

Chenobyl Now: Animals flourishing in area near off-limits Chernobyl

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In southern Belarus along the border with the Ukraine stretches the Polesie State Radiation and Ecological Reserve, a foreboding name sure to keep the poachers and public out.

Because it was contaminated by the accident at the Chernobyl nuclear plant in 1986, the area is off-limits to residents and special permission is required to enter it, which measures 2,165 square kilometers.

With the absence of residents, the animal population has grown and is flourishing.

“Look, you can see a moose over there,” said Valeriy Yurko, a senior researcher at the reserve.

Eagles soared in the sky. Hoof prints of wolves and boar are commonly found in the area.

The reserve was designated in 1988 after it was heavily contaminated by radiation.

About 30 percent of the cesium 137 that fell on Belarus after the Chernobyl accident, with 4,810 terabecquerels of radiation, as well as 70 percent of the strontium 90, with 444 terabecquerels of radiation, and almost all of the plutonium, with 14.8 terabecquerels of radiation, fell on the designated area. A terabecquerel is 1 trillion becquerels.

“Humans will not be able to live in most parts of the area for 300 years,” said Peter Kudan, the director of the reserve.

After humans were shut out, the number of animal species that have been spotted in the area has increased dramatically. Two hundred and sixteen bird species live in the area, with 58 on the endangered list.

However, scientists still have no idea how the radiation has affected the wildlife.

Barbed wire several dozens of meters long set off vacant lots in the forested area. Signs warn of the dangers of radiation. Soil and rubble removed from contaminated areas have been buried in the reserve at depths of several meters. There are 82 such sites within the reserve.

Chemicals used to extinguish fires mixed with radioactive materials spewed from Chernobyl and fell on what is now the reserve. Humans are not allowed to live in the area because there is still the danger of inhaling dust contaminated with that mixture.

The area once contained 92 villages that were home to 22,000 people and those residents were forced to evacuate. Thirteen of the most heavily contaminated villages were destroyed and the remains buried because of fears that radiation would spread if nothing was done.

In regions outside of the protected area, attempts have been made to decontaminate some

neighborhoods to allow people to live there, such as in Khoiniki, a city that borders the reserve.

"Topsoil from the grounds of schools and kindergartens was removed and asphalt laid over it," Oleg Mashevsky, a deputy chairman with the Khoiniki Regional Executive Committee, said. "Safe soil was then placed on top. Buildings in the city were washed down to remove radiation."

The water used to wash the buildings drained away along with rainwater contaminated with radiation. The soil that was removed was buried within the protected area.

However, nothing has been done to decontaminate the forests that make up about 40 percent of the total area of Belarus and about 20 percent of the area of the Ukraine. Decontamination has also not been carried out on the huge farms that surround residential areas.

On the outskirts of the Belarus capital of Minsk stands the Joint Institute for Power and Nuclear Research, or Sosny. Since 1991, after the collapse of the Soviet Union, research has continued at the institute through assistance from Europe on technology to decontaminate soil and water covered with radiation. While various chemicals and plants have been tried on contaminated soil, no sure method has yet been found.

"Then and now, the most effective and simple way is to remove the soil and transport it to an area with fewer people," said Yuri Davydov, one of the researchers. "However, we are unable to handle large land areas, such as farmland or forests, because it would not be economically feasible. Decontamination can only be carried out in areas that are relatively well-off."

Removing topsoil from farmland would weaken the farm, and workers could be exposed to radiation exposure from the dust that would be uncovered.

Partial decontamination would only move radioactive materials elsewhere through the drained water.

Gennady Antsipov, chief of the Department for Rehabilitation of Contaminated Areas within the Belarus Ministry for Emergency Situations, said, "We hope Japan will take advantage of our experiences and data. We will gladly cooperate to prevent the wasteful use of money."

Other researchers in Belarus and the Ukraine have continued with studies on how radioactive materials such as cesium work in the environment.

Radiation in the atmosphere attaches to tree leaves and falls to the ground. Researchers have found that in the area around Chernobyl almost all radioactive materials were found within 20 centimeters underground.

While the two nations have abandoned plans to decontaminate a wider area, they have continued to monitor the environment within the no-entry area to prevent radioactive materials from spreading.

One important measure is to prevent forest fires.

The Polesie reserve has about 40 towers to keep an eye out for hotspots. Fires could once again release radioactive materials that have accumulated in the topsoil or trees into the atmosphere. That would be the equivalent of repeating the nuclear accident all over again.

Wells have also been dug to check on changes in water quality. The depths of the wells are adjusted to match the various soil layers underground. According to Sergiy Kireev, director at the Chernobyl Radioecological Center, because water passes between such layers, if water in shallow wells are

found to be contaminated, efforts can be made to stop that from spreading to deeper layers.

A total of 5.2 million terabecquerels of radioactive materials was released by the Chernobyl accident, about seven times the amount from the accident at the Fukushima No. 1 nuclear power plant.

At the time of the accident, land area contaminated with cesium 137 at levels exceeding 555,000 becquerels of radiation per one square meter totaled 6,400 square kilometers in Belarus, 2,400 square kilometers in Russia and 1,500 square kilometers in the Ukraine.

In 2009, Russia and Belarus cooperated to compile a map of radiation contamination. The map shows the levels of cesium 137 contamination at 10-year intervals from 1986, including forecasts, for a period until 2056.

Immediately after the accident, areas contaminated with extremely high levels of radiation of over 1.48 million becquerels per square meter were found near Gomel, the second largest city in Belarus, located more than 100 kilometers from Chernobyl.

By 2006, such areas of high contamination were limited within the Polesie protected area. However, forecasts for 2036 still have sections in the protected area with high levels of radiation.

ICHIRO MATSUO, *Asahi Shimbun* Staff Writer, November 24, 2011
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