

BBC



HOW EVOLUTION CREATED VAMPIRES

Science Focus

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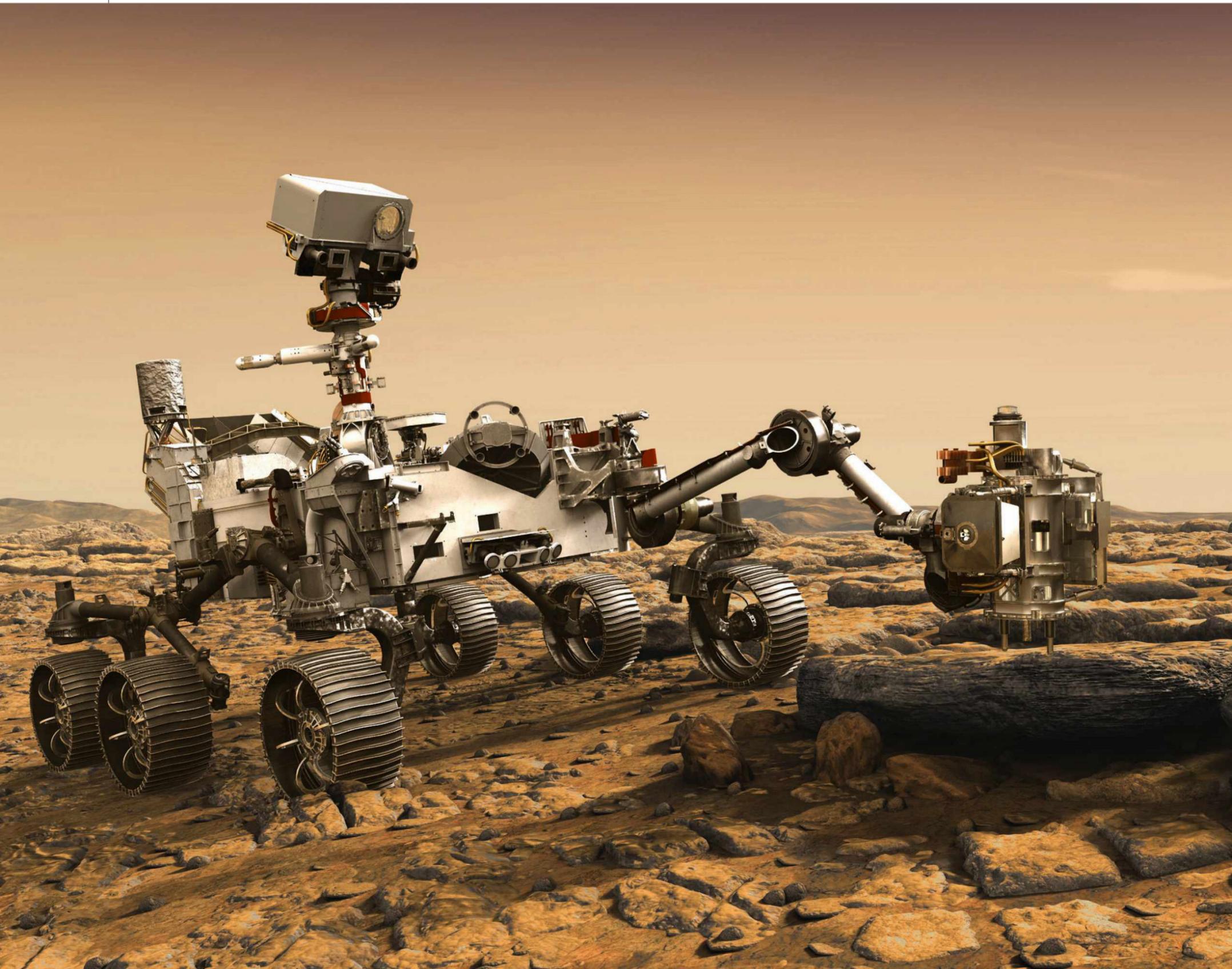
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MARS

PERSEVERANCE ROVER DISCOVERS MORE ORGANIC MATERIAL ON MARS THAN EVER BEFORE

The rover collected samples from an area where scientists think life could have thrived on ancient Mars

ABOVE

Perseverance is hunting for signs of microbial life, and stashing samples to return to Earth for analysis

As part of its continuing exploration of an ancient Martian riverbed, NASA's Perseverance rover has collected some of the most promising samples yet in its ongoing search for signs of life on the Red Planet. Among them are several samples of sandstone and mudstone, collected from a one-metre-wide rocky outcrop named Wildcat Ridge that is packed with organic compounds – chemicals essential for life on Earth.

Perseverance has been trundling around an area known as the Jezero Crater since September 2021 and has so far collected 12 samples of rock.

All of the samples it collects over its two-year mission are scheduled to be brought back to Earth for analysis in 2033 as part of the Mars Sample Return mission.

The Jezero Crater lies just north of the Martian equator. It is 45km wide and home to an ancient

MISSION TIMELINE

JULY 2020

Perseverance launches from Cape Canaveral, Florida, on an Atlas V rocket.

FEBRUARY 2021

Perseverance safely touches down on Mars, in the Jezero Crater.

JUNE 2021

Perseverance begins collecting data as part of its first science campaign.

AUGUST 2021

Perseverance successfully collects its first sample of Martian rock.

2027

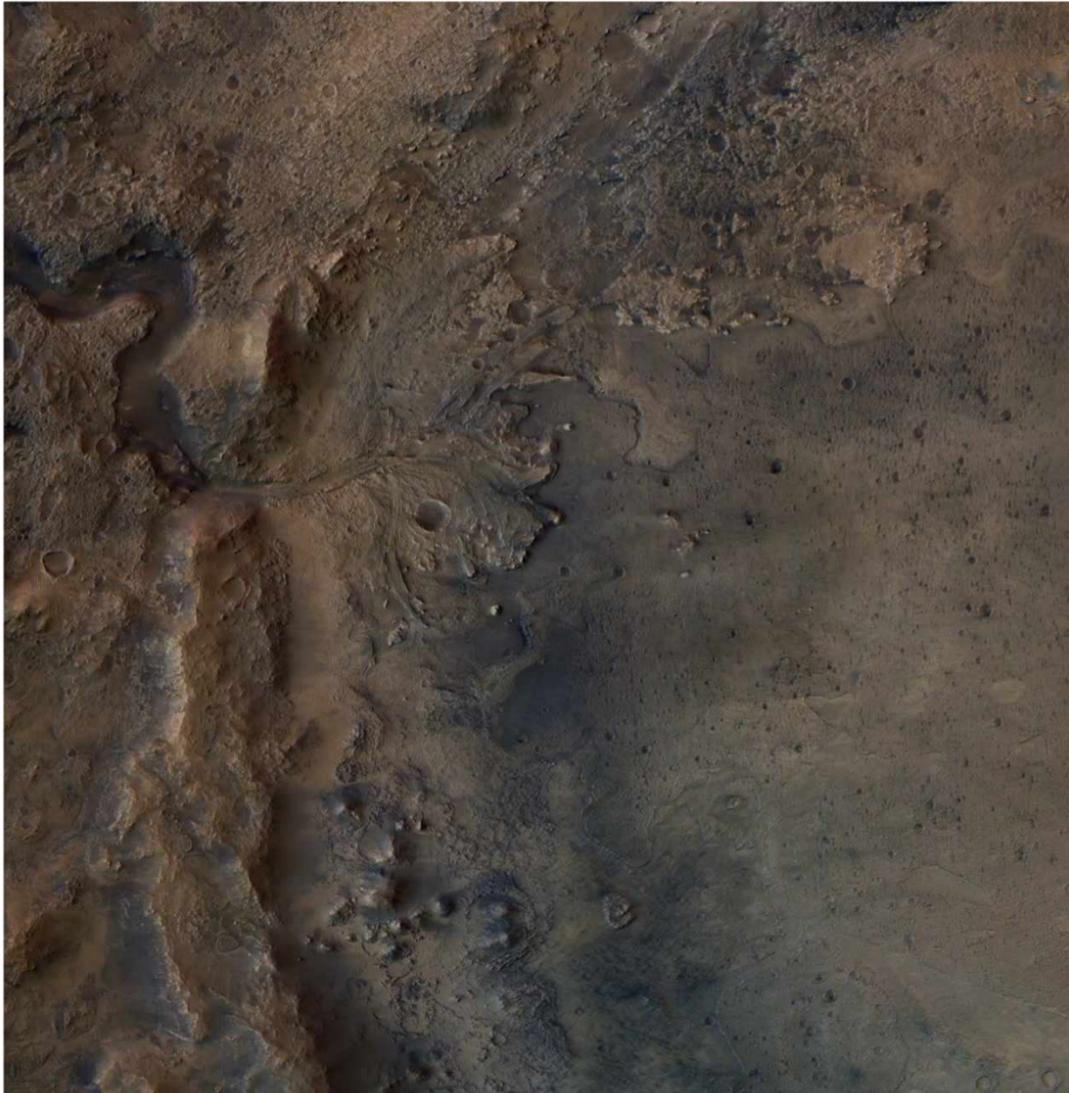
Mars Sample Return orbiter is scheduled to launch from Earth.

2028

Mars Sample Return lander is scheduled to launch from Earth.

2033

Mars samples due to arrive back on Earth for further study and analysis.



“The organic matter was found in sedimentary rock – known for preserving fossils of ancient life here on Earth”

fan-shaped delta that formed about 3.5 billion years ago when rivers spilled over the crater walls and created a lake.

“We picked the Jezero Crater for Perseverance to explore because we thought it had the best chance of providing scientifically excellent samples – and now we know we sent the rover to the right location,” said Dr Thomas Zurbuchen, NASA’s associate administrator for science in Washington.

A preliminary analysis of the Wildcat Ridge samples was carried out by an instrument onboard Perseverance called Scanning Habitable Environments with Raman and Luminescence for Organics and Chemicals, or SHERLOC.

Although evidence of organic matter has been found on Mars before, both by Perseverance and its predecessor Curiosity, SHERLOC’s analysis

ABOVE The remains of an ancient river delta in Mars’s Jezero Crater

ABOVE RIGHT Perseverance project scientist Prof Ken Farley

indicates that the Wildcat Ridge samples contain the largest number of organic compounds of any collected to date.

“In the distant past, the sand, mud and salts that now make up the Wildcat Ridge sample were deposited under conditions where life could potentially have thrived,” said Perseverance project scientist Prof Ken Farley of Caltech in Pasadena, California.

“The fact the organic matter was found in such a sedimentary rock – known for preserving fossils of ancient life here on Earth – is important.

“However, as capable as our instruments aboard Perseverance are, further conclusions regarding what is contained in the Wildcat Ridge sample will have to wait until it’s returned to Earth for in-depth study as part of the agency’s Mars Sample Return campaign.”