**Extreme Animals: How Do They Endure Low Temperatures?**

There are species of animals that are not afraid of bitter cold. This is all thanks to their exceptional body structure and appropriate surface area. Let's meet the extreme species that have inhabited the coldest places on Earth.



**Why Don't Penguins' Feet Freeze?**

They inhabit Antarctica as well as the cold regions of neighboring islands and coasts of South America and New Zealand. What prevents their feet from freezing at low temperatures is very thick skin and good circulation, which facilitates foot heating. - Their bodies are covered with a thick layer of fat and special feathers that resemble scales. Thanks to their tight fit to the body, they provide good protection against frost - explained Michał Jabłoński from Warsaw ZOO.



The Polar Bear's Fur is Actually Transparent

- The hairs of a polar bear resemble transparent tubes in their structure. They gather light (which gives the misleading impression that the fur is white), heating its skin, which is black - said Aneta Awtoniuk, an animal behaviorist.

The black skin serves to better capture sunlight. Thanks to its dark color, it better attracts light, which is scarce in the Arctic. A layer of fat and a special undercoat located between the hairs and the skin further insulate the organism from the cold.

**The Most Resilient Species May Become Extinct in the Future**

One of the most resilient animals in the world is the tardigrade. These invertebrates in a state of cryptobiosis can survive at a temperature of -272 degrees Celsius (or -273.15 degrees Celsius, which is absolute zero), and even in space. Scientists have found that they can withstand six times greater pressure than that in the deepest parts of the oceans (pressure of 6000 atmospheres) and over 100 years without water.



Tardigrade

They are a thousand times more resistant to ionizing radiation than humans or any other animal. The lethal dose of gamma radiation for humans is 5 Gy, for tardigrades, it's 5000 Gy. However, even this species may become extinct in the future. As the authors of the article "Scientific Reports" report, tardigrades cope poorly with rising temperatures. Half of the examined organisms that did not enter cryptobiosis died when the temperature rose to 37.1 degrees Celsius (with a gradual increase in temperature, they were able to survive up to 37.6 degrees Celsius).