

3.0 REGIONAL MITIGATION STRATEGY TOOLS

>> C. Humphrey: All right. So as I mentioned earlier, Gordon Toevs isn't available but he was gracious enough to tape his presentation on how to begin to develop a regional mitigation strategy. Let's listen.

>> G. Toevs: Thank you, Cathy. As Jim described, regional mitigation opportunities arise if the impacts remaining after the implementation of onsite mitigation action prevent the BLM from meeting our RMP objectives or in meeting the requirements of the BLM mission. I will present some tools that may be useful to understand the regional context of the impacts that remain after all onsite measures have been applied, and if offsite compensatory mitigation should be required as a condition of issuing a permit.

Thinking back to what Jim said earlier, regional mitigation looks across all lands, which implied it is necessary to engage partners or other land managers. Another implication of regional mitigation is identifying the regional boundary of the resource to determine the area where the analysis will occur. These two items are very different from the way BLM has traditionally looked at mitigation.

This presentation will be organized around a number of issues like these. The issues I will be addressing are lessons learned from the development of the Dry Lake Solar Strategy you'll hear about shortly. Here are a number of the issues that were identified during the development of the regional mitigation strategy. They are arranged in the form of questions.

1. What are the impacted resources remaining after onsite mitigations?
2. What is the region or what is the extent of the resource?
3. What is the current distribution of the resource within the region?
4. What are the risks or the change agents?
5. What is the resilience in light of change?
6. What is the relative importance, the rarity of the resource or its contribution to ecosystem processes?
7. Where are potential mitigation areas?
8. Were the actions effective individually and collectively?

As you are aware, it is not necessary to mitigate all of the impacts from an authorization so the answer to these questions help inform the line officer if compensatory offsite mitigation should be required as a condition of issuing a permit. It should also inform the officer of where mitigation could occur and how to demonstrate if the mitigation actions were effective.

What are the impacted resources?

As I mentioned, I'm going to use the example of a solar project on the Dry Lake Solar Energy Zone in southern Nevada. One impact of solar development identified in the solar PEIS is the impact of vegetation as the installations can require removal of all vegetation on the project area. Thus, we know the vegetation resources will be impacted and there will be remaining impacts after onsite mitigations.

So what are the vegetation resources on the project site? Looking at this map of the vegetation of the Mojave, it is apparent that at the resolution of this map product, the vegetation is fairly uniform across the Solar Energy Zone and is mapped as the Sonoran-Mojave creosote-white bursage desert scrub. This becomes our conservation element of the resource to be evaluated to determine if offsite mitigation should be required.

Question 2-a, What is the region?

Before we can move on to the remaining questions, it is important to understand what is meant by “region” and where to find information about the region. First, **where to find information about the region or information that is seamless across all land**. One great source for this information is the completed and on-going work of the BLM assessments. However, this is not the only source so I've included additional resources on a slide at the end of this presentation.

The map you're looking at displays where the BLM has identified the Rapid Ecoregional Assessments (REAs). 14 have been initiated to date and many of those will be posted on the BLM Landscape Approach website by the end of 2013. So now that a source for regional information has been identified, we can move to the next question: **What is the regional boundary for the resource impacted by the development?**

Question 2-b, What is the region?

The region or area is the geospatial boundary where the current status and future trend of the resource can be described. It will also define the area where the cumulative impact analysis of the proposed and anticipated future disturbances will be conducted. However, regions cannot be set in stone because they will vary depending on the resource. For example, groundwater would be the groundwater basin.

The current example is looking at the impact of vegetation, so what is an appropriate boundary for vegetation communities that cover large geographic extents? Fortunately, the BLM has analyzed this question so when the statement of work was developed for the assessments, the BLM specified that vegetation analysis would be completed at the EPA Level III region, thus, since the Dry Lake Solar Energy Zone is located in southern Nevada, this example will use the Mojave Basin and Range Level III eco-region. Stating once again—it will be dependent on the resource, but the boundary that's chosen should have a scientific underpinning, not a political or administrative boundary.

This is a map showing the Mojave Basin and Range Level III Ecoregion. It is a large area, but an area where the creosote-bursage community is a common feature; an area that will inform the remainder of the questions.

Question 3, What is the current distribution of the affected resource?

The BLM rapid ecoregional assessments have made a significant contribution to the ease of access of regional information. This map comes from the Mojave Basin and Range Rapid Ecoregional

Assessment (REA). It indicates the creosote community is widespread. However, “widespread” does not indicate the risks to the resource, the relative importance of the resource or the resilience of the resource.

Before we continue, I think a quick review will be helpful. So far, an impacted resource has been identified--the creosote bursage community. The region has been identified (the Mojave Basin and Range) and the current distribution has been established (it is widespread).

Question 4, What are the risks to the resource?

The REAs provide a number of models that look at the risks to the resource and allow us to analyze if the risks are significantly impacting the resource and allow us to establish the current trend of the resource. When the subject matter experts review this information, they should determine if the trend is problematic, and determine the causal factors. This will inform the decisions of whether the resource is at risk and whether BLM actions are contributing to that risk.

Here are a few of the potential risks to vegetation that are described in the Mojave Basin and Range REA:

- wind erosion
- invasive species
- departure index
- how far above the expected fuel loading is the watershed (this is an indication of fire risk)
- landscape conditions, or how fragmented is the resource due to development?

In the Dry Lake example, it was determined that the creosote bursage community is declining at a fairly alarming rate in the ecoregion primarily because of invasive species, fire, and development. This leads us to our next question which is about resilience or how likely is it that the downward trend will continue?

Question 5, What is the resilience of the resource? Do future conditions look favorable for the resource of interest?

Models can help inform the answer to this question. Once again, the REAs provide some great information regarding the future trend of the resource in light of identified risks. The REA models look at a 20/60 window. The models are based on past trends, future projections of risk and climate change scenarios.

There are a number of models but just to give you an idea, here are a few:

- Here is a model projecting future development, land use conversions. The model indicates conversion continues.
- Here is one for changes in moisture pattern. The model indicates there are changes.
- Here is the model for the future extent of the creosote bursage community. This model was significant as we considered the resilience of the community. This maps where the

community is likely to persist based on changing climactic conditions. You can see large areas of contraction (the royal blue areas) and some fairly large areas of expansion (the fuchsia areas). But for all practical purposes, these expansion areas would not be considered an indication of resilience as the establishment of the creosote community exceeds 100 years.

These are just a sample of the models and the rapid assessment but from these projections, it was clear that creosote bursage community will continue to be at risk and lack the resilience necessary to stabilize the current downward trend. This leads us to our next question...

Question 6, What is the relative importance of the resource in sustaining ecological processes in the Mojave? Should offsite compensatory mitigation be required?

To answer this question, the Regional Mitigation Manual asks a number of questions to inform this decision. The questions are:

- What is the legal status of the resource?
- What is the value placed in the land use plan?
- What is the rarity of the resource and what is the resilience of the resource?

For the creosote community, it was determined there was no legal status. And the resource is not rare. However, the regional models and current signs indicate the resource is not resilient so the remaining unanswered question is: What is the relative importance of the resource?

To answer this question, it is helpful to develop a conceptual model that will depict the current understanding of the components and processes necessary to sustain ecosystem function. Conceptual models can be very elaborate and take considerable effort to develop. But for this situation, what is needed is a cartoon that depicts our current understanding of ecosystem components and processes.

One work product of the REA's is to document the components of the ecoregion. The conceptual model displayed here is based on information from the Mojave Basin and Range REA and field office experts. Again, this is a simple model. It is apparent that the vegetation resources are critical to sustain wildlife populations, soil resources, and the hydrological processes. They're critical to sustain ecosystem processes. This is not new information for those of us who work in the natural resource world. But it gives us the opportunity to identify a reasonable relationship between the resource and the values affected by the authorization and the relative importance of the resource in sustaining ecosystem processes. Additionally, from a land use planning perspective, vegetation resources are of critical importance. So when a widespread community has a downward trend, lacks resilience, and models predict the continued decline, the resource would be elevated to a status where the remaining impacts after onsite mitigation measures are implemented would warrant offsite mitigation. This brings us to the next question which is: Where are potential areas to implement mitigation actions?

But before we continue, I think a quick review will be helpful:

- The impacted resource has been identified—the creosote bursage community.
- The region has been identified--the Mojave Basin and Range.
- The resource is at risk.
- The resource lacks resilience and the resource is important.

So moving on to **Question 7, Where are potential mitigation areas?**

First, “regional” in the context of mitigation is an “all lands approach” or said another way, looking at mitigation opportunities across all lands in geopolitical boundaries. This indicates our partners are important. When you listen to Mike Dwyer's presentation in a few minutes, you'll see how important partners were throughout the development of the Dry Lake Mitigation Strategy. But on the topic of offsite mitigation, partners are critical.

The new Regional Mitigation Manual offers some guidance in this area and states site selection should look to federal and nonfederal lands, should offer durability, should recognize the relationship between quality and quantity, and should give priority to locations where multiple resources will benefit from the action. The objective is to conduct offsite mitigation actions where collectively, the sum of those actions will be greater than the sum of the individual actions. This is a pretty tall order, but is a goal that can be achieved through partnerships.

One of the key decisions in selecting the Gold Butte Area of Critical Environmental Concern for offsite mitigation was to consider the durability of the action. Durability means lasting. So where are areas with existing designations? These areas are either identified in legislation or land use plans.

A map of these areas is displayed here. This map includes the BLM, US Forest Service, National Park Service, and US Fish and Wildlife Service designations as well as federal, tribal, state, and private landownership. Additionally, we looked at TNC portfolio sites, fish and wildlife critical habitat, and local county designation.

From this, information was gathered to evaluate which sites contain similar vegetation communities (the durability of those sites, the quality of the area, the benefit to multiple resources, and the cost of mitigation actions relative to the site location). Ultimately, the Gold Butte Area of Critical Environmental Concern was selected as the preferred site. Incidentally, this was not a unanimous decision, but was one that the majority could support. This leads us to our last question.

Question 8, Were mitigation actions effective?

Ultimately, did the actions accomplish the objective to sustain ecological processes? This is a multiple scale question as it is important to know if the individual actions met their objectives, and collectively are the actions meeting regional objectives, and are ecological processes being maintained? These answers should be informed by the monitoring data. Once again, the Regional Mitigation Manual identifies the requirement for developing a monitoring plan, funding the monitoring work, and implementing adaptive management if necessary.

First, an offsite mitigation action must include the necessary budget to monitor the mitigation action for the life of the impact of the permitted disturbance; or said another way, until a disturbed site has met the reclamation objective established in the terms and conditions.

Second, the monitoring should follow the principal outline in the BLM monitoring section of the BLM Assessment, Inventory, and Monitoring Strategy. Some of these principles include a before, after, control, impact study design; common indicators and consistent methods; integration of remotely sensed data; use of data to answer resource questions on multiple scales; and monitoring data should be managed as a corporate asset.

Third, if either the project objectives or the regional objectives for the impacted resources are not met, the information is used to improve future decisions and if appropriate, to inform additional actions necessary to meet the project and regional objectives or said more simply, implement adaptive management.

Hopefully this presentation has piqued your curiosity and your inquisitive nature to think about regional data, regional collaborative efforts, and offsite mitigation at a scale not familiar to the BLM. Now, as promised earlier, the next slide offers some suggestions as to additional resources that can be used to inform the regional mitigation strategies but I hope many of you will be participating in the near future. Here are some of the sources of regional information. In the interest of time, I will not read through all of these as the presentation will be available for your reference. Here are some online resources.

I realize this has been a rapid fire presentation. But hopefully this provides an introduction to some tools useful to implement regional mitigation.

>> C. Humphrey: Thanks, Gordon. I know that those last few slides were a little bit hard to read so I'll be posting some of that stuff to the KRC page and I know that the slides are posted to the KRC page so you can go there and get the information. So by answering those questions, those eight questions, that will provide you with a great start on developing your own regional mitigation strategy.

So I appreciate Gordon for taping that for us. Gordon provided some great tools on those last couple of slides and so I hope that you'll be able to use them. I might be posting some of that information to the KRC or I might just link to his web site. I think he's got an AIM web site or something like that.