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Module 10B continues the discussion of applying this technique.

I'll now maybe open the bridge up, we have a few other questions, but I don't want to cut you all out there that might have some questions on this copy, so, push to call, please come in now and if there are any phone messages or faxes we would take them at this time as well.

Hi, this is Jason in Hollister, California.

Hi Jason!

Yes, what's the most appropriate scale for this type of assessment, I've seen it done on a pasture by pasture basis and then maybe sometimes on an entire allotment and then even in other cases groups of allotments.

Great question, anyone on the panel want to take the first shot at that?

I'll try it Jason. I think one of the things that we try and do when we put together an evaluation in areas first off to go to that allotment and stratify, divide into some areas that are going to reflect the ecological sites that are on that allotment and then visit several different locations within an ecological site and run this protocol on those areas, you need to be able to make sure that you're getting a good representation of it, in a full three-and-a-half day course that we teach, Mike runs

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through a pretty good example of how one can actually do this on an ecological site basis and actually take into consideration some of the information that you might have associated with distances from water, for grazing allotment areas where you might have recreational inputs that are coming in on a location and making sure that you're evaluating those areas as well as the areas that would be away from those locations so that you can get a better idea of how that ecological site is responding to some of those uses as well so that you're putting it into perspective there, but making sure that you're not just looking at choosing one little location and trying to make that as reflection of the whole allotment as a whole because most of our grazing allotments, remember are, going to have a number of different ecological sites on them.

Yes, and I think Jeff has maybe a little more to add to that question.

Yes, so, basically what we're saying is that we'd be applying the protocol during the assessment at the pasture or frequently sub-pasture level if there is more than one ecological site represented in a pasture which there commonly is, however, we can apply multiple assessments at whatever scale we're interested in, the allotment, the watershed, the region, the challenge and this is one of the things that we're working on for version 5 is how do we interpret that, what if there is one of our assessments, in general, the assessment is very difficult for us to assess an area much larger than one or two or three acres because you've really got to walk through that whole area looking for water flow patterns, looking

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at the composition and so forth. If we have one location that we do an assessment and it rates moderate to extreme and the rest of them rate out none to slight, is that landscape healthy? The answer is going to be it depends, it depends on where that location was located, I'm sorry, where that assessment came out in the landscape and then if it came out up on top of a ridge where some salt had been put out 50 years ago and had just gotten hammered that's probably not going to affect the health of that landscape very much. However, if that one assessment occurred right at the confluence of a couple of streams that are coming in on that landscape that could have a fairly significant affect on the soil coming off of that landscape and how that landscape is functioning. So, the first step and what we've described in version 4 is how to apply the technique at the pasture / sub-pasture level, how it gets interpreted then and aggregated if the allotment to landscape scale is going to depend on what your objectives are and what the landscape looks like.

Yes, thanks Jeff and actually relevant to this discussion, let me just bring in another question that came in from Craig in Salmon and he's concerned about getting the work done, getting the job done, they've got 55 ecological sites and 10 reference sheets and concerned that this was designed to be kind of a rapid way to get the work done and now here's only 10 reference sheets and 55 ecological sites and again, this kind of comes back to that idea of stratifying and as Dave mentioned, we actually worked on a watershed in Southwestern Idaho and the approach we took there was to take those ecological sites that cover the

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largest area, use those to stratify on, we didn't have to develop reference sheets for every ecological site, a lot of them may only be one or two percent or five percent of the allotment and then to really focus on those ones that covered the larger areas, so, my expectation would be those 10 reference sheets maybe they cover, even if they only covered 50% of the area you're working in that that's not a lot more to do, you don't necessarily have to do 55 reference sheets just because you've got that many ecological sites as many of them are not significant and I think both Pat and Jeff have a, a comment they'd like to make on this, so, go ahead.

Thanks Mike. Yes, I would like to make another comment regarding the development of the reference sheet and this has happened over and over again that all of a sudden we have 40, 50 or a 100 reference sheets that need to be developed and able to use this technique and in the three-and-a-half day course that we, that we give Jeff give several good examples about developing reference sheets, getting together your group of experts in that MLRA in that Land Resource Unit and going through this process and developing the reference sheets and one thing that we haven't mentioned yet, I don't think this week is the fact that the best place to develop these reference sheets is not standing out in the field on the site, but, rather sitting in an office with all the information that you need to develop the sheet, we tend, when we're standing out there on the ground we tend to look at what's there, we look at what we see and we narrow our vision, both, both our actual vision and our mind to what we're

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looking at and when we get back in the office with the available information and the expertise then we can expand our mind and do a better job of developing these reference sheets, so, we strongly recommend that that's done in an office setting and not in the field and then while you have these people here while you've discussed all of this stuff and how the ecological processes are working to go to the next ecological site and then to the next ecological site time efficiency is really improved that way and the second site doesn't take near as long to get done as the first site does.

Jeff.

Yes, and I think that also then by allowing yourselves to get together in a classroom type situation where you've got a telephone or you've got an Internet hookup you've actually got access to a lot more resources and I know one of the other concerns is that we don't have a climatologist and we don't have a soil scientist and so forth and that's frequently going to be the case, but, you can usually get these folks on the phone and every state has a state climatologist, they're usually located at a university and unless you're in a state like California where they're serving effectively an entire country most of those state climatologists are actually very happy to talk with you and if you say, you know, I'd like to call, I may want to call in sometime between two and four in the afternoon as some of these questions come up, they'll be pretty happy to talk with you, same with soil scientists, you've got the Internet available, Google,

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Yahoo, some of the other search engines have gotten much more effective at helping you to find the kind of information you'll need. So, I'd agree, I mean 55 sounds like a lot, but, actually you can move through those fairly quickly, particularly, if you group them by similar sites.

Well thanks, again, I apologize, I forgot the name of the original push to call caller. Are you still on the line, did we answer your question well enough?

Yes, that was Jason in California, the whole other country, but, I will note on page 68 your evaluation sheet example does it by a pasture.

Yes, again, one of the difficulties is if we're just dealing with ecological sites we're dealing kind of on a landscape and we can now, you know, we can do our, some of our work that way, but, the problem comes and we throw these administrative lines and as you all know that's where we need to, to focus our management in our decision, so, we tend to kind of break the area up into non-ecological sites or ecological areas when we do that, but, what I think we'll do, we'll go to the overhead and I think Jeff has a comment relative to that question on page 68.

I've probably got too many comments relative to these things, but, I think this one might be a little bit useful. If you go to page 68 and you'll find what he's referring to is that the management unit is listed as allotment one pasture one. However, if you go down to the location, the description of the place that the evaluation

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was actually performed they say that it's on a limy site two miles north of the windmill, I'm going to zoom in a little bit on this, two miles north of the windmill in the southeast pasture. That's fairly specific, that tells me there's probably more than one ecological site in that pasture and that they selected a particular area within that pasture to do their evaluation.

Yes, good point Jeff and I note in BLM we typically use the key area concept for our trend studies and again, kind of a caution there, if you don't know what ecological site that key area is on then obviously you're not going to have the appropriate reference sheet and you're not going to be able to do a valid comparison and so, the better approach I think is to try to stratify the landscape by those major ecological sites within whatever administrative unit and then design a protocol or a procedure to get out and do your interpreting indicators of rangeland health rather than just going out to that key area that we've already used for trend studies, look at it there and drive back to the office. So, I know, I know there's a lot of concerns where everybody in every agency everywhere is just more pressed for time, we're looking for efficiency and I think this is still an efficient technique, but, at the same time, I think we all want quality as well, we want to make sure that the comparisons we're making are the right ones from the reference sheet to the situation that's on the ground, not only because I think we as professionals that that's what we're here for, but, there's others, the users and others that depend on us making good sound valid decisions from a lot of the data that we collect

That's actually a good segue into the next presentation which is Dave Pike and he is going to provide us a little bit of a futuring look on where we're going now with interpreting indicators of rangeland health.

Let's move on to the PowerPoints and get into this. This will be a fairly short presentation here, but, you know, as you can see from the first PowerPoint, we've sort of titled this "Oh No", well they've changed it again and what we're emphasizing here is, is what we might be looking at in terms of down the road into version 5, what are the next steps that we might move into here and I think what we want to do is to just point out some of the things that we've been thinking about down the road here so that you have a better understanding of where you might see changes, in fact, through the presentations that you've seen in the last couple of days, these two days, you've probably already gotten a glimpse of where we may be going and the first area is associated with the Matrix. The evaluation Matrix itself is, we're leaning it more towards an ecological site specific evaluation Matrix. Currently, what we're doing is we're taking the information from the reference sheet and moving that into the none to slight category, so, it becomes ecological site specific for the none to slight category, however, we made it optional at this stage as to whether you would go in and fill out all of the other components associated with the other categories of departure from the none to slight. What you can anticipate happening if, when we move into a version 5 and trust us we have not even begun to write version 5

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and we don't want to move in that direction too quickly here because it was a lot of work to go into version 4, but, what you will see is that we will go to a point of eventually getting to a stage where we will have, all of those points of departure will become ecologically site specific and by that we will get rid of generally the generic descriptors, those will tend to disappear and become mainly guidance for you in helping you to develop the ecological site specific descriptors for the rest of the departure rating level, so, one thing to be looking for down the road. Now, we've already had a question about what scale to do this kind of measurement in and the other issue will be how do we scale this up? We talked about yes, you can use this technique to work at areas that are larger than just the site location you take those measurements, but, in scaling it up, do we merely just take that information and look at the various attributes and move them up to the landscape level looking at all of the evaluations that were done on a series of, of allotments throughout a district? Some of those considerations are currently being made right now, What we're currently doing is discussing what factors are going to be needed to do an evaluation at a landscape level. It could be that we would actually make some fairly significant changes in the technique all together if we were going to do an evaluation at a landscape level as opposed to taking an evaluation that is more at the allotment level and so these are some discussion items that we're currently having amongst ourselves and with a few other people and we may ultimately pull together a workshop of folks who are interested in this topic and begin to discuss it further, so, I think that's just one of those, stay tuned and we'll let you know further as we start to move down this road.

She's actually got a number of questions about the use of reference sites, reference areas, turn that over to Dave to maybe explain what her concerns or questions are and what our input is.

Yes, I think Mike this was actually from the whole panel there in Moab and so then don't want to put the blame on any one individual here, but, but, the group of folks there that was in Moab had, had some questions associated with, is it realistic to use existing reference sites when climatic change is having an impact, having the impact that it is on many vegetative communities, especially, in the semiarid rangelands of the west discussed the drought impacts, pest outbreaks and fire. I think that what we have to do is to put that in context, yes, there are drought impacts that we are going to have and there are pest outbreaks and certainly fires in these areas. What we try and do with the, our reference sheet development is to try and capture those in there and what you would anticipate that reference site or that ecological site with how it would respond to those particular situations, severe extended drought, make sure you include in the reference sheet what you would anticipate would happen with each of these types of indicators under those kinds of conditions. This has been particularly the case for many of the areas in New Mexico in that they have suffered through a number of years of severe extended drought and there are years where they have very little production on some of these lands and so they have to take that into consideration when they actually look at the development of the reference

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sheet. Another question that sort of relates to that is, was many (BLM) districts have few if any documented reference sites and therefore is it feasible and or realistic to expected a depleted bureau wide range staff to accomplish this task. Time, funding and logistics of this new version has not been realistically addressed and if this method is to be a success then these issues need to be discussed and I don't think that we're going to discuss those issues in terms of the funding levels along those lines, you know, I think that the reference sites themselves, we have moved away from using reference sites and so the fact that it was unrealistic to actually have people go out and actually try and find reference sites and that's a, that was a major problem that was associated with version 3 and as we moved into version 4, the ability to be able to now go in and pull together a group of people to help in the development of the reference sheet actually reduces the time constraints that are associated with that because you've developed now one reference sheet for each ecological site, once that sheet is developed and if you do it well then you should be able to use that on, on that same ecological site every time that you go out and do an evaluation, no longer do you need to be able to go out and have an evaluation area to make a comparison to, so I think that that's a good point there to bring up and I think that in, in this case we have tried to address that constraint that we had associated with version 3. The other question I think also was associated with reference sites and I think I kind of addressed the reference site information and how we've tried to move away from reference sites and move more to the, the reference sheet now approach.

Thanks, thanks Dave. You might mention that page 26 in your technical reference, we do have a section on ecological reference areas and how to determine if they kind of meet some criteria and one of the criteria's actually can be a well managed area that grazed by livestock can be a reference area and so I think it's very important that, that you take a look at that section in the book, I think a lot of these questions will be cleared up with that and as Dave said, the reference area, we encourage you if they're available to visit them, get some information from them, but, they're not essential to do the reference sheet itself. We had one additional question concerning production from the Moab district and maybe ask Pat to address that and then if the bridge isn't open we'll open it up for any final questions.

Okay, thank you Mike. The question concerning production, I think I'll start at the end of that question where it says, please discuss or keep as fruitful thought and believe me this, this question about annual production and how to determine annual production, when and where and how and what factors influence what the production is in any particular time of year or any particular year is food thought in my mind and I think everyone up here has food thought in their mind as well almost consistently. It is as the question indicates if annual production is collected it should be collected methodically with intention to time and growing year, observer variability, species measure and available soil moisture, all of the previous factors contribute to the variability of the biomass and that's certainly all

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true and there are several ways in which we can collect annual production, total biomass and those things are not necessarily the same thing, in fact, they're not the same thing, so, first of all, know what you want to collect and most of what we tend to collect we call annual production, the site description, that's the basis of the information in the ecological site description and all of those factors as you say contribute to that, so, it is important to understand where you are and what you're doing and to write that down so people can follow you and understand what you've done.