

GUEST SPEAKER: Morning, governor. As you're well aware, how best to prevent or compensate for wetland destruction is a crucial and contentious debate here in Oregon at the moment. However, a local watershed advocacy group currently recommends new methodology for calculating the value of these wetlands. I'm eager to share what I see are the pros and cons to this method.

First of all, I'll explain a little bit about how it compares to our current tactics that we're using. Then I'll discuss some major critiques. And then I'll conclude and wrap up with my thoughts and recommendations.

So the current system we have right now, we require three acres of wetlands to be created for every acre that's destroyed. People have complained that this really hinders development and that there's little room for creating these new wetlands right now. Landowners, particularly farmers, have started a system of mitigation banking, where they turn acres of their land into wetlands and then sell these acres to developers who use it as compensatory wetlands, or essentially wetlands credit.

The main problem with this system is that it's unclear whether these new wetlands are really functioning how they should be. Wetlands execute a number of ecosystem services like water storage, carbon sequestration, water filtration, services that are particularly beneficial for humans as well. So it'd be a better approach to look specifically at these services to recognize what we would have to replace.

So this new system would require adding up the total value of what these ecosystems' services are worth to humans in monetary terms. As they aren't currently bought and sold on the market, this evaluation process can be challenging. But a mixture of different processes can be used.

We can use market goods as a proxy. For example, flood barriers can cost up to around \$15 billion, while coral reefs do this naturally for free. So it provides a comparison. We can look at revealed preferences, like seeing people, if they travel to x place to see nature, it gives a sense of their value, but also using hypothetical markets like measuring people's willingness to pay.

Using this process, Robert Costanza and his team calculated that ecosystem services are worth \$142.7 trillion annually in 2014 US dollars, which is a profound number to really show

how these ecosystems, or services are of value. Of course, there are many critiques and arguments for why this is not a really applicable process. Critiques specifically to the framework of method, first of all, include that the economic assumptions are usually inappropriate.

It assumes everyone is always trying to maximize a personal utility function and assumes that goods are substitutable, which is not always the case. Also, there's an issue with discounting. It's problematic to assume that ecosystems in the future have diminished value. People also identify that people's ability to evaluate is flawed. People don't necessarily have a complete understanding, like what a particular soil microorganism will do.

People are also asked to put a price on things that aren't normally priced, and so it makes it a challenge to judge. Essentially, valuation methods and market schemes are not ideologically neutral. It's said they're culturally construed, so therefore, there's a risk of having high subjectivity.

Zooming out in terms of these critiques, the quantification of nature, people will say, in the first place is problematic. Valuing nature is arguably a personal and social value at the level of morals. And so therefore, no amount of money can be effectively compared.

Others will also argue that commodification induces competition, which can be counterproductive. It basically undermines the moral incentives of conservation by making it about self-interest instead. Despite these critiques and these arguments against it, I would still recommend it, though, as a valuable exercise.

Although the process itself clearly has some flaws, by spelling out all the different assumptions we make, we can perhaps not reduce the subjectivity, but can at least be transparent about the thinking that we're implying. Also in terms of the moral implications, currently with the system that we have, we're already using markets for ecosystem services with the mitigation banking procedure.

The Army Corps of Engineers has cut the cost \$45,000 to replace a acre of wetland. So in a way, we're already quantifying these wetlands. Instead, we would just be valuing the services that they provide. Furthermore, I'd argue that we should focus on the outcomes regardless of the different, differing ethical philosophies.

Economic arguments tend to be more salient. They fit with the ideological and institutional

structures in place, and thus have shown remarkable success in political recognition and spurring policy around ecosystem conservation. Currently, without valuing ecosystems in this way, in formal policy evaluations like cost-benefit analysis, we are effectively assigning them a value of zero.

So instead, by illustrating the immense value to humans, the critical need to preserve these services becomes much more salient both land owners and developers. Although Marc Sagoff shows how the back story or political rationale has been misportrayed, the parable of how New York chose to restore the Catskills Watersheds illustrates this value. Restoring, restoration cost them \$1 billion, whereas a new filtration plant, on the other hand, cost up to \$6 billion, which shows the great efficiency in natural ecosystem services.

The greater lesson, however, indicates that we should be seeking to preserve rather than always restore. This can save ourself money in the long run. As this methodology makes this message clear, I see great utility in using an ecosystem services approach. Although money is not the end-all be-all and shouldn't be, putting it in these terms creates great political agency for conserving the ecosystems depend on.