DECORAH IMPACT CRATER FREQUENTLY ASKED QUESTIONS

When did the meteor impact occur?

The impact event happened approximately 465 million years ago, during the Ordovician Period. This was
long before humans were present on Earth, and was even before fish, sharks, or trees. Early multicellular
life in the oceans was undergoing rapid diversification and marine ecosystems were evolving greater
complexity.



What is the Decorah Crater's diameter?

• The crater has a diameter of 3.5 miles (5.6 km). This was determined from a combination of well-log studies and other evidence. See "Crater Discovery" to learn more.

Was the current river valley or the bowl that Decorah sits in formed by the meteor impact?

- No, the valley as you see it now was carved over only the last 1 million years by the Upper Iowa River. The impact basin is much older, formed around 465 million years ago, and it is buried far beneath Decorah.
- Soon after the Crater was created through the impact of the meteor, it filled with ancient sediment and then was buried under even more sediment. Remember, this all took place underwater! Millions of years later, the Upper Iowa River eroded some of that sediment away and created the bluffs and hillsides that now surround Decorah.
- Even though we can't directly observe the crater basin in today's landscape, it is still a remarkable and unique find. The Decorah Impact Structure is one of fewer than 200 recognized impact structures on the entire planet!

Can I find pieces of the meteor around here?

• No, the meteor would have vaporized upon impact with the surface of the seas. Some pieces may be buried in the bottom of the crater. Based on the size of the crater, the diameter of the original meteor is estimated to have been about 660 ft (200 m) across, which is roughly the length of two football fields.

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Do meteor impacts of this size occur often?

• Impacts with extraterrestrial objects of this size are estimated to occur roughly once per 10,000 years, on average, though during the Ordovician Period, an unusual number of impacts occurred. This is thought to be related to a large break-up that occurred in the asteroid belt at that time. The Decorah structure is the second crater discovered in Iowa (the other is the Manson Crater, which formed 74 million years ago).



Did the impact event cause a mass extinction?

• The effects of an impact event of this size would likely have had only a regional effect. However, some scientists have suggested that the frequent impacts that occurred during the Ordovician may have actually contributed to a higher rate of biodiversification.

Why is the Decorah Crater significant?

- Recognized impact structures on the Earth's surface are relatively rare, so the Decorah Crater provides scientists with a new opportunity to learn more about impact events and crater processes.
- The crater basin created a unique environment in which an exceptional fossil record was preserved, offering insights into life on Earth during a critical period in the evolution of complex life.
- The identification of the Decorah Crater adds to evidence for an interval of frequent impacts during the Ordovician Period and may help scientists understand how the trajectory of evolution–both diversification and extinction events—is connected to extraterrestrial causes.