

Interplanetary Pollution

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Why in news?

Israel's Beresheet spacecraft tried to land on the moon but crashed on the surface. This very aircraft was carrying many items in it including many specimens of Tardigrade (in dehydrated form).

What are these?

- The tardigrade is one of the strongest and most durable creatures on Earth, also known as water bears, and can only be seen under a microscope
- Half a millimetre long, it is essentially a water-dweller but also inhabits land and, a 2008 study found, can survive in the cold vacuum of outer space.

The tardigrade can endure extreme hot and cold temperature levels.

They themselves expel water from their bodies and set off a mechanism to protect their cells, and can still revive if placed in the water later. The organism on rehydration is known for "coming back to life."-

- The tardigrade derives its name from the fact that it looks like an eight-legged bear, with a mouth that can project out like a tongue.

A tardigrade typically eats fluids, using its claws and mouth to tear open plant and animal cells, so that it can suck nutrients out of them.

What is the concern?

- The question is did the thousands of dehydrated tardigrades on Beresheet survive the crash? And if they did, are they now living on the Moon?
- As they were all in a dehydrated state, the chances of them surviving only depends on them finding water source

or liquid source.

- Even if they find one, their survival will be tough, according to scientists.

Scientists have yet to find any evidence that the moon ever hosted living organisms (other than visiting astronauts and microbial hitchhikers from Earth) that could be threatened by microscopic invaders. However, contamination could carry serious consequences for missions to planets where life might yet be found.

- There is already a fairly large amount of debris left by astronauts from obsolete spacecraft and trash. As more missions are planned to the moon, eventually with human passengers and perhaps even settlements, we must learn to clean up as we go along. Otherwise, we are going to have the sort of crisis that we are seeing on Earth with the outcry about environmental damage from plastics.