Conservation biologists have long studied many different kinds of risks to endangered species: Risks from climate change, or from habitat fragmentation, or from having small populations for extended periods of time. But there is another key component of risk that has not been analyzed yet, but may matter as much or more to many endangered species: political risk. That risk – what we call "political extinction risk" – remains generally unstudied and unexamined.

Policy to conserve endangered species and their habitats is necessarily a political decision, made by political actors. That is true even for private conservation efforts, since they require public support – whether it is legal changes to allow conservation easements, or tax breaks to support donations of conservation easements. That means changes in political environments might result in substantial changes in conservation policy, which in turn could help (or harm) endangered species. For instance, the Trump Administration has proposed eliminating protections for species listed under the Endangered Species Act (ESA) from habitat modification. And there continue to be arguments made in court that applying the ESA to protect habitat for at least some listed species is unconstitutional.

To demonstrate the importance of political risks to species conservation, Berry Brosi (University of Washington) and I studied one plausible scenario – a repeal of the habitat modification and hunting protections of the ESA for listed species on private lands. (Indeed, the habitat modification repeal is precisely what the Trump Administration is proposing to do.) Our analysis came out this week in the journal Conservation Letters. How big a deal would such a change be?

To assess that question, we needed to understand what the "backstop" for a loss of federal protection would be — in the United States, this backstop is state protection of endangered species and wildlife. All states have some form of wildlife law that restricts hunting, and most states have some form of endangered species protections. But those protections vary between hunting and habitat modification, and also vary by species. States do not necessarily protect all ESA-listed species. We coded protections at the species level for all states as of June 2018.

We then compiled location data for all known occupied habitat patches for ESA-listed species as of the summer of 2018. We assumed habitat patches would remain protected against hunting and habitat modification on federal lands, where the ESA would still apply. We also assumed that patches located in a state that protected a species from habitat modification or hunting would remain protected even after federal repeal.

The result? It turns out there is greater protection at the state level against hunting of ESA-listed species than habitat modification – perhaps not a huge surprise given the long history of wildlife law in many states that restricts hunting activity. For ESA-listed species threatened by hunting, 64.3% of habitat patches remained protected, while for species threatened by habitat modification, 57.6% of habitat patches remained protected.

But that gap understates the difference between protections for habitat and from hunting, because there is a lot of variability across species. While 46% of species threatened by hunting had 95% of their habitat patches protected from hunting even after ESA repeal, that was true for only 23% of species threatened by habitat modification.

The variation is also stark at the state level. We assessed the average level of protection for species within each state. Twenty-two states protected an average level of 75% of habitat patches across species from hunting, while only eight states achieved a similar level of average protection from habitat modification.

Our results highlight the critical importance of state-level protections for species – whether from hunting or habitat modification, whether through wildlife laws or endangered species laws. Conservation biologists have long undertaken “gap” analyses that examine whether and how many species, ecosystems, or habitats are not protected. But gap analysis often assumes that at least one level of protection is sufficient. Our analysis highlights the importance of resilience (the ability of protections to resist political change) and redundancy (the existence of multiple levels of protection) in conservation policy. States with robust wildlife and endangered species laws will protect more species from harm in the event of a rollback of federal protections. And in a time of significant political upheaval, that kind of redundancy of protection may be invaluable.

Finally, our study highlights the need for this kind of analysis more broadly – across species and countries – to understand how fragile existing conservation policy is, and what can be done to make it more robust against the inevitability of “political extinction risk.”