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BEGIN TRANSCRIPTION

[00:00 - 00:57] Robin: Okay, he has tattoos and he's the regional director of the Center for Conservation Incentives at the Environmental Defense Fund and based in Boulder. And we're really lucky in Colorado to have a whole range of folks that are very strong in this area. And so we're going to get actually stronger in the next little bit. And Ted is going to talk about his experience in trying to develop some of these environmental markets, some of the things that he's learned along the way and trying to make the case that some of these new efforts are really worthwhile pursuing. But I'm sure he'll tell us about the downsides as well. Okay. And he's an ecologist by training and he's been working at EDF for about seven years and during those seven years, he's had a lot of experience in these different areas. But I'm not going to go into that stuff because you can probably read it on this thing. But he's worked on farm bill programs and safe harbor agreements, you know what those are. And so he'll be here afterwards and you can talk to him about that.

[00:57 - 01:33] Robin: All right. And let me just one last point is that on the 30th of November, we will be well, probably beginning of November, we'll be putting out a call for proposals for our fellows program at the Center for Collaborative Conservation. So if you don't know about that, come ask me, come ask Stacy, come ask Ted or Jill, we're all here in the front. If you're interested in that, or go to our website and just look www.collaborativeconservation.org it'll get you there and tell you about our

call for proposals and a grant program that you could apply to. All right. Very cool. So, Ted, if you would be kind enough to take us away, that would be good.

[01:33 - 02:57] Ted: All right. Thanks, Robin and thanks, Stacy and the Center for Collaborative Conservation for inviting me here to have a conversation with you today. And I say conversation because I'd rather just have a conversation rather than give a presentation, that would be a two way. And this is the third time I've done this. I was invited to guest lecture a couple of times last year, really enjoyed it and so I'm happy to do it again. And please just interrupt and have questions throughout that would be a great way to do it, I think. As Robin mentioned, I've been working with conservation centers for about ten years now, and for the most part I've worked on things like regulatory insurances, like safe harbor agreements and candidate conservation agreements, and then also a lot with the farm bill. Are you familiar with farm bill programs, any at all? Basically just they are payments to the government usually cost share payments for doing practices on private lands. So I've worked a lot with that in the past and I've come to realize the importance of sort of coupling regulatory assurances with conservation incentives to encourage private landowners to do positive things on their land.

[02:59 - 04:16] Ted: But more recently, I've gotten more involved with environmental markets and to really see a lot of potential there that we probably don't have in some of the more traditional conservation approaches. But I'm not here to say that environmental markets should replace those traditional approaches or to say that traditional approaches aren't better, even in certain circumstances, but what I will say is that just from my experience, it's forcing conservationists and people that work in conservation, people that they work with to just take a more comprehensive look at conservation in general and more holistically approach it. And so I think because of that, it gives us an opportunity to really look at what a sustainable economic system looks like. And that to me is the key part of this and the most exciting part that we could develop an economic system that would incorporate the value of nature into it. And if we could really do that, then I think we'd really transform our society.

[04:16 - 05:10] Ted: And so, I was told that when I give a presentation, I'm supposed to tell you what I'm going to say, I'm supposed to say it, and then I'm supposed to tell you what I said, [laughter] so I'm going to try to tell you. What I'm going to say is this is just, Robin asked me to talk about my experience rather than give you a lecture, I think that a lot of you will teach me a lot about this as well. And I'm sort of just learning about it because really I'm sort of learning by trial and error, but more recently, sort of trying to get into the academic aspect of learning about this. So to me, this is the main point is that markets can move society closer to a sustainable economy by offering a

mechanism to internalize the environmental costs of doing business. That, to me, is the most important part of all of this.

[05:13 - 05:52] Ted: There's a lot of different perspectives and everybody has their own perspective on that but that's kind of mine. So I'm going to give you a roadmap. I'm going to just tell you a little bit about who EDF is. Then I'll go into just kind of what environmental markets are, give some different perspectives, and then I'm going to go into some examples that I've been working on and then we can have a discussion afterwards. But please, throughout, if anything is not clear, please let me know and even if you have an interesting thought or question.

[05:53 - 07:12] Ted: So EDF is a national nonprofit organization founded in 1967, and DDT is the first issue that EDF worked on on Long Island and [inaudible] and that's what was going on with the birds. And we were the first organization basically to get DDT banned, and that was on Long Island. We have over 700,000 members. Our funding is all non corporate funding. It's all from private donors and members and I work out of the Boulder office. And our objectives. We have four programs and our objectives are all market-oriented, including the Land Water Wildlife program that I work for and the objective there is harness market incentives to encourage stewardship. The objective of the climate program is currently to really try to get some cap and trade legislation for carbon, and so they're very focused on that. The oceans program is very focused on catch shares, which is another marketplace kind of incentive tool for the oceans, put together science partnerships and try to harness the markets as an engine of change.

[07:13 - 08:09] Ted: And you may note that that is a little bit different than a lot of conservation organizations, NGOs type of approach, because when I was in school and just growing up, I was really learning that markets were bad, and especially from kind of a wildlife perspective, is where I come from. And we learned about destructive markets. Like markets for food and sport that led the passenger pigeon to go extinct and markets for hides that led the buffalo to go extinct. And so market was powerful but pretty much learned that in a negative way. But what I'm learning is that if we design them right, markets can be powerful in the other direction.

[08:10 - 09:11] Ted: And I wanted to give you some perspectives from people like I work with landowners, agencies, NGOs, et cetera. And some of the things I hear about environmental markets or some of the other synonyms like payments for ecosystem services or ecosystem services or ecosystem service markets or mitigation all these are different they're not really synonyms, but different conversations that are out there. There's a lot of different perspectives on that. What I hear from landowners a lot is, Oh, so I'm going to get paid for stuff that I was already doing? Sweet. That's a great new income source that I don't have to do anything, I just get paid more. Or now only

the good stewards that get rewarded because the farm bill programs and other programs, they tend to go after landowners who aren't up to speed and so the good landowners get upset because it's Bob next door and is doing a bad job is involved in an incentive program, not me.

[09:13 - 10:16] Ted: Corporations, if it's cheaper, I'll do it. Otherwise, I don't give a belief that he believes about that bird or whatever you're talking about, I don't care, if it's cheaper, I'll do it. And then sometimes I feel like there's this impression that environmental markets means I'm going to get let off the hook, that I'm going to be able to kind of get away with this stuff without you guys, you guys and the others, etcetera catching me. And you're not going to regulate me. Agencies often have negative impressions I often hear, Oh, great, now I got more work to do. Thanks a lot. Or you can't leave us out of this, we are the wildlife agency for this state and we have to be involved in this stuff. Or I got better things to do. Leave me alone with your fancy schemes.

[10:18 - 10:53] Ted: And then NGOs is kind of a mix of negative and positive. Some of them are like, you're just letting these companies stuff off scot free, what are you doing? You know, or kind of just seeing part of it, like, all I care about is raising more money for conservation, whatever, if this does that I'm happy. Or can't we all just get along? Payments for ecosystem services, does that mean we can all just get along now? [Laughter]. So that's some of the stuff that I hear on a daily basis.

[10:53 - 12:27] Ted: But I wanted to read you what I think is so far the best definition I really heard. And this is from Ricardo Bayan from his publication, which if you're in Josh Goldstein's class, I think you've had about it. hat he says is, the world is losing species and ecosystems because the economic system has a blind spot. It sends signals that cutting down a rainforest to grow soybeans or palm oil plantations makes more economic sense than leaving that forest intact. It says that building a shopping mall to sell iPods is more valuable than having a wetland that harbors pests and storms, filters water and provides nesting grounds for birds. Is it therefore any surprise that people take such signals seriously? It's a symptom of an economic system that has its values used here in sense of prices, wrong, it's what economists call the problem of externalities. Some values like that of a species of woodpecker or some certain ecosystem do not enter into the economic system. They are external to it, and so they're not taken into account when economic decisions are made. So to me, that's the crux of it. And so he kind of defines environmental markets as mechanisms that give nature value and force the economy to look into this blindspots.

[12:31 - 14:14] Ted: And so for the next couple of slides, I wanted to sort of compare and contrast couple of things. These are from my perspective. I hear people talking about payments for ecosystem services and also talking about markets kind of mixing those two together, to me, I'm mostly thinking of them a little bit separate. Markets on the left are things like tradable development

rights, wetlands mitigation credits, biodiversity credits, tradable pollution credits, for example, cap and trade anybody know about sulfur emissions and cap and trade of sulfur dioxide and the Clean Air Act? That's kind of what I think of as a market. Payments for ecosystem services may or may not really occur within a market such as conservation easements like the Nature Conservancy has in a sense, created a market for conservation easements by buying them. Conservation purchases, which, you know, sometimes they're made by government agencies which buy anything has conservation value. Payments for access like hunting or ecotourism. And then the farm bill payments, which are really payments for practices. They're not really ecosystem service directly. They are paying for practices which are supposed to be correlated with ecosystem services, but really it's not the same and they aren't really occurring within a market structure.

[14:17 - 15:27] Ted: And so think of those types of programs, those types of partial programs and compare those with markets. And in the government program the source of the money is from your tax dollar, and then that is used to pay for conservation or to help landowners pay for conservation. In a market it's usually the polluters that are paying. They're paying based on their impact on the environment. And then they often pass that down to consumers through a higher price. So it's either polluters or consumers that are paying. Who sets the price? Government program they're basically paying the landowner or paying a portion of the cost of a practice. So how much does it cost to graze your cattle in a different way? We'll pay you half of that. Well, the government is setting that price. In a market, the market is set by supply and demand. So those two things come into play.

[15:29 - 16:15] Ted: With the government program the buyer is a single buyer, it's the government. There's behind the scenes kind of multiple buyers, the taxpayers, the public so really, there's really one buyer for the landowner. In a market, oftentimes there's multiple buyers, sometimes there's not, but oftentimes we have multiple buyers and multiple sellers that are going together. The interaction in a program is government mediated. So it's the government who is acting in behalf of the public and discussing that with the seller rather than in a market where sometimes that's a lot more direct interaction.

[16:17 - 17:36] Ted: And the economists in the room will probably understand what I mean by this, that in my view, anyway, if you have a government program, it masks the price of a product. So you can kind of think of corn, corn is like a heavily subsidized product. Do we really pay what it costs for Pepsi that has high fructose corn syrup in it? If there were no subsidies, what would we really pay for the price of Pepsi? In a market free of those types of subsidies, in this case, conservation subsidies, then as I said before, it forces polluters, people that are having impacts on the environment to pay to cover those costs and then that's passed through to the consumer. So it tends to raise the cost of

things, but send a signal to the consumer to perhaps shift to something cheaper, if it doesn't have as much environmental impact, it should be cheaper, in a perfect world, anyway.

[17:38 - 19:17] Ted: So the World Conservation Union did a survey of experts involved in these types of markets. And these surveys interviews were in biodiversity. And so we going to go through some of the results of what they found, the potential for markets, the potential opportunities for the conservation world. One of the potential benefits is just more conservation than without offsets and offsets in this case is, probably I shouldn't use that word, everybody knows what offsets are right? Sort of? In a sense, just look at that more conservation than without the market, better outcomes by perhaps trading low biodiversity for higher biodiversity or small compromised sites for bigger sites. The opportunity to internalize externalities like I've described, basically giving greater economic value to nature and a significant new source of finance. This one is really important because how sustainable are government programs in the millions of dollars that we pour into that? When we're in debt at the same time, are those programs sustainable? This is a question I hear.

[19:19 - 20:10] Ted: For developers, they can develop better relationship with an agency. They can have an enhanced reputation, goodwill for the next project down the line. They can sometimes find easier access to capital or reduce cost of complying with the regulation and strategies or opportunities in new markets they can perhaps even become conservation bankers. For the regulators or policy people, it might encourage companies to increase conservation without requiring new rules. I'll talk about this a little bit later, getting to some examples, but this is what I'm kind of dealing with at the moment with sage grouse and oil and gas companies.

[20:13 - 21:18] Ted: New rules, new regulations are really politically hard to get in place. And so if you can get more conservation with the existing rules, then you've achieved something. Ensure development projects are planned in the context of sustainable development. So that's sort of more a holistic look at things and planning on a bigger scale and then better balancing the costs and benefits of economic development, because so often it's really just cost you're not really getting a lot of benefit sometimes. In the community, it has a potential to change the conversation from jobs versus the environment that you've heard, sure, you've heard that so many times with the spotted owl, two jobs and the environment. And that's a big--that's an important thing.

[21:21 - 22:52] Ted: The community can negotiate outcomes at a bigger scale. And third, they can basically create a baseline of understanding of what the ecosystem benefits are to the community. These markets and stakeholder groups that put them together, give them that opportunity, and then they can look at that down the line in the future and see if that's continuing or if they're losing those benefits. And so this is kind of all an abstract discussion of what ecosystem markets are. I'm gonna

get into some examples in a minute, but that will hopefully make it more tangible for you. But the keys to me are being able to measure the environmental values, so the impacts and the benefits, the conservation, being able to compare those with one another and understand what they are. That's really pretty difficult sometimes, especially with biodiversity, things that are a little more complex. And then identifying where your demand for that environmental product is going to come from or stimulating demand that it's not there. And that typically is done through some combination of regulations and incentives, sticks and carrots working in combination.

[22:55 - 23:57] Ted: So I'm going to now kind of try to talk about some biodiversity related examples that I've been working on and hopefully we can discuss these and can ask questions. This is sort of a specific type of environmental market, biodiversity offsets. And this is a definition from the World Conservation Union, conservation actions intended to compensate for the residual unavoidable harm to biodiversity caused by development projects so as to ensure no net loss. So embedded in this definition are kind the ideas of first, avoid having the impact in the first place. Some kind of like mitigation hierarchy is what it's called, so first, avoid it altogether. So if you have a rare plan on this site and you're going to develop there, just don't do it because it's a rare plan that's a place to lease.

[23:59 - 24:59] Ted: The second thing is minimize wherever you do develop, minimize that impact as much as you can. And then, and only then, offset that impact so you can try to have beneficial impact somewhere else. So that's the idea of an offset. The idea is not to replace avoidance and minimization and like the developer said earlier, get me off the hook, that would be good for a developer, right? I just pay you to do this offset somewhere and then I can just do whatever I want right here. That's not what offset is about, they are about doing those things and then only when these things are done, you're still going to have impacts. So you can try to have a no net loss, which is a difficult thing to get to by doing offsets.

[25:01 - 26:37] Ted: So let me give you an example from Texas with an endangered species called the Golden-cheeked Warbler. And this is a migratory songbird that lives in a particular state of [inaudible] in Texas. And just so happens that some of its prime habitat is on Fort Hood military reservation and the military is subject to the Endangered Species Act as well. So they can't just go and destroy these birds habitat by driving tanks around. And so what they're worried about is if we're out there doing our maneuvers and we cause a fire and the fire burns down the habitat of this bird, we might be forced to just stop. So what they wanted was a solution that would allow them to keep their military actions going if they accidentally had that fire. And so they wanted to be able to purchase conservation credits off of the military reservation on private lands that they could debit if

they had a fire. And that Fish and Wildlife Service will then agree to let them keep going, if they had purchased this conservation action ahead of time somewhere else.

[26:38 - 28:06] Ted: And so that's what we work with them to do, is we developed a mechanism where they could do that. And so what they do is they go and they put money up on private lands for landowners to manage the habitat for the bird. And in many cases, the bird isn't present unless the land is managed right. So if you stop managing it the habitat, it's no good anymore because it succeeds into something else, I think those species need sort of a fire management in a sense. Not too much fire, though, and not too little fire because you have too little fire it basically grows into a forest. So in this case, they pay landowners, they help landowners with the cost of prescribed burning and prescribed grazing. Landowners do those activities and they bank that credit. And then in case of a fire, they can debit that to keep their military operations going. And they do this in such a way that they're actually doing more off site than they would debit. So they're doing more management on the private lands than they debit, than they get credit for. They're going to get half of those credits. Does that make sense? Sort of a mitigation ratio.

[28:08 - 29:23] Ted: And this program has been independently evaluated and they've invested about \$2 million to date, I think this is over a course of about three, four years. Landowners have paid about a quarter of that, and those are the acres that they have in contracts of 10 to 25 years. And they sort of evaluated an alternative method, I'm not actually sure what that alternative method was, but probably something like purchasing the easements on the land instead of doing this ongoing management. So it's been pretty successful at driving the cost of conservation down for the military and getting a lot of things done outside of the military reservation that wouldn't normally have an incentive to do that. And by the way, they haven't actually even debited any of the credits. They've never used any of them. They want them to have in case they need to use them, but they haven't ever used them in the four years so far.

[29:25 - 30:28] Ted: So the Utah prairie dog is a endangered species in Utah. And so we thought, well, why don't we see it? Something like that for a good project could work in Utah. And so over the course of the last few years, we developed a program there and it's now being pilot tested to see if we can sell the credits. But the stick there is the ESA again, in this case, it's developers who want to develop in the town of Cedar City on top of colonies that are presently there. Currently they have to relocate those colonies to public lands, the Fish and Wildlife Service requires that they do that. And the crux of it is, though, is that they only have a limited number of take out each year. So that's based on the breeding of the animal.

[30:31 - 31:23] Ted: So the developers, if they run up against that take number, they can't develop their project, they can't build at all at the stop. And so this creates a lot of tension in the community from a lot of different angles. And these colonies that are in town, they're actually like on highway interchanges, they're next to the Walmart, they're like on the golf course, they're in all sorts of strange places and the Fish and Wildlife Service actually considers them less important colonies to the biology of the species. They've actually done a whole analysis, genetic analysis and everything of the importance of various colonies and their connectivity, etcetera, etcetera.

[31:24 - 33:15] Ted: So there's these kind of compromise colonies in town, but there's also these bigger complexes of colonies on more intact land outside of town. Land is cheaper outside of town than it is in town. So this differential land value kind of sets up the opportunity to trade these compromise colonies, which they have to relocate anyway and still do under this situation, and trade that for an offset on a cheaper, bigger, more intact colony elsewhere. So that's what we did is basically set up a mechanism that enables them to do that. And their carrot here is that it's not like they get more take, but they get the take faster so they can build on their project quicker than they could otherwise. And the buyers are like I said, developers who want to develop buildings usually and then the sellers are farmers who have the prairie dogs on their property and they do have impact on sort of the forage and that sort of thing. So that's an example in Utah. And both of those types of systems use this sort of exchange system where it's basically there's a facilitating entity in the middle that takes the mitigation money first, buys the bank, which is the private landowner, and then only once that's done then they give credit back to the landowners and they can use that credit.

[33:18 - 34:32] Ted: So the challenge that we're looking at now is whether we can do this for a species that is not yet listed. Because in this case, the stick isn't nearly as big. It's not a listed species. The companies and such aren't nearly as motivated to do something about it. So we see this kind of as a challenge, as a hurdle, to determine whether we can create this type of system where there's enough demand given that the species is not yet listed to convince, in this case, it's mostly oil and gas companies and wind energy companies to basically pay more, basically to do more conservation than they're currently doing. And in this case, the seller should be ranchers and probably all heard about ranches being developed on big fragmented oil and gas development sorts of things like that. So we have the opportunity to use that, to protect these ranches on private land from that fragmentation.

[34:35 - 35:34] Ted: So I wanted to go through this just one, this is second to the last slide here to show you what I think a missed opportunity is right now. This is what basically the BLM, Bureau of Land Management, everyone knows about the Bureau of Land Management, right? They manage

130 some million acres in the western United States and oil and gas companies lease the land and they build the oil wells on this public land. And they're required to make the companies go through this mitigation hierarchy. So first, they design how they're going to avoid the impacts and then say, how are you going to minimize? And what they're not doing right now is offsetting. So in our minds, they're missing another opportunity here to do more than they're currently doing.

[35:35 - 37:01] Ted: So let me describe what happens in Wyoming. Wyoming developed what's called the core areas approach, where they basically mapped all the sage grouse habitat and they determine what's the most valuable habitat. Wyoming is the most valuable state for sage grouse by far, and all the--I mean it's probably 50 or more percent of the population there. So they identify where oil and gas will not occur, that's basically avoidance, and within those core areas, they put tougher regulations on the oil and gas companies that say you can only develop oil pads at this density, you can only have so many roads, etcetera, etcetera, to lessen the impacts. And their way of offsetting was a little--was not really true offsetting in my mind. So what they did was they--the oil companies put up a bunch of money to create what's called the Wyoming Natural Resources, Wildlife and Natural Resources Trust Fund, which goes out and kind of acts like a farm bill program where it cost shares with landowners on different projects. So in a sense, they're sort of offsetting, but those projects aren't related to the impacts.

[37:02 - 38:09] Ted: And so in these mechanisms I described earlier, the impacts are very related to the offsets. They're measured very specifically and so in that way it's not a true market. In another way, it's very indirect. So it's not the landowners marketing themselves and saying, Hey, I got some habitat here, buy my habitat or protect my habitat and selling that to developers instead, there's this middleman that's sort of taken the direct interaction out of the picture. So I think if one, if there was a market, we could actually have oil companies competing for those credits from landowners and perhaps landowners getting better prices for what they're doing. And another way, we don't really know if the impacts are being offset in any sort of measurable way.

[38:11 - 38:40] Ted: And then in Colorado, kind of a similar approach. But the BLM is basically avoiding and minimizing, and then they're not taking into account the ability to get some additional conservation through offsetting. Oh, there's my main point again. So those were the examples. I thought maybe we could just sort of have a discussion around some of those names, that make sense?

[38:41 - 38:55] Robin: [Inaudible] [Applause]. I'm going to let Ted field his own questions and comments and whatever you'd like to say. Just how about it?

[38:55 - 39:00] Ted: And as I said, it's hard to know who your audience is and what they're going to know about this stuff.

[39:00 - 39:10] Robin: Yeah, so there's no question that's small or large just go for it. We've got an expert here so that's the way.

[39:13 - 39:38] Speaker 1: I've got two questions actually, but they're both kind of [inaudible]. Can you talk a little bit about the criteria that you use for, let's say, where you're going to offset, do offsets versus what you're losing? Just talk about that kind of criteria. That's one question. The other one is the whole valuation question. How do you come to values for these different species at habitats?

[39:40 - 41:01] Ted: Yeah, that's really--a key to all of this is making sure you understand what your impacts are on the environment and then what you're going to do to try to offset that. There's a bunch of different, what I usually call metrics for that, for different things. So in the Utah example, we basically combined planning or landscape scale planning with what we know about the biology of the species. It's a very species oriented approach. So the biologists know the genetics of that population is a very small population it's only within five counties in Utah and so they know where all of them are. And they've actually had really good science done to understand how the species moves, etcetera, etcetera. So we basically set up sites where we would allow the offsets to occur, I'm sorry, the development to occur and then sites that we want to test. So you sort of map that out. You plan that because you don't want to treat them all equal.

[41:01 - 41:09] Speaker 1: So you sort of rank them like high quality, medium quality, low quality so you know the training high for high or medium for high?

[41:09 - 42:33] Ted: We set up a whole evaluation system. So whenever a developer comes on a site, there's a tool at the division of wildlife a biologist comes out on that site and they evaluate it using this tool. It's going to rank out as either a low or medium colony. You can't develop on high quality colonies, period, that's the avoidance part. So they're going to know whether that's high or medium or a low or medium colony. They do the same thing on the conservation site. And that's basically a formula to develop the value of a credit or how many credits the developer needs to purchase. So I got two acres on a low value colony, [inaudible] versus two acres on high value colony, I need to purchase more. And then we know the same on the receiving end on the conservation end. So that's all sort of compiled before the credits are sold so you know how much basically credit you have to sell. And your other question was basically the science that goes into the--

[42:35 - 42:42] Speaker 1: For example how do you put a value on the prairie colony or on the sage grouse habitat or on existence value?

[42:43 - 43:48] Ted: There's no economic value put on it. So that was something that was kind of--I remember in our group we had people dog doesn't have an economic value you know it's just priceless. It's the prices. But what the economic value comes is the supply and demand. So hopefully what we're hoping for is that when we put these credits on the market, that there'll be enough demand to pay for what it costs to conserve it, plus what it costs to administer the program. If we don't get to that point, then our system really hasn't worked, probably because there's not enough demand for those credits. So we've got to know if developers and that's the test that we're doing, is basically to see if there's enough demand for those developers to purchase those because they're going to pay a lot more than what they're currently paying.

[43:49 - 43:58] Speaker 1: And so the number that you're asking developers to pay is based on the costs of--the programmatic cost of conserving the species [inaudible]?

[44:02 - 44:39] Ted: It's partially based on what it costs to conserve it, in this case in a conservation easement. So the facilitating team went out there and bought a conservation easement. They know how much that cost plus \$200,000. They also know how much it costs to administer the whole program. And they're going to set when we do an auction, we're going to auction these credits. And when we do an auction, they're going to set a minimum reserve price because they know the minimum price that they can take before they lose money. If we can get above the minimum reserve then it's an economic success.

[44:45 - 45:05] Speaker 2: So far it seems like you've been talking about programs that you've developed that focus on an element of the ecosystem, say like the sage grouse, just a piece of that, what about I mean, is there any sort of program that you're looking at that is looking at processors of the ecosystem right now? And the ecosystem is bigger.

[45:08 - 46:37] Ted: Yeah, that's a really good point. And kind of when you think about that, you can just sort of endlessly go to every single entity in the ecosystem and you just become way too complex to even deal with. So yeah, we are starting to think about putting together credits that are more ecosystem based, and there's a few people developing those. But the problem is, the main problem with doing that right now is that the drivers of these exchanges are the ESA, the Endangered Species not Endangered Ecosystem Act. So it really sets up a need for these companies to do things for that species. And so they're focused on that. And so to do something with the ecosystems is more challenging because that sort of stick isn't there. It is for wetlands. So

wetlands are sort of capped and so we have a cap in trade essentially for wetlands and companies are establishing wetland conservation banks and things. They're more, I believe, I don't know enough about wetlands, but I think they're more oriented towards acres than they are towards processes.

[46:43 - 47:07] Speaker 2: I'm definitely not a scientist, I'm afraid so. So my concern is, I'm just curious the difference in how you do between the market and the payment services and say, for example, like an enterprise because as an enterprise is based on a business model and based on pricing such that it's based on the market value and stuff like that. So when a nature-based enterprise you consider [inaudible]?

[47:10 - 47:19] Ted: What do you mean by nature based enterprise? like hunting operation on a private private land, like a hunting operation or something like that?

[47:19 - 47:32] Speaker 2: Well, for instance, I worked with a team in Kenya that make products out of jams or soaps or honey that were using a product, a raw material from nature in order to make this product [inaudible].

[47:35 - 47:39] Ted: That's more of a market than it is for payment for ecosystem services.

[47:40 - 47:40] Speaker 2: [Inaudible].

[47:40 - 48:20] Ted: I mean, what do you think? That's kind of the way I look at it. To me, the payments for ecosystem service could occur within a market or maybe not like the farm bill programs, they're just paying landowners it's not really--landowners aren't really I mean, in a sense they create--the government is the market so you can sort of look at it like that. But I kind of look at it as a market, as more of a multiple buyers, multiple sellers, both competing with competition on both ends. I don't know, I'm not an economist maybe you can [laughter] maybe you can define the market better.

[48:21 - 48:49] Speaker 2: No I just I was looking for a farm or sometimes you are using farm tools on the property where the public about general practices and that sort of thing. So I think that's kind of what you're talking about. Also noted the service and you're retaining the land for the purpose that you are giving the income for that.

[48:51 - 49:13] Ted: You know, some people would say that none of the examples I gave were even ecosystem services at all, they're kind of beneficiaries of ecosystems. Like wildlife is more like a beneficiary of ecosystem services rather than an ecosystem service itself. I mean, maybe it is both.

[49:14 - 49:31] Speaker 2: You mentioned ecotourism within the context, I was thinking, that within each of the ecotourism we have several different groups that offers [inaudible] be the same but have price variation.

[49:31 - 49:34] Ted: Yeah. I can see that. Sounds like a market to me.

[49:38 - 50:18] Speaker 3: You know this typical kind of a marketplace from government incentivization taxation still the drivers are still of take the same speed since that instance. I mean my main interest is [inaudible] to developing world. And if you're talking about a situation or a place where there might not be the kind of policy structure or resources on a level that have these sort of drivers, I mean, how do you take this sort of what--I mean where are your drivers are [inaudible]?

[50:21 - 51:28] Ted: I really don't know. I don't know the answer to that question. There's an interesting article that I read recently about that but it was in states that was basically saying that a lot of markets are being created voluntarily just because of society's interest in being green. So, you know, you might buy something with a green label over something that doesn't have that label and sort of create an incentive for companies to be greener. But as far as developing world, you know, that's the problem here and most of these things that I've been working on is, is that really when you have a regulation, all of a sudden things start happening but before that it's difficult. And in the case of the sage grouse, you know, we're experimenting with that, basically, we're trying to see if there's enough demand given that we don't have strong regulations at these companies to offset.

[51:31 - 51:48] Speaker 3: I mean, just anecdotally, talking to people about this, we've got people who are farmers who are interested in serving [inaudible].

[51:48 - 52:11] Ted: There's a potential for our target markets to be sort of international. So in other words, the demand would come from the developing country, but the seller would be not from the country definitely come up from there. Anybody else have any comments or insights on that?

[52:11 - 52:41] Speaker 2: That was mostly what I was going to say, that the developing world could be the beneficiary of offset programs, depending on, I guess the regulation like it couldn't be benefited by the Human Species Act that requires the conservation of species within the United States. But they could be by international regulations regarding, you know, gas emissions or

whatnot. It seems like some of those offset programs and definitely incentivize conservation in the developing world, even if it doesn't even if the payments aren't coming from there.

[52:41 - 52:50] Ted: And you can see how that would work with air since it's all--we're all kind of breathing the same air, but it wouldn't work with biodiversity, right?

[52:50 - 53:59] Speaker 3: Well, but if you take it one of the principles that makes these things work is some kind of effective regulation and you're operating environment doesn't have effective government regulation. One alternative and you see this in various kinds of certification programs is to have a verified third party, which is typically a developed world third party, but going to verify that either sustainable forestry is being used or erosion control is being used or fair trade regulations are being implemented so that the enforcer, so to speak and then what's driving it is consumer demand. Right, because nobody has to buy fair trade coffee, but if people want to buy fair trade coffee and if it means anything at all, you've got to have somebody going on the ground in the country where the coffee is grown saying, yes, this is fair, this isn't fair. And that's I mean--

[54:00 - 54:02] Ted: Somebody has to know the standards.

[54:02 - 54:47] Speaker 3: Yeah, there has to be some kind of standardization and some way of enforcing it. And that's what I think the third party certification people are trying to do. I mean, whether they're effective or not is a completely separate question, I think. But conceptually, that's what they're trying to do, is create a way of bringing that added value of whatever is being constructed, social equity or water resources or forestry or whatever it might be, they're trying to bring that added value into the marketplace by certifying that the producers of this product or service are in fact doing what they say they're doing, and that that's why the coffee costs a couple of bucks more pound or whatever.

[54:52 - 54:52] Ted: No.

[54:53 - 55:35] Speaker 2: Well, I was going to say there are examples of that with water and how for example, World Wildlife Fund, Vietnam, Pepsi, Coca Cola, Coca Cola bought--is essentially the buyer. And they paid local villagers to keep forest intact because they were a huge water user and they needed to have water keep flowing into their plants. So WWF orchestrated this deal where they paid small farmers to grow trees or to not cut down trees in order to keep the watershed intact, keep producing water. So that's kind of an example of the ecosystem.

[55:38 - 55:39] Ted: And that was also services oriented. Robin?

[55:46 - 56:09] Robin: I just want to build on what Moses said, most of the things I've seen overseas most of my experiences in Africa but I'm familiar with what's going on in Asia quite a bit. It looks like it's water based or biodiversity based and it's payments for ecosystem services it's kind of a deal, so that example that you gave most strikes me is not a market, but more of a payment mobile maybe to a whole community.

[56:09 - 56:12] Ted: They often call it rewards for environmental laws.

[56:12 - 56:35] Robin: So that sort of thing. But in actual market the buyers are NGOs, philanthropists, individuals sometimes, private sector, you know, it's a whole range of buyers that you're talking about. But an actual environmental market, you know, Costa Rica, what are they doing? That's where I would--what's Mexico doing? You know, I would be looking closer to home to sort of say, where are those or maybe South Africa.

[56:35 - 57:12] Ted: And how would we make that Coke thing into the market? You know, then Coke--there's a lot of people using water. Yeah. So Coke would be competing with other water users in a whole system, a market system, and that would change the supply and demand as well as the landowners or whoever is providing the water, cleaning the water. They're also multiple sellers competing with each other to sell those credits. Okay.

[57:13 - 57:19] Speaker 3: Can you give some examples of what incentives of farm bill provided to you and I don't know, you can just provide as many?

[57:20 - 58:10] Ted: Yeah, essentially there's a whole suite of programs that usually cost share for doing a practice. So in other words, if you're going to expense off your stream and keep your toes out of the stream for water quality, the Natural Resource Conservation Service is present in every county in the US, has an office in every county, will pay 50% of that cost of doing that. And there's a whole suite of programs across every single just about conservation practice you can think of.

[58:11 - 58:12] Speaker 3: On the clustering?

[58:13 - 58:57] Ted: Meaning the cluster, yeah. And so one of the complaints that the landowner had in my cartoon was, you know, in those programs, the landowners with problems on their land or with they note the land's not up to speed, they're the ones that are eligible for those programs versus somebody who's already doing that, going to the NRC saying, hey, I'm doing a perfect job, what you do for me and you can't really, really help them. So that's kind of a called the bad actor problem or, you know, different names for that, but common problem with incentive programs so far.

[58:59 - 59:05] Robin: I want to recognize that it's just after 1:00 the clock moved a little fast, but I want us to thank Ted and also--

[59:06 - 59:07] Ted: Thanks, everybody. It was fun.

[59:07 - 59:17] Robin: Yeah. And you can ask him other questions [applause] [laughter] come in two weeks to hear he'll talk [inaudible].

END TRANSCRIPTION