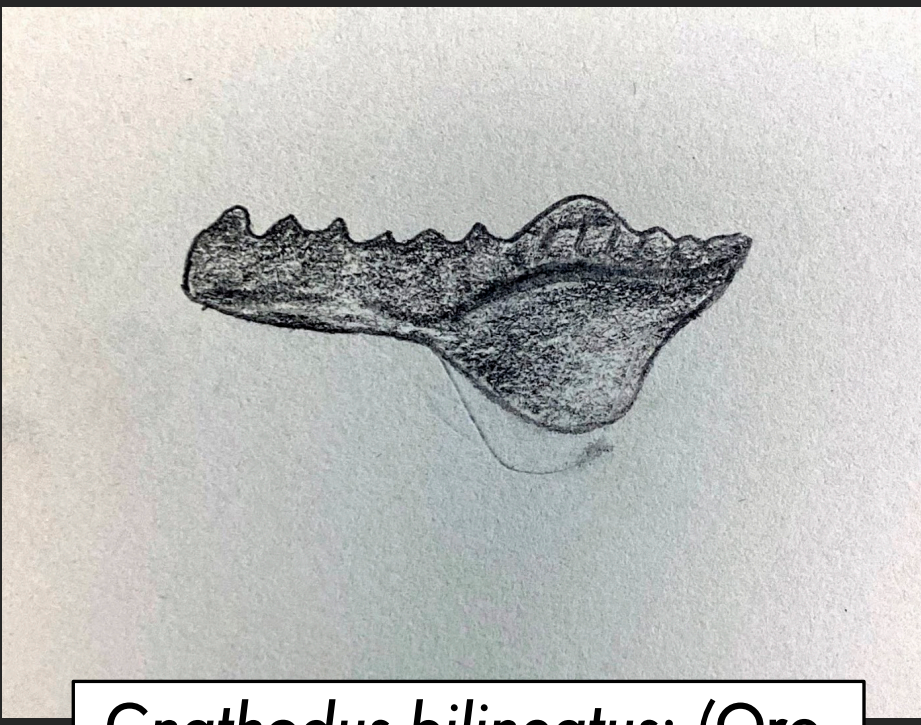
	SG	STL	NP*	LOCATION
Apatognathus? Gemina		x		
Apatognathus scalenus-Cavusgnathus	x			
Cavusgnathus alta	x	x	?	6 (top)
Gnathodus commutatus		x	?	6 (top)
Gnathodus bilineatus-Cavusgnathus charactus	x		?	6 (top)
Hibbardella abnormis		x	?	5 (bottom)
Hindeodoloides bicristatus		x		
Lambdagnathus fragilidens		x		
Ligonodina levis		x	?	4 (bottom)
Lanchodina paraclarki	x	x	?	5 (bottom)
Magnilaterella robusta		x		
Neopriodinus acampylus		x	?	4, 5, 6 (bottom and top)
Ozarkodina compressa	x	x	?	4, 5, 6 (bottom and top)
Spathognathodus campbelli		x	?	3, 4, 6 (bottom and top)
Sympriodina laxilabrum		x	?	3 (top)
Taphrogathus varians		x		

### DISCUSSION

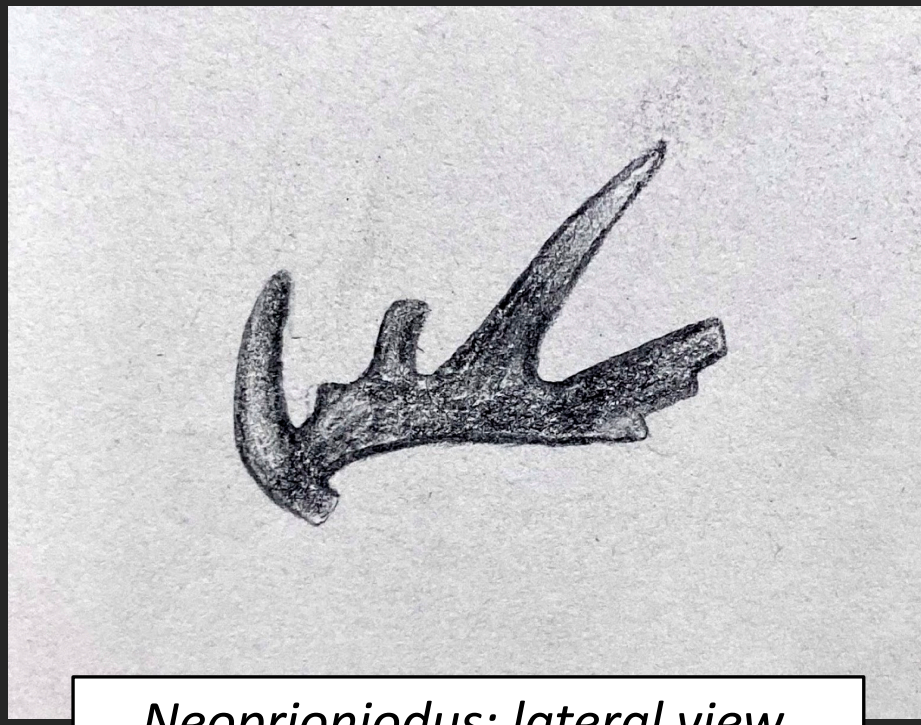
The results of our study are largely inconclusive due in part to the inconsistent terminology in literature and difficulty handling specimens of microscopic size. We found that most specimens were from the Neopriodinus genus, located in both the top and bottom of the quarry. This could indicate the presence of the St. Louis Limestone boundary in addition to or instead of the Ste. Genevieve, some specimens commonly found in the St. Louis are also found in our outcrop, or we made an error in the identification process. In future studies, larger and more frequent sampling size, further practice identifying conodont genus and species, as well as use of less destructive acid such as formic acid might allow for more conclusive results.

### ACKNOWLEDGEMENTS

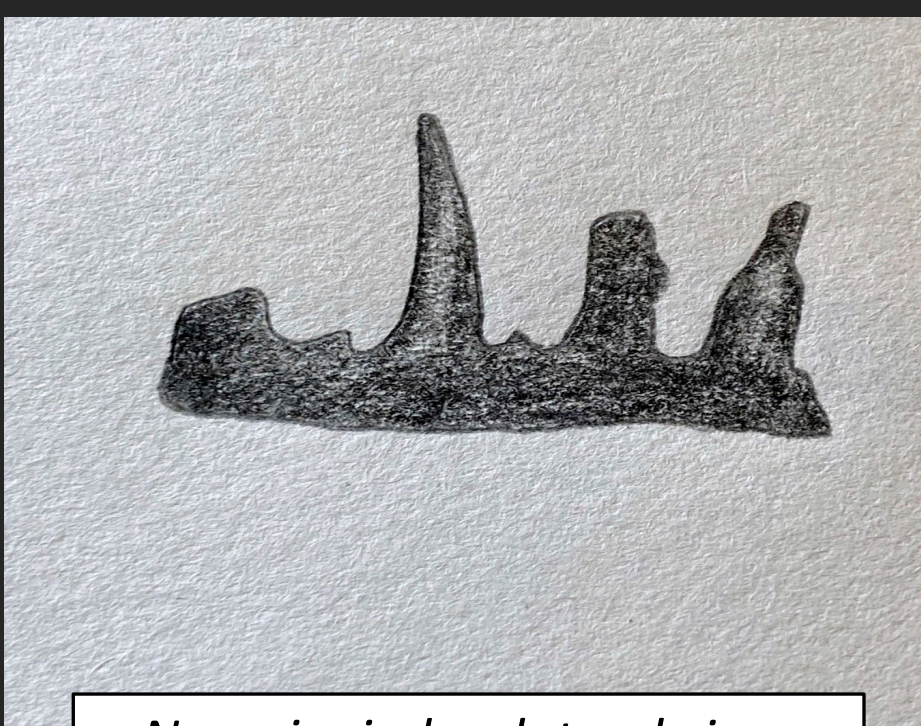
Thanks to the Asher and Norton Endowed Fund in the Sciences, that allowed us to have the resources to do our research; Tim Cope, for guidance and stratigraphic knowledge throughout research; Caroline Gibson, the librarian who helped us find sources, as well as helping us navigate through different databases; Ken Brown and Wendy Williams, for instructing us through use of the SEM, as well as allowing us access to the SEM; Jim Brack, for allowing us onto his property to see a potential outcrop of the Ste. Genevieve for further sampling; Alyssa Bancroft, the conodont expert who helped us understand what conodonts are, how to identify them, and provided us with excellent sources of information.



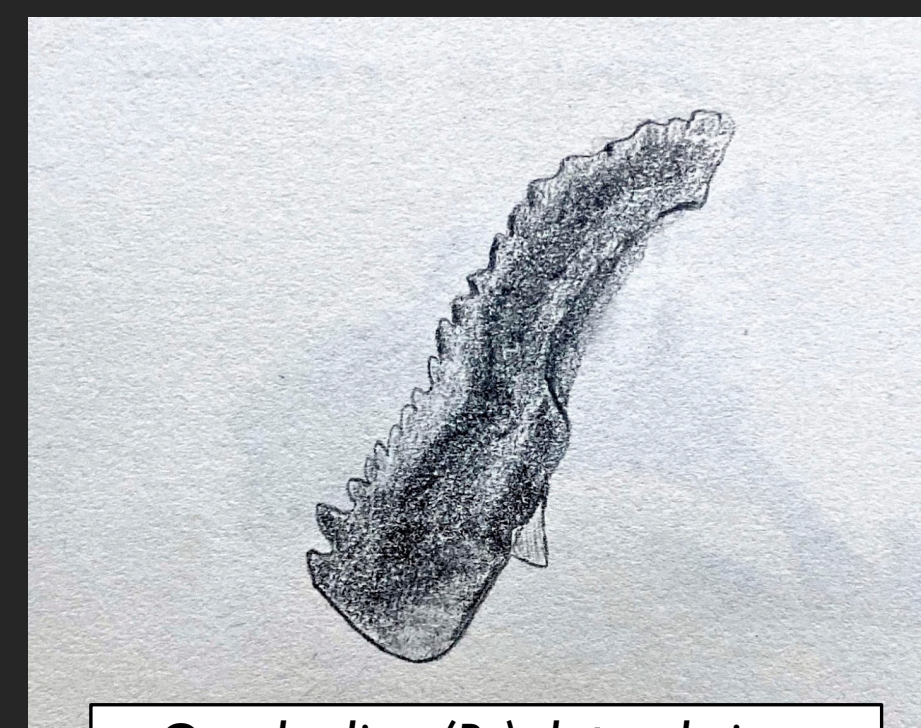
Gnathodus bilineatus; (Oro-Lateral view. Pectiniform.)



Neopriodinus; lateral view. Ramiform.



Neopriodinus; lateral view. Ramiform.



Ozarkodina (P1); lateral view. Ramiform.