This tweet, arguing that it's "an open secret at this point that environmental activists try to invent fake 'endangered' species to block infrastructure projects they don't like" got a lot of traction. But is it correct? It turns out that a paper I did (with Berry Brosi) about 15 years ago provides some insights into the claim.

In our paper, we drew on data that the US Fish and Wildlife Service (FWS) and National Oceanic and Atmospheric Administration (NOAA) – the federal agencies that implement the Endangered Species Act (ESA) – compiled about species listed for protection under the ESA. In particular, the agencies identified whether species were subspecies or not, whether protecting the species would create conflict with development projects, and the level of threat (i.e., how endangered) they assessed the species faced. We then identified whether species had been listed because environmental groups either had petitioned for the listing of the species or had sued the agency to force the listing of the species.

Given our data, we can assess whether species that environmental groups were the motivating reason for listing ("citizen-listed species") are more endangered, more likely to be subspecies, and more likely to produce conflict with development. Which gives us some traction to assess the claims in the tweet that environmental groups (as opposed to the agencies, which are subject to greater political control in the Executive Branch) are acting strategically here.

But what is the specific claim in the tweet? First, what are "fake species"? It's a little hard to identify what species might be fake or not, in part because taxonomists often have significant debates over how to divide up different populations into species or subspecies. But it is plausible that there is more room for debate at "lower" taxonomic levels – for instance, it is more easy to identify "fake" differences among different populations to make them subspecies, since there is more judgment to be used in drawing those distinctions compared to full species. That might be even more true for "distinct population segments," which can be listed under the ESA even if they are not a subspecies (so long as they are members of a vertebrate species).

So is it the case that citizen-listed species are more likely to be subspecies than species listed at the initiative of the agency? It appears so – of the 388 agency-listed species in our database, 14.9% were subspecies, while of the 541 citizen-listed species, 23.4% were subspecies. Not the largest difference, but some difference. (And as we note in our article, the difference is statistically significant.)

Another part of the claim about “fake” species is that environmental groups strategically use the listing of “fake” species so they can then use the ESA to block development projects. So is it the case that citizen-listed species are more likely to produce conflicts with development than agency-listed species?

Again, the answer appears to be yes. Of all citizen-listed species, 26.6% presented conflicts with development, while 17.5% of agency-listed species had conflicts with development. However, again that the difference is not that huge (though it is statistically significant).

But the key goal of the ESA is to protect species that are threatened with extinction. Unless you believe the purposes of the ESA are misguided (which does not appear to be part of the original claim), we want all species that face serious threats to receive protection, whether they are species or subspecies, and whether they present conflicts to development or not. In other words, even if environmental groups are strategically identifying subspecies or populations for protection, if those groups are under serious threat, we might want to protect them.

And it turns out that citizen-identified species do face higher threats at the time of their listing than agency-identified species, with 75.8% of citizen-identified species in the highest threat category, and 65.6% of agency-identified species in the highest threat category. As with the other two comparisons, the absolute difference is not that large (but it is statistically significant, as with the other two).

Similarly, citizen-identified species that conflict with development face higher threat levels than agency-identified species that conflict with development. Of citizen-identified species that face conflicts with development, 84.8% are in the highest threat category, while for agency-identified species only 73.5% are in the highest threat category. Again, not a huge absolute difference, but something.

But there’s another angle here – which is not articulated in the original tweet, but is a real possibility. When you divide a species up into subspecies and populations and seek to list them, you are necessarily asking for the listing of groups with a smaller population size than the original species. After all, the subspecies or population is a subunit of the species as a whole! So perhaps what environmental groups are doing is identifying subspecies or populations with small population numbers that can obstruct development projects, and because those subspecies or populations are subunits of larger species, they have fewer individuals and thus face greater threats. Would that explain how environmental groups identify more

species at higher risk than the agencies? If so, this would provide support for claims of strategic behavior by environmental groups – they are not really identifying species, subspecies or populations that require population, but are simply subdividing larger units into smaller ones to drive strategic listing decisions.

We can first see if subspecies listed under the ESA face higher threat levels on average than full species. It turns out, from our data, that this is not the case – of the 185 listed subspecies, 65.6% are in the highest threat category, while of the 788 full species, 72.6% are in the highest threat category. Not a large difference, but it cuts against the possibility that "fake" species are being created that are artificially at risk because they are artificially small subdivisions of larger species. In other words, if there is a difference in threat level between citizen-listed species and agency-listed species, the difference is not a result of environmental groups purposefully listing more subspecies or populations with fewer individuals.

Finally, citizen-listed subspecies do face higher threats than agency-listed subspecies, with 71.7% of citizen-listed subspecies in the highest-threat level, and 58.6% of agency-listed subspecies in the highest threat-level. In other words, citizen-listed subspecies do appear to be at higher risk than agency-listed subspecies.

It's hard to truly test the hypothesis in the tweet, because one would need to understand what a "real" species is, and then determine whether environmental groups are listing fewer of those proportionately than agencies. But the data above provides support for some key points, at least up through 2008:

Environmental groups are more likely to list subspecies, species in conflict in development, and species that face greater threats, than the agencies that run the ESA. But it is also the case that the fact that the species listed by environmental groups face higher threats is not simply because environmental groups are listing more subspecies or populations. Instead, environmental groups do appear to be identifying species at greater risk than the agencies.

Should we change the ESA to deal with a "fake species" problem? At least as of 2008 (when our data collection ended), if such a problem existed, it was not driving major differences between the agency and outside groups in identifying species for listing. It is possible that the dynamic has changed since then (though the example highlighted in the tweet relates to the listing of the snail darter in the 1970s). And even if the problem is not large numerically, we may still think it is serious enough

to warrant change.

Some notes about our data: Our data does come from the agencies, so there isn't a question of outside groups manipulating the threat assessments to make their actions look better. We also validated the agency threat assessments with an assessment of species threats by this organization that maintains data on native species in the US, and got similar results. Our data is compiled for only the species that are listed. That creates a possibility that environmental groups have to petition many more species in order to list a single species than the agency. We did compile data on the success rates of environmental group petitions to list species versus agency listing of species the agency itself nominated for listing, and it turns out that environmental group petitions in our study period are more likely to result in a listing than agency nomination of a species for listing.