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The Nature Conservancy

For the House Agriculture Sub-Committee on Conservation and Forestry

Hearing Topic: Voluntary Conservation: Utilizing Innovation and Technology

Chairman Thompson, Ranking Member Grisham and members of the Committee

Thank you for inviting me to testify. My name is Rich Bowman and for the past 10 years I have served as the Director of Government Relations for the Michigan Operating Unit of The Nature Conservancy (TNC). Prior to that, I served for 6 years as the Executive Director of Trout Unlimited in Michigan and started my career in policy almost 30 years ago as a member of the Staff of the Michigan Farm Bureau. I am also a fourth generation farmer from Michigan and while I have not actively farmed for a number of years, my brother still manages the home farm in southern Michigan and I believe it is hard to seriously care about the stewardship of natural resources without taking an interest in agriculture and forestry.

The Nature Conservancy is one of the world's leading conservation organizations, with over 3,500 staff working in every U.S. State and 35 other countries on every continent on the planet and a mission to protect the broad array of natural systems upon which all life depends. Everyone associated with TNC takes pride in the fact that we are a non-confrontational, solutions oriented organization. We stick strongly to our values, but also recognize that at the end of the day if we haven't solved the problem, being "right" about the issue has a hollow ring at best. We also are committed to basing our work on sound science and we put our money where our mouth is. Over 25% of our staff are PhD scientists and are global leaders in their area of expertise. They challenge our assumptions and test our work to make sure our supporters resources are used on work that is replicable, meaningful and impactful.

In Michigan, we have over 50 staff and manage nature preserves and reserves totaling over 33,000 acres including a commercial forest reserve in the Upper Peninsula that encompasses over 26,000 acres. Additionally, we have helped the State of Michigan, as well as federal and private partners secure conservation on over 300,000 additional acres through easements, acquisitions and management agreements. And we have worked with many private forest and farm land owners and managers helping them improve the health and productivity of their property.

Being in the heart of the Great Lakes, TNC has had an ongoing interest in the health of our aquatic systems, and with agriculture occupying nearly 40% of Michigan's land area, how agriculture is practiced can have a profound effect on the health and function of our lakes, streams and the Great Lakes. Almost twenty years ago we started with a small demonstration project with a few growers in one

watershed in central Michigan. Today we are leading a conservation partnership in the Saginaw Bay Region in Michigan that includes the watersheds of six entire rivers, and partners with over 100 Certified Crop Advisors, dozens of agronomy suppliers and purchasers of ag products and the Natural Resources Conservation Service to eliminate any ag related water quality concern that could limit the health of the aquatic organisms in those river systems. And that is only one of dozens of projects that TNC as a whole has in Ag regions around North America and globally.

The topic today is innovation and technology and I am going to share with you three innovations we are bringing to agricultural conservation and the technology we are continuing to develop to support those innovations. I will close with a few observations about how we could speed the pace of innovation through policy.

An innovation is by definition nothing more than a new solution to an old problem. So let's start by defining the problems around which we want to innovate. They are:

1. How much Conservation is "enough"?
2. Every field is different, but how they are different matters.
3. There aren't enough "boots on the ground" helping farmers practice conservation.

How Much Conservation is "enough"?

Many of us in the conservation community have promoted as the idea that we can never have too much "conservation". Some individuals have legitimately challenged this idea by saying unlimited conservation is akin to saying if 2 aspirin are good to make ones headache go away, then 20 must be better. The real problem here is the lack of a clear definition of the conservation outcome we want to achieve and the understanding of the "treatment" to achieving that outcome.

The innovation we developed in Michigan is something we call an "Ecological Response Curve". Fisheries scientists have studied fish response to water quality for years. And starting about 15 years ago, USDA through the Natural Resources Conservation Service initiated a program called the Conservation Effects Assessment Program (CEAP). The purpose of CEAP is to specifically quantify the relationship between conservation best management practices (BMP's) and the impact those BMP's have on ecological services like water quality and wildlife. By taking the CEAP data on a practice(s) impacts on water quality and aligning it with fish community response to water quality, our scientists could draw a relationship where they could say how many acres in a watershed need to be treated with specific practices to achieve a healthy fish community; in essence the equivalent of how many aspirin you need to take to make the headache go away for a watershed. We are currently working with USDA and other partners to complete this same type of analysis for the Western Lake Erie Basin.

Our scientists were able to refine this analysis even further, in partnership with the CEAP scientists, by determining which water quality component was actually the limiting factor on the biological community on every stream segment in all of the watersheds in southern Michigan and Wisconsin. This understanding becomes key because if farmers are applying (and taxpayers are supporting) practices to reduce nitrogen, and the limiting factor is phosphorus, we can spend a lot of time and money and not solve our problem; to extend the medical analogy, aspirin is good for a headache, but maybe not very effective for heartburn.

Every Field is Different

In 2007, TNC in Michigan and the Michigan Farm Bureau held a meeting to discuss the conservation title of the Farm Bill to see where we might work together. To our mutual surprise, we agreed on almost every policy concept except one, the “targeting” of conservation programs to specific watersheds or geographies. Our colleagues from the Farm Bureau told us it wasn’t that they disagreed that problems might come from a specific area or that some fields contributed more to problems than others, it was that their members didn’t feel that the science behind targeting was field specific enough to justify giving a benefit to one member over another. This conversation became the basis for our second innovation.

The Institute of Water Research (IWR) at Michigan State University had been working with the Army Corps of Engineers to develop GIS based models to predict where sediment was coming from. We approached IWR and asked them if they could incorporate factors into the model about sediment and nutrient loads and build a tool where we could analyze the impact of specific practices on specific fields. The result is the Great Lakes Watershed Management System (GLWMS).

The GLWMS is a publicly available Web based tool that allows anyone who wants to use it to do an analysis of the changes in groundwater recharge as well as sediment and nutrient loading to the nearest body of surface water based upon the application of one or more conservation best management practices. GLWMS also has the ability to aggregate the total of those changes on a watershed or sub-watershed basis. This means our ecological response curves can tell us how much we need to do to get a healthy fishery in a watershed and GLWMS can tell us how much a specific practice in a specific field will contribute, and by keeping track of what is done it can tell us how close we are to solving the problem.

The GLWMS is currently available in four watersheds in the Great Lakes region, the Saginaw Basin in Michigan, The Fox River Basin in Wisconsin, the Western Basin of Lake Erie in Ohio, Indiana and Michigan and the Genesee in New York. The web address is www.iwr.msu.edu/glwms or simply put “Great Lakes Watershed Management System” into your favorite search engine and then go in and play around with the tool. While it takes a little knowledge of field based conservation practices, it is a relatively intuitive site.

Not enough “boots on the ground”

Early in our work in agriculture in Michigan, we funded a technician in a local soil and water conservation district office. While the technician did good work, we soon realized there was a limit to the number of farmers that the technician could talk to and we needed to increase the number of growers we could reach and influence, something within our organization we call project leverage. For many in the conservation community, I think the answer to this problem is a lot more public funding for a lot more technicians. While this works in theory, the reality of the financial limits of government probably don’t make this pragmatically unlikely.

The solution once again came from a partner, the Michigan Agri-Business Association (MABA). MABA leadership had heard about the work we were doing with CEAP, ecological response curves and the GLWMS and they approached us and suggested we partner on a proposal under the newly created Regional Conservation Partnership Program. We would bring the defined outcomes and site specific analytic tools and they would bring the boots on the ground in the form of over 100 Certified Crop Advisors who would discuss conservation best management practices with their customers, which are virtually every farmer in the Saginaw Bay region.

Additionally, we are trying to use the innovations we develop to make the “boots on the ground” we have more efficient. We used the GLWMS to pre-screen and identify fields in the watershed that have the highest potential for positive conservation impact and provide that information in the form of maps to Certified Crop Advisors so they can pre-plan their visits with their grower customers. And we are working with our tool developer, IWR and NRCS to find a way to import data from GLWMS into the application material a grower must fill out to receive cost share financial assistance from the NRCS. It is our aim to eventually have a system where the grower and his crop advisor could determine the appropriate conservation practices, apply for financial assistance and submit all the required documentation without the grower having to physically make a trip to a USDA service center.

This project is new, just initiated over the last 11 months, and is an experiment in the delivery of conservation technical assistance. It is not without its growing pains. We are managing through the suspicion of the government agency field staff of the motivations of the private sector and their commitment to “Getting it right” and the reverse suspicion of the private sector towards the government agency staff of not caring about the business realities they and their customers face and the bureaucracy of government. We are seeing these suspicions diminish as we work together to stand this project up and are confident that as we all learn about each other’s constraints we will solve future problems as they arise.

One Final Innovation

One of the weaknesses of our current voluntary conservation program is that they don’t have a mechanism to really take into account the business realities of growers. The closest we have come is land set aside programs where growers bid to enroll land and we accept the lowest bidder. This gives us the most acres for the least dollars, but simply retiring or treating acres may not solve the environmental issues we wish to address. In farm country it was commonly know that farmers put their least productive land into conservation uses and keep their best land in production, which is how they maximize their return on investment. The problem is, some of that land that is really productive may also provide significant conservation benefits, but should we pay more if we get more.

In our Saginaw Bay work, we have some non-NRCS money that we are using to incentivize farmers to put in conservation best management practices on a Pay for Performance basis. Using the GLWMS, we analyze the increase in groundwater recharge or decrease in sediment load and then offer a payment based on those outputs, (gallons of water or tons of sediment). We don’t care how the farmer farms, what we care about, and pay for, are the result of what he does. We believe that calculating the unit of output and then pricing it, is in the long run the most cost effective way to get the conservation outcomes we need.

Thank you for your attention, I would be happy to answer any questions.