Module 10 includes a discussion of policy that relates to rangeland health and a discussion of instructor and participant exercises with application of the rangeland health method. Instructors are Mike Pelland, Jeff Herrick, Pat Shaver and Dave Pike.

What I'd like to do is just go through some of the various agency and other uses of interpreting indicators of rangeland health and where appropriate talk about that guidance. I'll start off with the BLM. This technique is one of several tools that are being used in our evaluation on the status of the standards for rangeland health and I know we've got a number of questions that have come in on this and I'll, I'll cover those in a minute, but, what I'd reiterate here, really want to make the point strongly as Jeff has talked about, I think we all have is the value of utilizing quantitative data along with this qualitative data to make any kind of an interpretation or end an evaluation, so, I'll just leave that at that. Also, though, the guidance for this, the use of this protocol is provided in a Washington office instruction memorandum, you see the number 2006-047 and I would really encourage everyone out there involved, the BLM people especially, but, even users that are, maybe have grazing permittees, but, this instruction memo provides the, the direction, the technical reference is just guidance, so, basically, we really want to, to stress the appropriate use of this within BLM. We'll go on to, actually, before I leave that we did have a question yesterday and this was from Dick Mayberry in our Washington office and his question was, how well do the 17 indicators of rangeland health lineup with the various indicators that were

developed in the different states by the Resource Advisory Councils, these were groups of diverse interest people, got together and helped BLM develop these standards for rangeland health and some states have one set of standards for rangeland health for the entire states, other states that we've broken into kind of a regional, so, if you can imagine, there's a lot of different indicators out there and I think that's what Dick's question is relating to. Just from my experience, a lot of the indicators that were developed by the Resource Advisory Councils are worded slightly differently, but, are, many of them are very close to our 17 indicators of rangeland health, but, what I think is more important is if we go to our three attributes of rangeland health, remember that's soil and site stability, hydrologic function and biotic integrity and compare those with the standards, I think you'd find a much closer fit. What I'd like to do now is since we have a little bit of time go over to Jeff to go on to the overhead now and just show you one of the fundamentals of rangeland health and from that then, I think we can see and I kind of highlighted here, watersheds are properly functioning physical condition and highlighted the upland component, now, there's a lot more to this, but, I think if we can just go a little bit lower on this particular one we can relate this very closely to the soil site stability and hydrologic function attributes, so, again, our fundamental of rangeland health; fundamental one, I think we can do a very good job of evaluating that fundamental through soil site stability and our hydrologic function attributes. As we go a little further down on the page we go into fundamental two which talks about ecological processes and again hydrologic site and nutrient cycle energy flow which are kind of the cornerstone for our

interpreting indicators of rangeland health and how they support and I've highlighted healthy body population to the communities and so, let's just go a little further down the page and I think we can then make a pretty good correlation between our biotic integrity attribute and those fundamentals as well. So, I guess an answer to you Dick, I think there are some differences in the indicators certainly, but, I think we have a pretty close correlation and I think a lot of our applications of interpreting indicators of rangeland health for the, evaluating and for meeting if were meeting our standards for rangeland health, I think there is a pretty close fit, so, hopefully, that answered your question Dick. We're now going to move on to the PowerPoint presentation, we'll go to the NRCS and since we have Pat Shaver here with NRCS I'll ask Pat how NRCS is using this protocol.

Okay, I can do that Mike. There are generally two major ways that within NRCS we're using the interpreting indicators of rangeland health methodology. One of them is in the NRI or the National Resource Inventory, that's an effort that we do to collect data relative to the conditions of the nation's nonfederal lands and includes all lands and on the nonfederal rangelands then, the interpreting indicators of rangeland health is one of the protocols that we do on the onsite visit that we make to collect others and there's a list of about 8 or 10 different things that we collect in a mix of both quantitative and qualitative kinds of data, so, that's one use, the other use is in the inventory phase of the conservation planning process and the majority of our work is done with nonfederal land

owners helping them develop plans to manage and treat their property and in that process that planning process that we use, one of the very early steps in that process is the inventory phase and this additional information that we can gather with that landowner in the interpreting indicators of rangeland health gives us and the landowner more complete picture of what's going on, on the ground to help them develop their conservation plan and then our, our guidance is in the National Range and Pasture Handbook.

Thanks Pat, I appreciate that explanation. We'll move on now to consultants, other users of this. I think we've seen, actually, we've had consultants in our class, some of them are now utilizing this in their business working with customers, I think it's a very helpful tool in terms of consultants and planning for monitoring, where to put monitoring studies, we've seen several applications like that and also seen a lot of utility and using it as a communication tool working with, in many instances, private ranchers as well, private lands ranchers, so, we also really appreciate that the consultants have provided us a lot of feedback through their use of the tool and experience as well, so, we really want to think them for that in terms of some of the pure review and input that they've put into interpreting indicators over the, the past two versions. We'll move ahead now to some international uses and this is something that Jeff Herrick has been very involved in, so, turn this over to Jeff to kind of explain some of the international applications.

Thanks Mike. Internationally, the protocol has actually garnered an awful lot of attention on its own, this is not something that we've gone out and promoted and I think it's one of the indicators, for me at least, that the protocol is affective, it has a lot of worth, got a lot of limitations, we'll continue to work on those, we're aware of those, but, the international community has actually reached out to us fairly extensively. Most recently, the Swiss Embassy in Mongolia which is a rangeland country, not just a rangeland state or a rangeland county, but, a country that's dominated by rangelands and where over half the people depend to a certain extent and many of them entirely for their livelihoods on rangelands, so, it's something we're very concerned about, land change is occurring very rapidly and they needed a rapid assessment technique, the Swiss are funding the project over there and they looked all over the world for a protocol that they could apply and this is the one they found, so, they sent one of their, one of the local professors from the university over to work with us. He attended one of the trainings and spent about six months with us down at the Jornada. Other examples, Chinese and Inner Mongolia picked it up, they're using it, in Canada, Dave Pike and I have both taught a couple of workshops up there and finally, I think one of the most interesting ones for me, living on the border is the way that it's starting to be applied in Mexico, in particular, one example, I guess is, there's some folks down in Sacatecas, who have picked it up and are taking it out to ejidos which are some communal farmers, farms and ranches and they're using it to help explain to the managers of the ejidos, the owners of the ejidos, what the problems are, what they might be able to do about these problems, so using

them in conjunction with some state and transition type models they're developing and what kinds of things they might need to monitor. Sacatecas is particular interesting given the news over the last week or so because it is a state with the highest rate proportionately of immigration to the United States. Mike.

Yes, thanks Jeff, so, I thinks it's been something that all of us involved with the protocol have been very excited about that there has been some international applications and seeing and again, we learn a lot from those contacts as well, so, yes, thank you very much Jeff. What I'd like to do now is move forward and talk about some of the applications, some of the intended uses, this is going to be mostly a review I think because a lot of you, we've covered a lot of this, but, I think review is good at this point. We really stress that this be used by knowledgeable experienced personnel, I kind of define knowledgeable and experienced knowledgeable, someone that's had training and knows how to utilize the protocol properly and then the experience to me is if you've experienced multiple year wet period and a multiple year drought you've got a pretty good feel for the range of variability you might expect and you're probably pretty experienced by that point, so, because there's a lot of space on temporal variability we really want to experience people trained utilizing this protocol. The other thing that is, is very important we stress many times is a preliminary evaluation of the three attributes of rangeland health, so, if you want more information that's what, we've made the linkages to the quantitative data, so, we really encourage your use of the protocol, but, also, encourage you to utilize

quantitative data to make more than just a preliminary evaluation. The next item is and I think this is a very important use, we've mentioned this several times is, we can identify areas, kind of an early warning system with this technique that are potential risk for crossing a threshold, why is this important, well, I think as managers with limited resources we know we don't need to spend a lot of time on those areas that are functioning well, we don't need to make management changes there, those areas that are across the threshold, boy, it may take a lot of time and money restoration to bring them back, but, I think where we could make the biggest difference with management are in these areas that are near that threshold and this technique would give you kind of an early warning of those areas that are alert where you might key in to making some needed management changes and getting the biggest bang for your buck if you will and a close corollary to this is, is obviously if you're going to key your management in these areas that are at risk trying to bring them back to a functioning status, why not, I think is a good idea to focus your monitoring as well in those areas., again, the stable state such as a cheatgrass monoculture, obviously, we don't need to do a lot of quantitative monitoring in that system, but, these areas on the border are certainly ones that we really want to focus on and the final intended use and I stress this one a lot is, is a communication tool, we've already cited several examples, I'll just maybe give you a kind of a testimonial, if you will, from a, one of our early sessions we did field tests with this technique in a number of states even before we did the training just to get input and we did a session in Elko, Nevada, went out on the ground, we had an the environmental community, we

had ranchers, agency people, went through the technique and after it was over a rancher came up to me and said, you know, this is one of the first times that anybody has really told me in a way that I can understand and easily recognize how to look for problems on my range or how to look for things that are going right, he says, I don't understand data real well, but, I now know how to look for rills, I know how to look for reproductive capability on my plants, he said, I can do this on horseback and I think that really brought home the point that, you know, if we can all start communicating better we can solve a lot of our problems, so, I really encourage you to use these indicators in this process to communicate with the public as they're the people that you need to deal with. We'll now switch to some of the uses, not things that we would encourage you not to, to use this technique, again kind of a review, again, this is a moment and time assessment it's done one time, it gives you some value, some ratings, but it doesn't give you trend, it doesn't give you cause and affect., so be very careful about trying to utilize this for anything more than just to tell you if you have an issue or not, not what's causing that issue. I might mention here we have a lot of other studies, types of studies that can do this and that ties in really closely with this idea of independently making grazing or other management decisions, again, do we have a problem or not, this can help you determine if we do relative to resources. We have other studies, we have utilization, actual use, trend studies, climate studies, all of these things can help us do a better job to address the issue of cause and so it really encourage you to pull in all this kind of information to make any kind of a management decision and another application, Jeff really brought

this home in his discussion on quantitative data, is that it's not to be used to monitor land or determine trend. A question we got on, a lot early on when we started using this technique was well, why don't you put some numerical ratings rather than slight to moderate, moderate / extreme, why not use 1 to 10, 10 being it's in a lot of departure and 1 being not much departure? The reason we did that is we didn't want somebody to add those numbers up now, 10 years later somebody else with no training, with no knowledge or less knowledge about the site come out, do it, have another numerical rating, a comparison be made then and say the trend's going up or down, that's what quantitative data is for and our final item that we recommend we not use is, is to independently generate natural or regional assessments of rangeland health. We've mentioned that the National Resources Inventory, that's the NRCS is currently conducting or has been conducting for a number of years now includes this technique that also includes a number of other quantitative measures as well, so, again, this is back to, I think the kind of comparison I made yesterday that one and one doesn't equal two, one and one equals three when you can put this good qualitative and quantitative data together and I think at this point we're ready for some questions. What I'm going to do before we open the bridge up is we've had a number of questions that have come in that I think we can address first and then open this up for, for some other questions. One question I think I'll divert to Pat comes from Jean in Alaska and she asked, is this protocol applicable on Alaskan Tundra and mentions that the grazing there is reindeer and the use is on lichen?

Thanks Mike, that's an interesting question and I'm glad it was asked. As you know, we spent a lot of time early in the development of this protocol and these concepts, we did spend quite a lot of time in Alaska looking at that and looking at the applicability and how it might work and I guess I can say yes, it is applicable on the Tundra, it is applicable with lichen community and lichen and woody willows and other woody plant community. The key to making it work again is we've been saying this whole broadcast is understanding what that natural range of variability is and how can we describe that natural range of variability for each of those indicators in the reference state and I know that for years and years NRCS Park Service BLM, many others have been very active in Alaska developing site descriptions and because of the expense and the huge acreages up there they're pretty broad and so the application of this using those site descriptions necessitates real knowledge, local knowledge of what's going on. I think a point to make is it doesn't matter whether its reindeer grazing lichens or caribou grazing lichen or cows grazing grass or elk grazing grass or nothing grazing grass or lichens. The protocol is developed to try to get a picture of what the functioning of these ecological sites are relative to some of the ecological processes that are being, that are taking place on the site, so, use, whether it be domestic or wild animals, or whether it be recreation, also vehicles, foot traffic, whatever the use is really is independent of whether or not the protocol is applicable in a particular locale.

Great, thanks Pat, just let Jean know that the team here would be happy to come up to Alaska and further test this out when the, maybe when the mosquitoes aren't biting and the fish are, but, certainly, we appreciate your question.

I'm now going to answer; there are a couple of questions that have come in specifically from BLM offices on the use of this technique relative to the determination of upland health, one from Pat in Dillon. Please explain how the indicators of rangeland health relates to the determination of upland health and I'll answer that question just to, by saying that I, I look at the standards for rangeland health and the way that we look at them is kind of a three step process, number one, it's a standard being met, this tool can help you determine if you are meeting the standard or not and remember I just said can help you, we, again, strongly recommend collection of some quantitative data. As Jeff mentioned in his discussion on quantitative data that a hundred points can give you some good information on litter cover, on bare ground and plant cover overall, doesn't take long to collect that kind of quantitative data when you're out doing this qualitative technique. The other two parts then are of the evaluation process that we look at and standard are, are livestock responsible and to answer that question and we're going to have to go to a different technique, utilization, actual use studies will give us that kind of information among others, so, again, that's more quantitative data to answer that question and the interpretive indicators obviously doesn't establish cause, so, you've got to use these other techniques and the final, the third aspect of it is, is significant

progress being made and again, this is a trend question, so, obviously, trend studies are going to be the technique that we want to use to answer this question. So, putting it all together when the evaluation is done, I think all of these components must be addressed, but, what interpreting indicators is going to just address that first one, question which is, is the standard being met, so, hopefully, that'll answer your question Pat, if not, when we open the bridge back up, ask you to come back in and I just want to answer one other question that's closely related, this is from Dusty in Moab and she says with the overall emphasis placed on qualitative data collection interpretation in this, using this technique, how realistic is it that the standards and guides assessments will hold in a litigation setting and I guess I would just reply to that, that again, that linkage between qualitative and quantitative, I think is going to make a very firm case in any kind of litigation and obviously if all you've done is qualitative assessment of the interpreting indicators, collected no quantitative data and trying to answer questions in an evaluation what is the cause is going to be on pretty weak ground, if you're trying to ask, answer the question, if there is a problem, the qualitative will give you a pretty good idea, but, again, we would hope you would supplement it with some quantitative date as well.