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COUNTERPOINT

# Chernobyl factored in the fall of a corrupt regime — Fukushima may too

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*Second of two parts*

There are approximately 7,000 exhibits in Kiev's Ukrainian National Chernobyl Museum. (The location of the nuclear plant that exploded on April 26, 1986 is spelled this way in Ukrainian.) Among the documents, photographs, maps and objects at this museum that opened on the sixth anniversary of the accident is a little piglet.

The piglet was born after the accident in the vicinity of the plant with a deformity known as dipygus. Its body, on display, is forked at the torso and possesses too many legs.

"The amount of mutations in people and animals grew sharply after the catastrophe," states the explanation accompanying the display. "Among these, in the first four years, were some 350 animals found with serious deformities."

What is the true nature of the destruction caused by radioactive contamination in the Chernobyl Exclusion Zone, an area stretching out in a 31-km radius from the plant? And what can we expect to find in a similar zone in Fukushima Prefecture? After all, it has been estimated that the nuclear accident in Ukraine has made human habitation in the zone impossible for 20,000 years. Will the land in Fukushima be equally condemned?

To get answers, I turned to Timothy Mousseau, professor of biological sciences at the University of South Carolina. Mousseau has made 30 trips to Ukraine and Belarus since 1999, spending approximately 230 days in fieldwork there, studying organisms living in both clean and contaminated areas in and around the zone and comparing them to those in other parts of Europe.

Writing in "Biology Letters" in March 2009, he and his colleague, biologist at the University of Paris Sud, Anders Moller, reported on their study of bumblebees, butterflies, grasshoppers, dragonflies and spider webs in forests around the plant.

They found that "abundance of invertebrates decreased with increasing radiation," concluding that "the ecological effects of radiation from Chernobyl on animals are greater than previously assumed."

A more recent study undertaken in the exclusion zone and published in May 2012 by Prof. Mousseau and colleagues states that "there were considerably few pollinating insects in areas with high levels of radiation ... (with) dramatic reductions in species richness and abundance of breeding birds...."

They cross-validated their measurements against reliable data from earlier Russian studies.

The accident at Chernobyl spread highly radioactive substances to regions as far away as Sweden, Britain and southern Germany. In fact, it was the largest



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release of radioactive material into the environment on record, about 400 times the amount released by the atom bomb dropped on Hiroshima.

These studies constitute pioneering work, seeing as, according to Mousseau, "Surprisingly, there are few data on the abundance of animals in relation to radiation."

What we do know is that the popular press, both in the Soviet and post-Soviet eras, created a "propaganda curtain" around factual information. The absence of data implied that as many animals were roaming freely in the exclusion zone as before the accident.

The Japanese media has been little better with Fukushima. They have tended to give this impression, too, to lighten the disastrous effects of the disaster at the Fukushima No. 1 nuclear power plant and dampen the cause of compensation to victims.

Even NHK gave this impression on a news item broadcasted last month. They reported that the number of feral wild boar has increased 4 or 5 times since March 2011. Well, if the wild boar are doing okay, then what's the fuss?

At the same time, however, officials from Fukushima Prefecture revealed a reading of 33,000 bequerels of radioactive cesium in a kilogram of wild boar caught near Iwaki City, the highest level ever recorded in a wild animal in the prefecture.

At a talk I attended at Tokyo's Sophia University on Nov. 20, Prof. Mousseau spoke of his work in Fukushima in a research team that has spent about 6 weeks in Fukushima since July 2011 conducting research on bird and insect abundances and biodiversity, plant productivity, studies to assess the dose received by some bird species and measurements of genetic damage to their DNA.

"A very large proportion of eastern Fukushima Prefecture is contaminated to some degree," says Mousseau. "By this I mean, more than five times natural background radiation levels. Essentially, most areas from Fukushima City and Koriyama towards the east have measurable levels of radioactive cesium. A large swath — 15-20 km wide, extending from the reactor site to 50 km to the northwest — is very highly contaminated, with levels that are certain to lead to long-term ecological consequences. In fact, we have already demonstrated impacts to birds, cicadas and butterflies.

"The reading on our Geiger counter in front of our hotel in Koriyama in July 2011 was above 2 microsieverts per hour, and rising. This was a big shock for us as we had not expected such high levels in the downtown area of this large metropolitan city with more than 300,000 inhabitants."

He concludes: "Based on our previous work in Chernobyl, chronic exposure to this level of contamination is associated with many deleterious consequences for wildlife including elevated mutations rates, developmental abnormalities, tumors, neurological impairment, reduced fertility, and reduced longevity.

"The areas of high contamination are confined to Fukushima Prefecture, but contamination has been detected in Tochigi, Ibaraki, Chiba, Tokyo, Miyagi, Yamagata, Niigata, Gunma and Nagano prefectures, among others. ... In terms of deposition onto land, the Chernobyl event was considerably larger with an area exceeding 200,000 sq. km ... . However, very large amounts of contaminants were released into the ocean around Fukushima, and the size and impacts on marine systems are largely still unknown."

As someone who has been studying Russian affairs for 50 years, having made my first trip there in 1964, I strongly believe that the aftereffects — ecological, economic, political and psychological — of the Chernobyl accident constituted a prime factor in the fall of the Soviet regime.

The Liberal Democratic Party, ahead in the polls for the election on Dec. 16, is dedicated to the restoration of nuclear energy. Attempts to whitewash the potential harmful effects of radiation on the land and sea are a critical tool in the strategy to mollify antinuclear sentiment in this country.

Prof. Mousseau said to me, "Our second year of sampling in Fukushima in July

2012 suggests an increase in negative effects on animals living in the areas of high contamination, so it is imperative that these studies continue."

I would like the politicians touting the virtues of nuclear power to look at the congenitally deformed piglet in Kiev. That little pig brought down a corrupt regime.

Something similar might happen here. If I were a member of the nuclear lobby or a politician in its greedy sway, I would fear the wild boar roaming the lands of Fukushima more than anything.

If we give leaders a free hand in this, we who live here will be sold a pig in a poke — and a deadly one at that.

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