TRULY GREEN?

How Germany's 'Energy Transition' is destroying nature

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About the author

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Are Wind Power and Biofuels Really Green?

How Germany's 'Energy Transition' is destroying wildlife and forests

Michael Miersch

It is one hundred years since the Russian Revolution, known officially in communist countries as 'The Great Socialist October Revolution'. The one time I visited East Germany, a friend there said, 'the name contains four lies'. First, it wasn't great. It was a coup, led by Leon Trotsky, that took place at night, so that most inhabitants of St Petersburg didn't even notice. Second, it wasn't socialist, at least not in the sense that it brought freedom and prosperity to the working class. Third, it wasn't a revolution, but instead – as I said – a night-time coup by an armed militia, which occupied strategically important buildings in St Petersburg. And fourth, it didn't happen in October but, according to the Gregorian calendar, in November.

Today, whenever I hear the phrase 'green energy', I think of this old joke. In Germany, electricity from wind power and biogas is called 'eco-power', 'bio-power' or even 'natural electricity'. These names contain many lies too, and I would like to tell you about them.

First though, there is another parallel between green energy and the Russian Revolution. The communists promised the workers everything and gave them nothing. Anyone who was not ideologically blind could see that the workers in western capitalist countries were much better off than their counterparts in communist eastern Europe. The German Green Party was founded in 1980. The Greens promised to save nature. They wanted to be the protectors of forests, birds and rivers. But their policies have led to the most widespread destruction of nature in Germany since the Second World War. No industry consumes as much land as the generation of 'natural electricity'. Without the pressure from the Greens and their friends in the environmental NGOs, the German governments of chancellors Helmut Kohl, Gerhard Schröder and Angela Merkel would not have pushed the expansion of wind power, bioenergy and solar energy as much as they did. As our former Minister of Agriculture from the Green Party, Renate Künast, once said: 'Farmers will be the oil barons of the future!' She and her party pushed for massive subsidies for growing energy crops. The destruction of nature by the land-hungry wind and biogas industries is the opposite of what the environmental movement used to fight for: just as the communists made workers unfree and poor, the Greens have destroyed our landscapes and killed millions of birds and bats.

Before I take a closer look at the situation in Germany, let us consider the global consequences of this energy transition. Climate change supposedly leads to a loss of biodiversity. That's what we read all the time, but it's not clear that this is really true. 'A warmer climate will certainly not lead to a major global dying out of species', says the German biologist Josef Reichholf. 'The real danger to species diversity is the

continuing destruction of tropical rain forests'.

Two well-known observations from nature weigh against the idea that species will go extinct because of climate warming. First, biodiversity increases from the poles to the equator. The warmer the temperature, the greater the biodiversity. We see the lowest biodiversity at the poles and at very high altitudes, where it is also cold. Second, when we look at the Earth's history, the warm periods in the past were always the most species-rich. During each of the ice ages, the variety of plants and animals decreased.

I do not want to play down the danger. There are indications that climate zones are moving faster than species can adapt. However, we don't have the data yet to prove it. What we do know with absolute certainty is that climate change is *not* the main cause of species loss today. Much more important and destructive are the conversion of uncultivated land into farms, the clearing of tropical forests, the overfishing of the oceans, and the over-fertilization of soil in our intensively used agricultural areas.

The one and only result of global warming that acutely threatens to wipe out many species today is the promotion of biofuels, and this is ostensibly motivated by concerns to protect the climate. Fuels made from rapeseed, sugar cane, reed grasses or palm oil are considered climate friendly, because they release only as much carbon dioxide when they burn as they consume when they grow. But when our environmental policies are almost exclusively fixated on climate issues, the side effects of growing energy crops are ignored. In order to meet European demand for biofuels, rainforests are being cut down in Indonesia and Malaysia.

The polar bear has become a symbol of climate change. Fortunately, the number of polar bears in the Arctic has increased over recent decades. Today, there are more than 30,000, significantly more than 50 years ago. If the polar bear is the symbol of global warming, then the Sumatran rhinoceros is the symbol for climate protection gone wrong. It is the smallest of the five rhino species. Only between 100 and 200 individuals still exist, scattered across Sumatra, Borneo and the Malay Peninsula. The forests where they live are among the most species-rich on the planet. In captivity, the Sumatran rhinoceros is extremely delicate. Attempts to breed them in zoos have had very little success. Time is running out: its habitat is rapidly disappearing. Nowhere in the world is tropical forest being destroyed as quickly and extensively as in Southeast Asia.

And the cause of this destruction is the growing demand for palm oil. The jungle must disappear for oil palms to be planted. In Indonesia, between 2000 and 2012, 60,000 km^2 of forest were cut down. Almost all of this has been converted to palm oil plantations. The country has lost one fifth of its forest area since 1990. According to the FAO, Indonesia is losing 5000 km^2 of tropical forest every year. As a result, the country releases 2.6 billion tons of carbon dioxide annually – more than the emissions from Germany, France and Great Britain combined. This makes Indonesia the world's

third largest greenhouse gas emitter, after China and the United States. In 1998, the skies over Southeast Asia were darkened by thick clouds of smoke. In the Malaysian capital, Kuala Lumpur, people wrapped wet towels around their mouths just to be able to breathe. Burning of the forests on Sumatra to clear land for oil plantations had got out of control. Forests were on fire simultaneously across an area as large as Belgium.

Palm oil is an important source of biodiesel, a fuel that is supposed to help us save the climate. Since 2009, up to 7% biodiesel has been added to conventional diesel fuel in Germany. This blend is called 'B7' and it is the standard for diesel engines today. Across the entire EU, over 99% of all diesel sold is B7 blend. In its defence, the biodiesel industry argues that the majority of palm oil is not harvested for fuel. This is true: palm oil is also one of the most important raw materials for the food and cosmetics industries. About half of all supermarket products contain oil from the tropics, according to research by the WWF. Palm oil is added to instant noodles, canned soup, frozen pizza, candy bars, margarine, lipstick, soap, shampoo, skin lotions and laundry detergents. But it is the additional demand for biodiesel that has accelerated rainforest destruction. In 2016, a study by the German Federation for Nature Conservation and a group called Transport and Environment found that the amount of palm oil used in the EU for biofuels grew by a factor of seven between 2010 and 2014: from 456,000 tons to 3.2 million tons. Forty-five percent of all palm oil used in the EU is pumped into fuel tanks. Six years ago it was just 8%, according to the study. At the same time, the share of palm oil used for food, animal feed and industrial products has dropped.

In April 2017, the EU Parliament adopted a resolution to limit imports of palm oil into the EU. Beginning in 2020, biofuels sold in the EU must not contain any palm oil. How well this can be controlled in Indonesia and Malaysia is unclear. Thousands of new palm trees are still being planted there every day – often on land previously occupied by rainforests. Some of these new plantations are as large as one of the states in Germany.

Today, most people are aware that growing oil palms for biodiesel is a problem. What they are not aware of is how some of our other sources of alternative energy also have negative effects on nature, for example the effect of solar power on birds. In the California desert, a solar power plant operated by the company BrightSource Energy has been in operation since 2014. It has 300,000 reflector panels, each the size of a garage door. Environmentalists tell us that up to 28,000 birds are killed by this power plant every year. They are literally roasted to death by the powerful rays reflected from the mirrors. Apparently, some birds are confused by the shining surface and mistake it for a lake.

In Germany, too, there are some very large solar power plants. A solar farm covering 48 hectares with shiny metallic panels is located in the hills of the Franconia

region. The local chapter of the Green Party had a problem with this, because the solar farm is located in a nature reserve. But the politicians in the Green Party agreed to the construction of the plant because to them, saving the global climate was more important than saving nature in the region.

But it is the wind industry that has the strongest impact on the German landscape. And not just on the landscape, but on wildlife as well. Germany is not a country with many endemic species, unlike Indonesia or Brazil. So the extermination of a species in Germany does not usually mean they will disappear from the Earth, as appears likely for the Sumatran rhino.

That's the good news. But there are exceptions. The most famous of them is the red kite. More than half of the global population of red kites breeds in Germany, a total of about 15,000 pairs. One of the leading ornithologists in the country, Oliver Krüger, says 'it does not look good for the red kite'. He also says, 'we have a special responsibility for the red kite'. Professor Krüger carried out the so-called 'PROGRESS' study for the Ministry of Economics and Energy, the most comprehensive so far about the conflict between wind farms and bird life. Unfortunately, the ministry posted the results of the study on the Internet in complete silence, without a press conference or a single mention by the minister.

The shot that marked the beginning of the red kite's downfall was fired on 1 January 1991. It was fired by the German environment minister at the time, Klaus Töpfer, a member of the Christian Democratic Party. 1991 was when renewable energy feed-in tariffs came into effect, later enshrined in the renewable energy law, usually referred to using its German acronym, EEG. The law guaranteed that, from 1991 on, anyone who invested in wind power or biogas plants would receive a highly subsidized price for their electricity for 20 years. The law set off the most dramatic changes in the German landscape since World War Two – slowly at first, then very noticeably, and finally faster and faster. Today about 28,000 wind turbines defile the face of Germany, from the North Sea to the Alps, from the Black Forest to Berlin.

Because politicians and investors want to avoid long legal battles with local communities and residents, they are planning to site more and more of their large wind farms in forests. In Baden Württemberg, in southwestern Germany, where the famous Black Forest is located, the state environment minister, Franz Untersteller, announced that 'we are going to build wind parks in forest areas far away from residential buildings.' 1200 turbines have now been constructed in forests. The newer turbine models, such as the 'Enercon E126', are 200 m high, with a rotor diameter of 127 m. To build one of these towers, more than 5000 m^2 of forest must be cleared.

If investors from any other industry had scarred natural areas and remote forests in this way, there would have been a political scandal. In the meantime, however, politicians of all parties are working to weaken German conservation laws, in order to allow wind and solar farms to be built in every last unspoilt corner of Germany. Wind

power has an enormous need for space. For example, to replace a single coal-fired power station, such as the Moorburg power plant in Hamburg, the entire area of the city-state would have to be covered with turbines.

An even more land-hungry form of energy is the cultivation of maize for biogas plants. Maize monocultures totaling 2.5 million hectares dominate the landscape in many German regions today. This is an area the size of Sicily. According to Torsten Reinwald from the German Hunting Association, 'the past 30 years have seen a 22-fold increase in the area under maize cultivation'.

This mass of maize is not only used for biogas production, but for animal feed as well. But energy crops alone are using 1.5 million hectares of land. No hamsters, hares, butterflies or wild bees can survive in the barren ecological desert of a maize field. Field larks no longer sing, lapwings no longer call. Buntings, quail and wagtails all disappear. Partridges were once the typical inhabitants of the German agricultural landscape, a common sight on Sunday afternoon walks. Since the 1980s, their population has collapsed by 94%. Other bird species typical of agricultural areas have seen declines of between 20 and 50% over the past 20 years.

'The bitter truth is that we cannot yet demonstrate an impact of climate change on biodiversity, but the effects of climate and energy policy have been dramatic', says Martin Flade, an ornithologist and the publisher of *Die Vogelwelt*, Germany's leading magazine on ornithology and birding. He says that 'the main problem in nature and species protection is the intensity of agriculture'. While there used to be more fallow land than land used for maize, now it's the other way around. Flade says that 'this has an immediate effect on the population of breeding birds'. Today, the ratio of maize area to fallow land is 20 to 1.

In 2013, Flade received the annual award of the German Ornithological Society for his work. In the award statement, the society said: 'As a result of the rash and hasty expansion of renewable energy from agricultural biomass and wind power, the populations of almost 50% of all bird species have significantly decreased'. But it's not just birds that are affected. So are fish. There are 9000 biogas plants in Germany, which are regularly subject to breakdowns. In some of these cases, toxic slurry has spilt into streams, poisoning the water for many kilometers downstream. The result has been the mass killing of trout and other freshwater fish. Whole populations have been extinguished. Unlike other toxic spills, none of these incidents are systematically recorded.

On top of all this, it's not even certain that growing plants for energy creates any benefit for the climate at all. The biologist Josef Reichholf says that the energy used to create the fuel is much higher than the energy contained in the fuel itself. Only with massive amounts of fertilizer can a maize seed grow into a plant, 3 m tall, in just a few months. That fertilizer is usually liquid manure. The energy and carbon dioxide balance for biofuels does not take this fertilizer into account. The destruction of rain

forest in South America also isn't included in the balance. Brazil and other countries in South America grow the soy used to feed the livestock that produce the manure. Unlike an oil spill or an accident at a chemicals plant, the expansion of maize farming and the wind industry does not happen suddenly, but stretches out over years. That's why most people do not notice the ecological disaster unfolding around them. Nevertheless, the impact of these changes is much greater than that of any single sudden disaster, because the changes take place almost everywhere, and cover very wide areas.

Most German states want to reserve 2% of their land area for wind power. That doesn't sound like much, but the figure of 2% only refers to land covered by the rotor blades. The area in which birds are affected will be many times larger. According to the government bird protection observatories, there should be a 6-km buffer between a wind turbine and the nest of a lesser spotted eagle (a very rare species in Germany). In theory, not a single new wind turbine should therefore be built in the entire Vorpommern region in northern Germany, where many of these eagles breed. But nevertheless they are being built: Building on 2% of Vorpommern would therefore be an appalling threat to the species: 'Two percent of the area can destroy 100 percent of our landscapes', says Harry Neumann, president of the Nature Conservation Initiative.

The ornithologist Klaus Richarz was commissioned by the German Wildlife Foundation* to examine the effect of wind power in forest habitats. For 22 years, Richarz headed a Bird Protection Observatory covering three German states. His study proves that we have an urgent problem. The rotor blades of a wind turbine have a radius as long as a football field and rotate at 300 km/h. Against these huge propeller walls, red kites and other birds don't stand a chance. The rotor blades hit large birds, such as storks, raptors and ducks, particularly often. 'Birds of prey', says Professor Oliver Krüger, 'are relatively rare, need large areas, but collide disproportionately often.' The problem is getting accurate numbers, since foxes, rats, wild boars and other scavengers remove the bird corpses at night. However, it is estimated that 12,000 birds of prey are killed by wind farms every year. For the number of *all* birds killed by the German wind industry there is an extrapolation from Hermann Hötker, an ornithologist at German Foundation for Nature Conservation.† He estimates that each turbine kills between one and five birds per year, meaning between 28,000 and 140,000 fatalities in total.

Wind power lobbyists say the numbers are small compared to the millions of birds that collide with windows, cars, power lines and other obstacles. But this is a fallacy, because the argument ignores which species are affected. If ten city pigeons fly into windows or cars, it has no effect on the population of pigeons. But when a breeding

* *Deutsche Wildtier Stiftung.*

† *Naturschutzbund Deutschland.*

red kite is chopped up by a rotor blade, it represents a significant loss for the species in the region. If one red kite is caught in a rotor every eight years, then the 28,000 turbines in existence at present will kill 3500 birds. In a total population of only 15,000 breeding pairs in Germany, that's a dramatic loss.

According to a 2013 study commissioned by the Brandenburg State Environment Office, rotor blades killed about 300 red kites each year in this one state alone. If the German climate protection plan is implemented as planned and the number of turbines is doubled, the red kite could soon be extinct in Germany. The plan would mean one turbine every 2.7 km on average all over Germany, each one 200 m tall, without regard for landscapes, lakes, mountains, forests or cities. The PROGRESS study showed that even a widespread raptor like the common buzzard would be threatened if wind power is expanded as planned.

Birds that aren't killed by the rotor blades are often driven away. One of these wind power refugees is the black stork, a very shy forest bird. When 170 turbines were installed in the Vogelsberg region in the state of Hesse, nine of the 14 pairs of black storks in the region simply disappeared.

If the argument that windows and other obstacles kill even more birds is very misleading, when it comes to bats the argument is completely wrong. Since bats use ultrasound to navigate, they almost never collide with any barriers. They can even fly through spinning rotor blades without getting hit. But even so, they fall dead from the sky. The cause is barotrauma: Their lungs burst because of the pressure drop behind the rotors. This happens to about 240,000 bats each year. The actual number is probably much higher, because they often fly a little longer before they die and their little cadavers are eaten.

Whenever there was a construction project in Germany such as a motorway, bridge, airport, office park or residential building, the presence of a bat colony could hold up the project in the courts for years, or prevent it altogether. Yet when the wind industry kills masses of these animals, there is no such outrage. The supporters of the German energy transition brush aside all collateral damage to the environment, such as dead bats, with the argument that global climate disaster must be prevented.

The Green ex-minister in the state of Rheinland-Pfalz, Evelin Lemke, justified the destruction of a forest by a wind farm in her state with the words: 'Without protecting the climate, we will have no more biodiversity at all.' Saving the world seems more important than the nature at our doorstep. With wind power, solar farms and biogas, Germany is supposed to lower its carbon dioxide emissions and slow down global warming. But so far, this has turned out to be wishful thinking. Despite the rapid expansion of alternative energy and nearly €30 billion in subsidies every year via the feed-in tariff scheme, we are not seeing any reduction in carbon dioxide emissions. On the contrary, they have increased slightly, because Germany has switched off emissions-free nuclear power plants. And every time the wind doesn't blow and

the sun doesn't shine, the electricity companies have to fire up their coal power stations to prevent a blackout. ?

The more dubious our energy transition becomes, the more we find nature-loving people becoming active in the fight against landscape destruction and bird killing. There are already 1000 grassroots initiatives campaigning against wind power. Not everyone involved cares about protecting birds. Some are afraid that their homes will lose in value when they're surrounded by gigantic rotors. But many no longer accept the destruction of our beautiful historic landscapes.

However, as this resistance grows stronger, the methods employed by wind power investors are becoming less savoury. Trees that contain the nests of protected birds – such as the red kite or lesser spotted eagle – are being cut down illegally. That's because a new turbine would not be permitted near such a nest. Just look through German regional newspapers and you'll examples of these crimes all over the country. Eight incidents were reported to the German Wildlife Foundation in only one year.

The reason of course is money. Lots of money. A lease payment from the owner of the turbine to the owner of the land could be as high as €80,000 every year for 20 years. (This money is ultimately paid by consumers via their electricity bills.) If a forest owner has land for ten turbines, they can receive a windfall of €16 million.

That kind of money leads to criminal actions. The German Wildlife Foundation has therefore proposed a policy that puts a ten-year ban on wind farm construction in areas where the nest of a raptor has been destroyed. A similar rule worked well in Sicily, where the mafia stopped burning forests after a law introduced a fifteen-year ban on construction after any forest fire.

The expansion of alternative energy is wreathed in a sense of urgency. In the face of all the frightening scenarios of future climate change, pointing out the environmental consequences of wind farms and biogas plants seems petty and secondary to most people, as if we wanted to stop the fire truck from coming to the rescue just to help a few wandering toads. Yet with no other technology do Germans accept the destruction of nature as they do with wind power. If dead eagles and kites were found next to chemicals plants or nuclear power stations, the public reaction would be fierce and furious. In 1962, the start of the environmental movement was marked by a book about birds of prey: *Silent Spring*, written by the American biologist Rachel Carson. She argued that the excessive use of certain pesticides had pushed America's national bird, the bald eagle, to the brink of extinction. Despite this, in Germany today we are allowing the red kite to be destroyed by an industry that claims it is protecting the climate but in reality is merely promoting its own interests.

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