

Modoc Plateau Vegetation Mapping Project Rollout

Uses and Abuses of Vegetation Data Presentation Transcript

Slide 1 (0:00): Introduction

The title of my talk is Uses and Abuses of Vegetation Data. Again, my name is Rosie Yacoub and I am the GIS Specialist for CDFW's Vegetation Classification and Mapping Program.

Slide 2 (0:52): Collaboration

Rachelle pointed out that we cooperate with others, and this is true throughout the state. Sometimes we have a large role, sometimes we have a small role, sometimes we have no roll-this map shows where vegetation maps are throughout the state which have at least the vegetation classification consistent with National Vegetation Classification Standards, but also many of these maps have been produced with our other standards including strata breaks, et cetera which are published on our website, and were in the attributes Rachelle showed.

Slide 3 (1:31): Things that vegetation maps can help answer

First, the fun and creative part: some things that vegetation maps can help answer. How much of each vegetation type are there? What are the rarest and most common types? How do these vegetation types overlap with human needs and existing infrastructure, and let's face it—future infrastructure. How do they fit into planning? And here's a fun one: Where are the best places to hunt for pigs based on structural information. This was an actual use of a veg map in Napa County. Where are the most likely places to do fuel reduction. And then I highlighted this last one—Andrew Johnson from BLM was going to join us today to demonstrate how to incorporate vegetation maps into doing emergency stabilization and rehabilitation plans (ESRs). But he has been working on a fire, so this is going to be a follow-up presentation, and we're hoping that will be soon, so stay tuned! Now I'm going to run through some examples.

Slide 4 (2:43): Example -Sacramento-San Joaquin Delta climate change

The Sacramento-San Joaquin Delta has been mapped a couple times. That mapping is being used in assessing the affects of climate change. What the Delta Stewardship Council is doing is looking at leveed and unleveed areas in the Delta and seeing what happens to the vegetation as waters get higher and higher.

Slide 5 (3:19): Example - Sonoma County Carbon sequestration

Related, climate change again—the Sonoma County map was used to prioritize conservation based on carbon sequestration, which was based on the structural information and vegetation type. That is another interesting use.

Slide 6. (3:36): Example - Suisun Marsh

And here we are in Suisun Marsh, which I mentioned was mapped a number of times. We are going to take a look at what has happened with Phragmites. So the pink is 1999, then this is 2003 (in green), and this is 2006 (in yellow). So where you succeed in get an area mapped sequentially, you have further

ability to inform management. It's kinda interesting here, let's go back, and notice that there is an area that is marked "not actively managed", and another area marked "managed with fire and altered flooding", and if we run through this again—to me it looks like the "not actively managed" area didn't seem to have as many issues (with Phragmites) as the managed one. I am not sure if this is consistent throughout the marsh, but if I was a manager, and saw that it would make me want to explore further in other areas and see if that pattern was consistent.

Slide 7 (5:05): HabitatMap— Mountain Ladyslipper

vegetation maps are really great habitat maps. This is an example. Mountain Ladyslipper is a rare plant. It is known from certain sites, and there were characteristics of those sites—certain elevation, certain geology, fire history, and certain vegetation. Because all of these were available as GIS layers, they were able to anticipate where else they might be able to find that rare plant.

Slide 8 (5:41): Yosemite

In Yosemite, because they had a vegetation map, they were able to do that, and then go out and verify if that rare plant was there. And they were more successful because they were able to use good vegetation information.

Slide 9 (6:01): Least Bell's Vireo Habitat.

This group, the Conservation Science and Visualization, recently to all the Survey of California Vegetation maps within the range, put them together to try to create a map of the habitat of the Least Bell's Vireo, which is a rare species. It worked so well that now what they are going to do is get funding and map all that vegetation using one set of imagery, to get one time frame snapshot of Least Bell's Vireo's habitat.

Slide 10 (6:50): Modoc Lassen vegetation map

And then one of the reasons why this particular map (Modoc Lassen vegetation map) was done at the association level (many of our maps are done at the alliance level, but this one was done at the association level), is there was a desire to see how finely birds respond to vegetation—as in can you tell differences at the association in where certain birds are? This study is wrapping up and being written up, and very soon we hope to have another presentation on the results of this study.

Slide 11 (7:41): Conservation – Mendocino pygmy forest

it is harder to conserve what you can't show is there. An example I really love of this is VegCAMP worked with Region 1 to develop a map of Mendocino cypress and related, oligotrophic vegetation. Before there was a map the only protection that was there was an ESHA that protected Pygmy forest within the coastal zone, but it wasn't even really well characterized. After surveying, classification, and mapping of those communities, we could show this ESHA, which only covered north of the Navarro River, should go further south.

Slide 12 (8:41): Conservation – post-map progress

And then beyond that, with a map showing where these communities are, Jennifer Garrison is drafting a Conceptual Area Protection Plan as a way of prioritizing areas for acquisition or easements using proposition 68 funds. And in 2019, CDFW awarded money to the Mendocino Land Trust to acquire an easement on some of the area we mapped. So there is an example of successful conservation that was successful in part because we mapped it.

Slide 13 (9:19): Now on to the abuses.

The abuses I am talking about are mostly bad assumptions.

Slide 14 (9:33): Classification level assumptions.

The Modoc mapping effort includes polygons mapped at the Association, Alliance, and Group level. So let's say you are interested in a particular association. You won't be able to query on that association and your job is done. For example, this little maplet shows a large stand of *Danthonia Unispicata* – *Poa secunda* association. But down here is a small polygon of Vancouverian – Rocky Mountain Wet Meadow and Marsh Group this association belongs to. So there may be more of this association in this polygon.

Slide 15 (10:27): Heterogeneity and the Minimum Mapping Unit.

The minimum mapping unit for the Modoc/Lassen map is one acre for most types, but 0.5 acres for wetlands, riparian, vernal pool, and other special types. The breaks on cover that Rachele described are at 5 acres. Sometimes there are stands within polygons that do not meet the minimum mapping unit, and that makes the polygon heterogeneous. Here's a couple examples. On the upper right, this polygon is a mapped stand of a juniper association, but the area in the red polygon is a small stand that doesn't have many shrubs, and is very likely a different association of juniper. But it's less than an acre, so it didn't get mapped. Similarly, down at the bottom, there is a sub-mmU stand of *Carex simulata* within this *Pinus ponderosa* polygon because it was really tiny. So the map doesn't have polygons of every stand that exists, because the mappers have rules for how to map.

Slide 16 (11:51): Crosswalks.

as Rachele mentioned, we have provided crosswalks to CalVeg and WHR, but those crosswalks are a convenient reference. They are the closest fit per type. But when you get into the nitty-gritty of how these classification work, these crosswalks are not perfect. For example, I've highlighted the crux, but for Juniper, we have a tale of three juniper stands. They all (the three classifications) have different rules. For the MCV, or the rule in our report, you can have as little as 3% Juniper cover and *Pinus jefferyi* and it could still be a Juniper stand. But for CWHR and CalVeg, you have to have considerably more conifer cover than that—10%. And so, looking at the map, here's a mapped polygon and it has a survey in it that says there is 5% conifer cover in this Juniper stand. So this polygon is going to say for CalVeg and WHR that it goes to juniper, but that is because it was the best fit per type. It doesn't follow those (CalVeg and CWR) rules, because we can't go and remap every polygon to different classifications. Here's a photo of this stand on the ground so you can get a feel for what juniper looks like in this particular polygon.

Slide 17 (13:44): Map Accuracy

These maps are perfect - that's a 'great' assumption and you should definitely stick with that...not. We do accuracy assessment because these maps are not perfect, because it is a difficult job to hand delineate or use other automated methods and get everything right. So, I urge you to pay attention to accuracy assessment results—by class, if that is important to you and decide what level of certainty is needed for your use. You can also add the survey points, ds1020, which we will look at pretty quickly. These can be useful to answering questions, they are ground-based assessments. As Rachele mention an interim AA table is included in the classification report, but it will be supplanted with the final one when the accuracy assessment for the second area GIC is mapping is complete. Our standard for the BIOS website is to have a field called MapClass, and currently that is set at the association level, and at

that level we had 80% producers but 71% users accuracy. The recommended level to use this map at is NVCS Alliance. That separation to a mappable level was already done for the Applegate area—they weren't working to get association level as often as GIC, and that map with the map class as it is meets our minimum requirements.

Slide 18 (16:11): Summary and Questions

So that's a bit gritty but it can be summarized in two sentences. 1) be creative and use this tool to learn more about the land you help manage. 2) know what the limitations of the data are and survey for a more complete understanding when necessary.

If there are questions, I will take them, otherwise I can move into the next part of the presentation.

(Betsy Bultema) Rosie, would you mind explaining, really briefly, users vs producer?

(Rosie Yacoub) I am wondering if someone who is more familiar with scoring might be able to do that better than me.

(Rachelle Boul) You had to ask that question. It's a good question and it's always more complicated than it should be to explain. The users is areas of co-mission and the producers is areas of omission, yeah. Is the map telling you what you see when you go into the field, or did the mappers miss something they should have seen. That's it in a nutshell and it really helps to have a slide to show this because it's a mind bender. But if we didn't report these scores people would ask, 'but wait, there's these other scores'

(Todd Keeler-Wolf) I am going to try (explaining) it in 30 seconds. You have to imagine a matrix where you have the raw scores reported in rows for what the mappers called it; and the results for what the field people, when they did a survey, called it in columns and if you look where the two calls for the same place intersect—it's not always the same. So basically, and it's a little counterintuitive if you look at the way those two ways of looking at it, it comes out as two different numbers, because it comes from the perspective of who is reporting the score. And that is the basis for users and producers, or what was omission vs. commission. That's all I want to say.

(Rachelle) Thanks Todd, yeah it's confusing and it's really helpful to see a visual, and we have visuals in mapping reports that you can go to and see that, if you're interested in specifics--in getting a visual for that.