

Profile
ARTICLE**Paleontologist: Bolortsetseg Minjin**

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BY NATIONAL GEOGRAPHIC EDUCATION STAFF

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Bolortsetseg is best known for locating 67 [dinosaur](#) fossils in the Gobi Desert in the span of one week.

Although [paleontologists](#) are most famous for studying dinosaurs, “we really study the remains of all ancient organisms, including coral, turtles, and mammals, which are my specialty.”

EARLY WORK

Although Mongolia is one of the world’s richest areas for paleontology, few Mongolian children grow up knowing about the dinosaurs in their own back yard.

Bolortsetseg was not a typical Mongolian child, however. Her father is a paleontologist. When he would return to their home in Ulaanbaatar from digs, she remembers him bringing back round stones. “To me, they looked like weird rocks. But really, they were coral fossils.”

Corals are [marine](#) animals. Mongolia is a landlocked country. Fossils of corals like the one Bolortsetseg’s father found help prove that millions of years ago, Mongolia was part of a large, inland sea. “Most kids don’t have the [opportunity](#) to see the history of our country. People are used to thinking only about their time, not the way the land existed before,” Bolortsetseg says.

As Bolortsetseg grew up, she realized she wanted to study the way plants and animals developed millions of years ago in Mongolia. However, no university in Mongolia offered a paleontology program. She studied [geology](#) instead. She knew her graduate adviser very well: her father.

“Even though I was studying geology, I knew I wanted to be a paleontologist. My father was the only paleontologist at the university, so he became my adviser. We went from father and daughter, to student and teacher, and now we are colleagues.”

MOST EXCITING PART OF YOUR WORK

“[Field work](#)! You don’t ever know what kind of discoveries you’ll make. It’s always accidental. . . . Field work also takes you out in nature. You feel so much freedom.”

MOST DEMANDING PART OF YOUR WORK

“Doing research in the lab is demanding. That’s what [paleontologists] do, and it’s exciting to figure out what fossils are, but it’s not as much fun as field work!”

HOW DO YOU DEFINE GEOGRAPHY?

“Geography is the study of the Earth and the way things are distributed there, both above ground and below it.”

GEO-CONNECTION

Q: Do you incorporate geography or geographic concepts into your work?

A: Yes! A [global positioning system \(GPS\)](#) is the key to the Gobi Desert, where we dig for fossils. There are few roads and no signs. There are sandstorms that can change the landscape. GPS and mapping applications like [ArcGIS](#) help us get to the [fossil](#) sites.

An important part of paleontology is [taphonomy](#), the study of the way organisms die, [decay](#), and become fossilized. We use the geology and geography of the Gobi Desert to help us with taphonomy. A [skeleton](#) in the ground has so much information to give you. We use GIS tools to make a map of the skeleton using data layers for each type of rock associated with the fossil. Looking at the map, we can see if the [organism](#) died in water, for instance, or how long ago it died.

Q: Why is Mongolia such a great place to look for dinosaurs? Is there anything different about fossils in Mongolia as opposed to Montana or South Africa?

A: Mongolia is the richest fossil area in the world. In terms of diversity and numbers, Mongolia just has more fossils than anywhere else.

Mongolia is [unique](#) because conditions allowed fossils to be preserved as entire skeletons. In places like Wyoming or Montana, where there are a lot of fossils, animals were often eaten by scavengers after they died. You may find a bone here, another bone close by, and the two bones might not even be from the same animal, or even the same [species](#). In Mongolia, there was [catastrophe](#) for many of the dinosaurs and other animals that have been preserved. They were buried in the sands of the Gobi, very quickly, before [scavengers](#) could get to them. We have complete skeletons of animals.

Q: How familiar are Mongolian schoolchildren with the dinosaurs in their backyard?

A: Last year, we [staff from the Institute for the Study of Mongolian Dinosaurs] visited some of the schools in towns close to the Gobi fossil sites. Some of the students thought that dinosaurs were [mythical](#) creatures!

There are really no resources for kids to learn about dinosaurs. There are no books or TV shows in Mongolian. When I was growing up, I had to learn to read my father’s books on dinosaurs—in Russian! *National Geographic* magazine is translated from Chinese, and that is available sometimes.

That lack of resources is one of the reasons I am writing a children’s book on dinosaurs. It’s about how I learned about paleontology from my father.

The Institute is also working to train the next generation of Mongolian paleontologists. We are planning the first paleontology [museum](#) in Mongolia and setting up opportunities for students at fossil sites.

The program takes kids, age seven to sixteen, to actual fossil sites in the Gobi. All the teaching is done by Mongolians, in Mongolian. We want students to know about their [cultural heritage](#), that is millions of years old. Whenever we are there, digging in the dirt and learning about fossils with the kids, they always want to know more.

Q: Why do you feel you need to train the next generation of Mongolian paleontologists? What does paleontology mean for the future of Mongolia?

A: We need to learn about our cultural heritage. **Looting**, or stealing fossils to sell illegally, is a big problem in Mongolia. Looters are not only destroying specimens, they are destroying our cultural heritage.

By teaching Mongolian kids about paleontology, we hope to help people see long-term benefits instead of short-term benefits. Looters can make money in the short-term. But in the long-term, Mongolia could benefit from **tourism** from the dinosaurs.

Q: Where are you going to dig next?

A: In summer 2011, I am going back to the south Gobi. We don't know what we'll find—dinosaurs, mammals, turtles, insects, fish. There was a whole community of animals there, 125 million years ago.

SO, YOU WANT TO BE A . . . PALEONTOLOGIST

“Paleontology is not a single science. If you want to study paleontology, it is smart to focus on an area you are interested in—**biology**, geology, or **botany**, for instance.”

GET INVOLVED

“The Boy Scouts and Girl Scouts are good opportunities to see if you enjoy being exposed to nature. If you're scared of camping, you're not ready to be a paleontologist!”

VOCABULARY

Term	Part of Speech	Definition
ArcGIS	<i>noun</i>	Geographic information software created by the company ESRI.
biology	<i>noun</i>	study of living things.
botany	<i>noun</i>	study of plants.
catastrophe	<i>noun</i>	disaster or sudden, violent change.
colleague	<i>noun</i>	a coworker or partner.
cultural heritage	<i>noun</i>	traditions and customs of a specific population.
data layer	<i>noun</i>	individual file added to a GIS map, adding a specific type of information.
decay	<i>verb</i>	to rot or decompose.
destroy	<i>verb</i>	to ruin or make useless.
dinosaur	<i>noun</i>	very large, extinct reptile chiefly from the Mesozoic Era, 251 million to 65 million years ago.
extensive	<i>adjective</i>	very large.
field work	<i>noun</i>	scientific studies done outside of a lab, classroom, or office.
fossil	<i>noun</i>	remnant, impression, or trace of an ancient organism.
geology	<i>noun</i>	study of the physical history of the Earth, its composition, its structure, and the processes that form and change it.
Global Positioning System (GPS)	<i>noun</i>	system of satellites and receiving devices used to determine the location of something on Earth.
instrumental	<i>adjective</i>	important.
loot	<i>verb</i>	to steal or take something illegally.

marine	<i>adjective</i>	having to do with the ocean.
museum	<i>noun</i>	space where valuable works of art, history, or science are kept for public view.
mythical	<i>adjective</i>	having to do with a legend or traditional story, not fact.
opportunity	<i>noun</i>	chance.
organism	<i>noun</i>	living or once-living thing.
paleontologist	<i>noun</i>	person who studies fossils and life from early geologic periods.
sandstorm	<i>noun</i>	wind storm that blows great amounts of sand into the air.
scavenger	<i>noun</i>	organism that eats dead or rotting biomass, such as animal flesh or plant material.
skeleton	<i>noun</i>	bones of a body.
species	<i>noun</i>	group of similar organisms that can reproduce with each other.
specimen	<i>noun</i>	individual organism that is a typical example of its classification.
taphonomy	<i>noun</i>	study of the way organisms die, decay, and become fossils.
tourism	<i>noun</i>	the industry (including food, hotels, and entertainment) of traveling for pleasure.
unique	<i>adjective</i>	one of a kind.

For Further Exploration

Articles & Profiles

- National Geographic Explorers: Bolortsetseg Minjin, Paleontologist



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