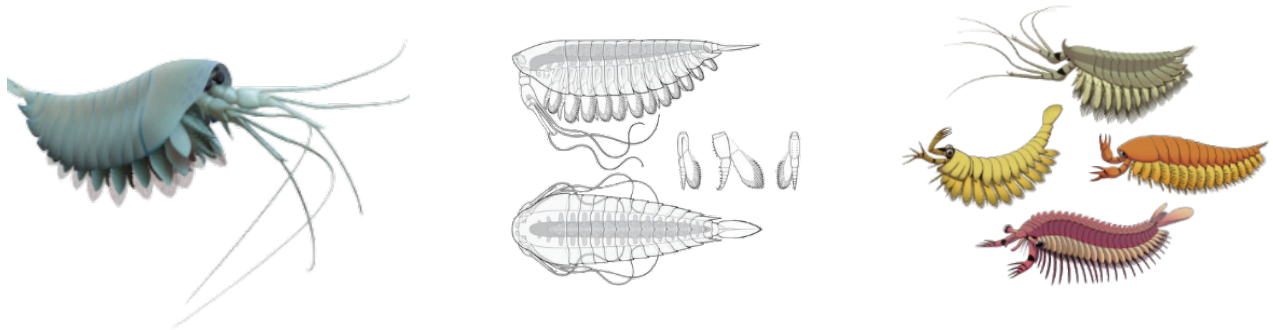


## YAWUNIK KOOTENAYI

A team of researchers discovered what they call the prehistoric ancestor of modern-day spiders, butterflies and lobsters. The creature is called Yawunik kootenayi and according to those who found it it was a marine creature that had two pairs of eyes, long appendages used for grasping its prey and lived more than 500 million years ago; this means that the lobster-like sea monster lived long before the first dinosaur species appeared on Earth, 250 million years before, more precisely.

The 500 million year old lobster fossils were identified by a team of international paleontologists from the University of Toronto, in collaboration with Pomona College from California and the Royal Ontario Museum in Toronto.

This newly found fossil marks the discovery of the first new prehistoric species in the Marble Canyon paleontological site, which is part of the famous fossil deposit known as the Canadian Burgess Shale.



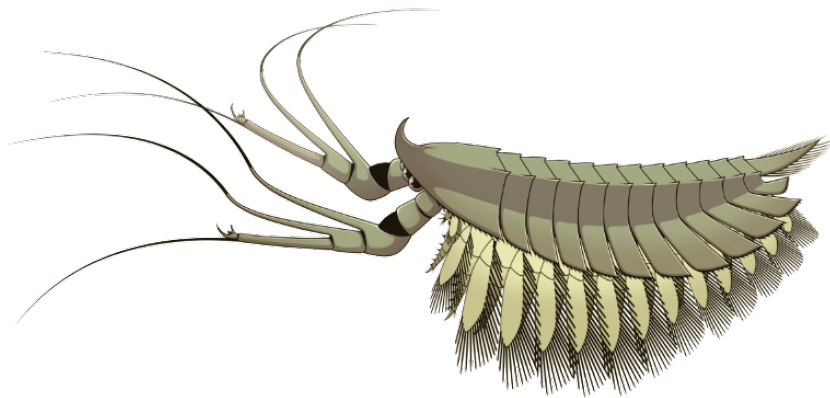
The Yawunik kootenayi marine creature had long frontal appendages that looked like antennae found in modern shrimps or beetles. But unlike shrimps or beetles, Yawunik kootenayi's appendages were made of three long claws, and two of these had teeth used for capturing prey.

## YAWUNIK KOOTENAYI (CON'T)

Cédric Aria, a PhD candidate in the department of ecology and evolutionary biology at the University of Toronto and the lead author of the study, explained that the 500 year old lobster can actually help expand the scientists' perspective on the predatory habits and overall anatomy of one of the first species of arthropods that ever existed on Earth.

This species is part of the group from which modern lobsters and spiders eventually evolved. The researchers published their recent findings on the prehistoric lobster fossils in the journal *Palaeontology*.

Aria explains that the lobster ancestor had the similar features that resemble those of the modern arthropod, such as an external skeleton, a segmented body and the appendages that were jointed. However, the recently discovered marine creature lacked certain of the evolved features found in modern arthropods so experts say that the fossils belonged to a creature that can be called the "stem of arthropods."



The new study reveals evidence that the prehistoric lobster had the capacity of moving its frontal appendages forward and backward, and could spread them when it needed to catch prey or retract them underneath its body when it moved in the waters.

## YAWUNIK KOOTENAYI (CON'T)

Also, the Yawunik had long flagella, which resembled a whip, that were highly sensitive and extended from its claws. This feature makes its appendages one of the most complex and versatile in all species of known arthropods, the experts say.

According to Aria, compared to other crustaceans or insects, the 500 million year old lobster did not have additional appendages extending from its head that could be used to process food. "Evolution resulted here in a combination of adaptations onto the frontal-most appendage of this creature, maybe because such modifications were easier to acquire", said Aria.

The larvae of some species of crustaceans can use the antennae for both swimming and gathering food. But the mantis shrimp, which is a large active predator, has its grasping and sensory functions between the appendages.

The newly discovered species of prehistoric lobster and its relatives help scientists better understand the condition that existed before this division of tasks occurred among parts of the organism.

The Yawunik kootenayi lobster-like marine creature was discovered buried in the Marble Canyon site, which is found in the Kootenay National Park in British Columbia, 40 km south from the BurgessShale located in the Yoho National Park.

The site was discovered by Aria and a team of researchers led by Jean-Bernard Caron in 2012. Caron is an associate professor at University of Toronto, the department of earth sciences and ecology, as well as a professor of evolutionary biology and a curator of invertebratepaleontology at the Royal Ontario Museum.

Another researcher who was part of the team is Robert Gaines, one of the study's co-authors and a professor of geology at Pomona College.

## YAWUNIK KOOTENAYI (CON'T)

According to professor Caron, this lobster ancestor is “the most abundant of the large new species of the Marble Canyon site”, and it holds an important role in the food network and in the prehistoric ecosystem.

This creature is very important in the study of Marble Canyon site and it shows how this can increase the importance of Burgess Shale and its role in better understanding the evolution of animals.

The researchers used state-of-the-art technology called “elemental mapping” to study the 500 million year old fossils. The experts used this method to detect the fossil’s atomic composition and its surrounding sediments.

The prehistoric creature was named after the Ktunaxa people who lived in the Kootenay area. The name Yawunik was inspired by a mythological marine monster which is said to have killed many people and caused mayhem a very long time ago.