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|  | <b>Monthly Meeting</b> | <b>Wildlife Working Team</b> |
| Created by: Summer Grimes   | <i>Meeting Minutes</i> | Tuesday, March 19, 2013      |

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| <b>Meeting Name</b> | Monthly Meeting – March 2013  |
| <b>Meeting Date</b> | Tuesday, March 19, 2013   |
| <b>Meeting Time</b> | 10:00 AM – 3:00 PM MDT  |
| <b>Venue</b>        | 740 Simms Street, Golden, CO, 80401   |
| <b>Attendees</b>    | Rick Truex (US Forest Service), Steve Germaine (US Geological Survey) (dial-in), Casey Cooley (Colorado Division of Parks and Wildlife), Jenny Briggs (US Geological Survey), Hal Gibbs (US Forest Service, ARP), Lynne Deibel (US Forest Service, ARP), Felix Quesada (US Forest Service, PSICC), Gali Beh (Beh Consulting), Janelle Valladares (US Forest Service, PSICC), Summer Grimes (CSU MS Student) |

### Meeting Notes

1. Introductions and Ice Breaker
2. Updates/Agenda - Gali
  - Gali will update the group on the work plan
  - Rick will discuss the progression of the species list and group feedback
  - Launch discussions on:
    - Spatial/temporal scale
    - Species specific monitoring
    - Expected population trends
  - Confirm calendar dates and Landscape Restoration Report
  - Gali – Review of calendar and work plan
    - In March, team asked Rick for more guidance – Rick provided, Jenny gave detailed feedback.
      - Did everyone review existing revisions and guidance? All said yes.
    - The grey box in the work plan represents today’s agenda. Gali also reviewed April’s agenda and will continue to adjust as we go along.
3. Species list and group feedback
  - Rick – still reviewing consensus from the last meeting re: rakings across and within taxa. The goal is to not dwell on the process after this meeting. Asked Jenny to share her thoughts and input with the group.
  - Jenny – thought the criteria were mostly reasonable. Got a little hung up on the use of “informative” vs. “important”. Feels that we need to be very careful about this distinction.

- Rick agrees that we need to be clear about the differences. He discussed black bears (who have many key ecological functions that are duplicated by other species) and drew a chart to demonstrate how “middle species” are the keepers. Black bears are not as “ecologically informative” as the Abert’s squirrel, for example, but are “ecologically important” because of their many functions.
- Jenny wants to be sure that outside readers clearly know the definition of “ecologically informative” just as we do, so they can clearly answer: “Ecologically informative of what?” She discussed Hal’s example of the Abert’s squirrel. If there are a lot of squirrels, does that mean we have a well-maintained forest that is functioning based on historic reference conditions, or does it mean that things are good for the squirrel right now, but are not typical for a restored forest?
  - Rick – all of the above. It is necessarily “fuzzy”.
- Casey agrees that it is important for people outside of the group to understand where the ranking process came from.
- Rick – believes that this will all mesh as we go along. Suggests that we make it clear to readers that this is just a framing exercise right now and none of us are formally “hanging our hats on this” yet.
- Rick – species list is now updated with Steve’s birds. List is now roughly 300 identified species. Began with Casey’s watch list and built upon by others. Ricks thinks the group should review the species and confirm that necessary species are represented.
  - Casey – doesn’t think his personal list was exhaustive but feels his sources were a good representation of the area.
  - Jenny – does it make sense to start [over] with all birds and scale down?
    - Rick – thinks it may be best to stick with this list and add as birds come up instead of taking a step back to the beginning.
    - Lynne – feels we did this already based on the sources used (ie. data from AR and Pike/San Isabel).
    - Steve – thinks the list is fairly exhaustive - trusts the people who came up with the local forest lists that the group pulled from.
    - The group discussed and agrees that there will always be questions from outside people about why certain species did/did not make the final list. The team must be sure to provide justifications and rationale for all decisions along the way and be open to suggestions from experts who notice anything that the group did not.
- Rick – reviewed spreadsheet of monitoring groups by taxa. The taxa frame the number of individual species that meet the criteria in each role/group. Today, the group will discuss how to proceed. (ex. Remove all 1s (after first confirming the removal)).
- Gali – Initiated a discussion to come up with tentative guidelines to filter the list. Thoughts and filtering ideas?
  - Rick – limited the list to core species. Suggests that maybe the group should try a tentative idea such as “eliminate all 2s that are not ecologically informative” etc.

- As species were reviewed, there was confusion about fish. Casey suggested that species should be monitored as a whole and not broken into subspecies. I.e. Trout as a general species due to genetic confusion.
  - Gali – Filtering options:
    - Get rid of 0 0 0 or 0 1+ 1+, etc.?
    - Rick does not feel that there is any need for a species to remain on the list if they are not ecologically informative to this project.
    - Group reviewed list of 0s to see if they agree with removing all of them.
    - Following a period of confusion and wavering, Gali suggested starting from the top rather than the bottom - start with all 3s or 3 2 2, etc. Decide what to keep before deciding what to remove. Steve likes the top down idea.
      - There are no 3 3 3s
      - There are no 3 2 2s
      - There are four species with an overall sum of 6
      - There are 25 species with an overall sum of 4+ AND an ecological ranking of at least 1
        - Hal – suggests lumping these species into “groups” that represent similar information
        - Rick – called for a group vote on the following:
          - Include all species with an overall sum of 4+ AND are ecologically informative (1+). Then review the opposite set of this list and revisit species that may be missing from this group. As a group, the team can then determine what species is “missing” despite their low ranking.
          - Group voted – all agreed
  - Jenny - Sum of three categories and removal of 0s?
    - Casey – does not like the idea of removing all 0s
      - The species has to be ecologically informative on some level. Example – Blue Grouse is a 1. He personally believes this is a very ecologically informative species.
  - Weighted Average
  - If-then (ie prioritize categories)
    - Rick wants to review 2s and 3s
  - Minimum set – Taxonomic Representation
- Hal believes that we have lumped too much. Some species are so few or so hard to find, it makes no sense to monitor them even though they may be high risk, etc. It makes sense to instead monitor others that are fairly widespread. He hates to simply remove a species. Get down to “why” a species is listed.

4. Lunch – 11:30 AM -12:00 PM.

- Post-lunch, continued to review the previously discussed information.
  - Working from a list where all categories = sum of 3+. (37 species.)
    - No amphibians and reptiles (fish are missing but they are not fully filled in)
    - Only birds and mammals on this list
  - Group checked out the inverse of this list
  - Found examples of 2 ecological, then 0 0. Birds, inverts and reptiles. 19 total.
- Rick called to motion:
  - Carry forward with filter #2. Include everything with a sum of 3+ (AND ecologically 1+) or only a 2+ for ecologically important. 57 species total.
    - May add another ~8 if we add birds with 1 ecological and 2+ political. (some of those are Management Indicator Species)
- Gali provided a summary:
  - Filter 1 Rules:
    - Sum is 3+ AND Ecological criteria is 1+; or Sum of ecological is 2+
  - In summary, the group is taking a list of 60+ and deciding if there are data stressors and sampling approaches – they will come back to this later in today’s meeting. Filter 2 will involve data collection.

## 5. Discussion

### a) Spatial and Temporal Scale:

- Rick believes this will be a slight struggle. Asks how familiar the group is with hierarchical ordering systems. Brief explanation:
  - Foundational ideas about wildlife distribution
    - A few important papers
      - Johnson 1980
      - Puddle and E5 (?)
    - Animals make decisions all of the time:
      - Ex. ‘Where do we find a range to settle and occupy?’
      - This decision comes down to the first order of habitat selection.
        - Develop broad traits of what they need. *Distribution*.
      - Second order of selection.
        - ‘Where can I set up shop within this home range?’ *Home range*
      - Third order
        - Individual patches. *Patches*
      - Fourth order
        - ‘I’m going to sit on that limb because there are bugs to eat.’ *Elements*
    - CFLRP deals with third and fourth orders – patches and elements.
    - First and Second Orders are dependent upon a project’s success in maintaining a functional landscape.

- Rick – the group needs to look at large things that are a reflection of the overall success of CFLRP as a whole.
  - The group needs to consider if their focus is on a broad scale or a relatively small scale (looking at the effects of treatments on arguably smaller scales).
  - Jenny – suggests removing the “plot” image from our minds. Not many protocols actually happen on plots. A census and a count of animals on a larger/different scale is generally better. (Aim for population status and trend monitoring.) Involves capturing the animals themselves instead of sampling scat, etc. in designated plots.
    - Rick – We have no reason to collect our wildlife data in the same plots used to collect vegetation data.
    - Hal – the difficulty in the CFLR project is that we have a relatively large area, and we are probably only treating on Forest Service lands: ~32,000 acres out of 1.5 million, and within that only certain areas. When looking at the entire area, what you see may not have a likelihood of being related to what CFLR actually does. We need to look smaller, but the challenge is to figure out how much smaller. Is it the areas where we are actually doing treatment, is it clear down to treatment units, etc? How are we actually going to measure our successes? Different answers for different species.
    - Gali – proposes that we add “wildlife monitoring will not be constrained by CFRE plots, but should be contained in the CFLRP area”.
    - Casey – thinks we need to do both, especially when considering the ‘bird world’. He isn’t convinced that we know the effects of treatment scale on wildlife. Thinks larger scale is exactly what we want to look at. He thinks the smaller scale informs the larger scale, but we need to look at both to effectively translate them into bigger scales to see how one informs the other.
    - Hal – agrees, says they are saying the same thing. Draws CFLR map and asks theoretically, what are the effects that the CFLR is having?
    - Casey – asks Hal to clarify: what is the desired outcome/goal of these treatments?
    - Hal –
      - Originally – ties back to roundtable’s desire for restoration of the lower Montane Zone.
        - Then added the reduction of fire risk to communities (due to a Congressional mandate). Both go hand in hand – restoring the lower montane would reduce fire risk.
      - Jenny – wants to recap the 6 main objectives from the proposal:
        - Establish a complex mosaic of tree density age and size at the landscape scale
        - More characteristic fire regime
        - More favorable distribution of trees
        - Diverse native plant community
        - Improved habitat for expected wildlife species
        - Complex mosaic of forest density, age and size at the landscape scale

- Rick – All of the objectives speak to both large and small scales of management and monitoring. We need to explore broad ranging animals too. Explore ways to look at wide ranging species along with small-scale ranges within treatment areas.
  - Direct effects of projects
  - Look at larger scales with less direct impacts
    - Hal – concerned about how to tease out effects of CFLR treatments at a larger scale. The purpose is to monitor the effects of the project.
  - Steve – thinks this is a great opportunity for radio collaring/gps of wide ranging species.
  - Lynne – does multiple project level monitoring add up to large-scale observation?
    - Rick – still a little fuzzy. Wildlife response to treatments, or wildlife response to restored Front Range landscape, or all of the above?
    - Hal – response to restored landscape, but not necessarily the effects of the treatment itself. The project is not opposed to collecting treatment effects, but it is more interested in the effects of restored landscape rather than the effects of the treatments themselves.
    - Gali – The goal is trying to prove that if you restore the forest structure, you'll get that population response back.
    - Hal – The benefit to wildlife is in reducing non-characteristic fires.
  - Jenny – It might be useful to have columns regarding home range, natural history details, etc. Rick has begun to develop and will fill in as we go along.

## b) Types of Monitoring

- State variables
  - Different ways to look at the status of a population
  - Very important when monitoring, because they let you know when there has been a change
  - State Variables
    - In an idea world, you can count every one of them – this is the “Gold Standard”. Very rare.
    - Density
    - Proportion of Reproductive Females
    - Etc.
  - Consider taking an index of the state variable because it is much less expensive.
    - Proportion of occupation by a specific species
  - Different variables make sense for different species
  - Jenny
    - Is there an established protocol that we use? Do we need to make the decision about feasibility?

- Hal – in the end, someone else will be making the decisions. In the meantime, we need to make some ourselves before we get there. If we have a protocol for one species that tells us the same information as two others without a protocol, we should drop those two and continue with the one for which we have a protocol.
  - Use a literature search/review to find protocols
  - Use expert experience of others
- Casey – suggests that perhaps it is more about the feasibility of implementation. Provide as much information as possible to the decision maker because they are charged with making a final call although they may not be the expert.
- Rick – the idea is to not pursue “dead end” species.
  - We are not ‘inventing’ protocols
  - Relying on what is out there
  - Current protocols may not be enough
    - We can then recommend certain species due to ‘x,y,z’ with justifications for our recommendations.

#### c) Expected Population Trends

- Rick – wants group thoughts on desired response variables. It would be great if we could count every animal, but this is impossible.
  - Steve – most of this is related to landscape scale.
    - Density estimates for small ranging animals
      - Perhaps lambda, but he hasn’t thought a lot about it.
      - Rick – feels that if we look at broader scales, in a habitat collection context, it won’t fly because it will be viewed as research and not as monitoring.
        - Emerging literature on occupancy based approaches and large-scale monitoring. Makes a lot of sense for CFLR footprint.
        - Need to be wary of habitat selection when our charge is population monitoring.
      - Steve agrees with occupancy. Feels density and abundance may be “smarter” measurements for some species.
        - Gave an example of when he used tree density and canopy measurements (structural change), to find species that would be good indicators.
      - Casey – discussed Mule Deer limiting factors and potential treatments (different from bird scale). He still struggles with deer scale because a watershed scale is so huge. A 200-acre treatment makes it hard to ‘prove’ anything at that scale compared to a 60,000-100,000 acre treatment. There are other factors involved that compound deer observations. I.e. Chronic wasting disease. Greatly depends on the species and local circumstances.
  - Rick – asked for any other group opinions.
    - Lynne – What she is hearing makes sense. We have to make sure we are presenting things that are implementable. Monitoring is often pushed aside because not enough

money/time/staff. We need to use things already available to help with monitoring efforts, but this doesn't necessarily represent the whole suite of species that we are looking at. There are definitely challenges for monitoring more obscure species and getting them into the CFLR monitoring phase.

- Felix – agrees with all perspectives.
- Lynne – This goes back to what Rick previously discussed. Are we measuring the response to the restoration or to the treatments themselves? If we are measuring a response to restoration, what does that look like for each of the species? Is it only about occupancy or is it about population increases or decreases? Funding time vs. project time? Ex: sometimes there is funding for 10 years but the project length is 15 years.
  - Steve – excellent point. We are setting forestlands on a restoration trajectory, but they may not fully represent “restored land” for decades. We need to keep in mind that when we are done with fires, etc., the land has decades of adjustments left, which may possibly include additional local/natural fire.
- Felix – Another variable to consider. Some areas don't have a lot of potential for prescribed burning, etc. Use the tools we have and actually implement burns.
- Jenny – asked Rick or Gali to put together a spreadsheet/outline for the final project to help with visualization. What could be monitored for each species, the info that could be provided, types of species response (population), etc.
  - Rick – This is doable. The final report will include a lot of this detail and we will continue to collect as we go. A little early at this point, but he can work on the framework.
- Casey – thinks there is utility in asking how to progress.
  - Use graduate students for additional research?
  - Create a roadmap and suggestions for future research / advancements?
  - Lynne – we should create a list key questions and recommended research
  - Jenny – include types of questions that may be able to be answered by monitoring a specific species and why those results will be useful. Post-treatment monitoring suggestions.

## 6) Next Steps – Gali

- How do we get to Filter 2
  - Sampling approaches
    - Do they exist? What are they? If none, the species will not remain on the list.
  - Available Data
    - Already exists?
    - Deal breaker for species if none? No
    - More data is more desirable, but not prohibitive.



- Stressors
    - They hinder our ability to interpret what we observe.
    - More stressors generally = less desirable species.
    - Rick doesn't want to use stressors for ranking, but it may be useful to identify three main stressors that influence the population processes.
      - I.e. Persecution (ex. Prairie Dogs)
      - Vegetation management
      - Climate change / drought
      - Etc.
  - Redundancy within guild
    - Responsiveness to a treatment
- Gali – is all of this something that can be done by the April meeting in one month? She feels April may not be feasible but hopefully May. Gali recommends briefly reviewing a few species before April to see how long it might take.
    - Rick suggests 1 and 2 as a homework assignment for April. Spend time looking for existing species protocols and capture a little life history (what the species does and how it behaves, etc.). Focus on a small chunk now for an interactive discussion about stressors next time.
  - Rick thinks we need more descriptive info to help guide additional group decisions about cutting more species.
    - Jenny thinks the discussion will be more productive if we have more readily available descriptive details.
    - Gali is concerned about cutting the list further. This is necessary to stay on track. She is not sure how more details will help to inform this process.
    - Casey says, for example, that this info will keep them from removing birds that may be informative. It will help the discussion to have basic biological understanding of these species.
    - Lynne – group species with like-habitats?
  - Rick – each person should review details about their species for the next meeting. Focus on modest information that would be useful to share.
  - Gali - Species assignments
    - Jenny and Felix – Mammals
    - Casey and Steve – Birds
    - Amphibians and Reptiles – Lynne
    - Invertebrates – Janelle
    - Fish – Janelle. Rank/Filter 1 and Data Collections for Filter 2.
    - What everyone needs to answer:
      - Does a sampling protocol exist?
        - Field sampling, not statistical design
      - Is data regularly collected on the species?
  - Rick – Next time, we will review cause and effect monitoring vs. status and trend monitoring. Ideally, we will be looking at cause and effect. Reality dictates status and trend monitoring.

## 7) Meeting Conclusion

- Gali –
  - Touched base on final details, files needed, etc.
  - Landscape Restoration Team
    - Requested report
    - July 9 and July 11 – invitation extended for Wildlife Team to join “field trip”
  - Next meeting is Tuesday, April 23, 2013 at 740 Simms Street, Golden, CO 80401