SYNTHESIS OF THE COMMENTS FROM THE BREAKOUT SESSIONS
"ECOLOGICAL SITE DESCRIPTIONS AS A MANAGEMENT TOOL"
PARK CITY, UT 23-25 OCTOBER 2007

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Approximately 275 people participate in five breakout sessions. After a short introduction to some of the basics of ESDs and soil surveys, participants were asked specific questions relative to improving the quality and utility of ESDs. There are 9 pages of specific comments, but these are the general themes.

1. ESDs need more flexibility with regard to how vegetation is described. Species composition by weight is appropriate, but not sufficient to adequately describe important attributes of the vegetation.
2. In addition to species attributes, ESDs should allow for patch scale attributes that can be used to describe both ecological functionality and habitat quality.
3. Although it may be possible within the current framework, there is little effort to recognize wildlife affected process change as drivers of transitions.
4. Generally more attention to discussions of habitat value in the Interpretations section for both game and nongame species. These habitat values can change over time, both seasonally and from the standpoint of animal life history.
5. Some discussion is necessary of the importance of habitat arrangement at the landscape scale (multiple ESs). This may not be possible within an individual ESD, but needs to be formalized somewhere in the ESD system.
6. It is important to relate ESD information, particularly S&T information to other classification systems.
7. Include or link S&T information to dynamic soil properties that can govern the probability of change (i.e. biological crusts, soil carbon depletion)
8. Greater attention to transition descriptions, both from the standpoint of what changes take place as well as from a discussion of the probability (and costs) of those events occurring.
9. If the ESDs for the more arid, infertile ecosystems are to be of use, they need to have more detailed information on site specific restoration/reclamation, including some cost:benefit.
10. Include some systematic approach to dealing with riparian areas, both in terms of how they are delineated as well as how they are described.
11. Increase the amount of effort that goes into discussion and quantification of the variability associated with the climate, soils and vegetation unique to a site.
12. Include more information on anthropogenic disturbances such as roads and on disturbance regimes as opposed to individual disturbances.

Two things that emerged from each of the breakout sessions, but did not always get very well integrated into the reports:

First and foremost, the process of constructing ESDs has to be opened up to a wider variety of input and involvement. This includes a focused effort on education to get everyone on the same page and show them how they can participate. Second, there needs to be a greater emphasis on systematizing ESDs across soil survey and state boundaries. This lack of systemization and accessibility is creating major credibility problems.

Ecological Site Description Recommended Improvements

Source: Ecological Site Description Workshop – Facilitated Sessions

Date: October 24, 2007

Location: Park City, Utah

Background: Facilitators worked with 5 break groups representing a cross section of range and wildlife professionals and private landowners who work and live within the sagebrush ecosystem. The groups were charged to identify and prioritize potential improvements to currently developed ecological site descriptions and recommend a process to implement their recommendations. This is a summarization of the cumulative comments.

Vegetation

Include descriptions of cover and structure in the vegetation section. Define how cover was measured.

Capturing heterogeneity with an ES, i.e. different plant associations – complexity (patches of different plant association with an ES) is significant in influencing wildlife habitat suitability at the landscape level.

Describe vegetation (composition, diversity, structure, cover) for each state in S&T for each ESD – adds greater depth to value of ESD.

Rearticulate vegetation data to include metrics that describe wildlife cover as well as forage production.

Plant structure in particular cover should be expressed as a percentage rather than value terms of like “high” or “low”. The methodology used to measure cover should be described.

Plant structure should also be expressed as vegetation height/layers, horizontal/vertical cover, and below ground production for “indicator” plant species by season, life-stage and function.

Descriptions for each plant community and state (composition tables, productivity, cover) should be reviewed periodically to ensure the best information has been provided.

Incorporate concepts of heterogeneity to include “cover, structure, composition” at different scales

Revise plant preference table – content – additions/valuable data clearinghouses to make it more user friendly.

Standardize plant community names, descriptions, terminology and format.

Use of NVCS for standardized plant community naming – allows for linking species habitat affinities across ecological sites because many existing plant communities can exist on more than one ecological site.

Wildlife Information

Process

Open the process for incorporating wildlife information into ESD. State and federal wildlife biologists and ecologists should be part of the state ESD development team.

Wildlife as Agents of Change

Wildlife species themselves can be vectors of change (e.g. their presence or absence can influence ecological processes affecting change). – Concern that wildlife species themselves are an integral part of what makes a site a site and how it functions.

Include complete list of wildlife species that may modify the vegetation – important to understand the relationship between animals/vegetation to better describe state and transition models.

Need information on how wildlife including invertebrates might affect plant composition and annual productivity, and how wildlife responds to productivity – few wildlife studies on this!

Wild horses as an agent of transition – important on Indian reservations and BLM.

In the Ecological Site Interpretation Section, animal community/plant preference by animal kind, it would be good to address the role and preference/utility rates of granivorous rodents and possibly even predicted relative abundances of the key ones that predate most heavily on the most prevalent native perennial bunchgrass – this information could really be key since species like granivorous rodents function as keystone species in terms of helping regulate plant species and relative abundances through harvesting and caching activities that promote native seed dispersal, germination and establishment.

Wildlife Habitat Values and States

Wildlife habitat values will differ by ESD state. Each state should have a description of respective wildlife values. This would assist managers in determining best management practices to achieve a desired animal community.

Reassess ESD state features over time so we can assess pattern use changes by wildlife species – recognize that site features change over time and one-time assessment/inventory isn't adequate.

List and describe wildlife species associated with each difference state (or possibly phase) on each STD – this relates to idea 1, it is the "plant" side of the coin.

Provide a complete list of all wildlife species for each ESD stage and transition. How does wildlife respond and relate between different states and transitions? – “relationship between state and wildlife”

Structure (cover and height) for the different states of cover total including both live and dead – links to habitat suitability, i.e. sage-grouse guidelines or other habitat models such as California wildlife habitat relationships. Cover by species idea or at least by growth forms, height, and methods need to be standardized.

Wildlife and Animal Diversity

Multiple species need to be a focus not just game species and not just vertebrates.

Mesh wildlife needs and interpretations with livestock. It is not either/or, it is a landscape. Carrying capacity should be for all herbivory.

Define wildlife habitat and structure needs for a more comprehensive list of wildlife

Wildlife Biology/Life History

Include life history requirements and how the ESD meets the particular requirement – Link wildlife habitat to STMs. Discuss how a given ESD may relate to an adjacent ESD in meeting wildlife seasonal needs.

Describe specific plant communities states relative to seasonal habitat needs of individual wildlife species – starts to provide relevant “crosswalk” between habitat needs and vegetation.

Wildlife Habitat Management

List critical timing of treatments which effect migration, breeding of specific animal species.

Better explanations/descriptions for improving for wildlife (aquatic, terrestrial, and avian) describing seasonal habitats for all communities.

Include role of habitat and how habitat is used in associating wildlife with ESDs – seasonal differences (winter breeding), life-stage differences (juvenile or adult), functional differences (nest, forage, cover), and species differences.

Wildlife Interpretation Section

Describe vegetation structure in wildlife interpretive section. Discuss mosaic of communities and states and refer to state wildlife action plans. – Easier to develop coherent action plans with higher probability of ecological success.

Change wildlife interpretations to be more specific, for example, call them wildlife habitat interpretations. Identify audiences and proper uses of information in document – emphasizing wildlife species and groups of species and their habitat needs at a micro and a landscape level will potentially inform better management decisions and convey complex topics to diverse audiences.

Describe how losses in wildlife habitat components will impact wildlife species – understand benefits and risks associated with moving between phases and states, and impacts on wildlife. Emphasizes management alternatives and highlights importance of transitions.

Threatened and Endangered Species

Potential for T&E species and importance of habitat or seasonal uses (nesting, etc.) – help give an overview of habitat and prioritize areas for improvement, maintenance, or potential land uses.

Incorporate needs of special status species. – Include federally listed T.E. Candidate and Proposed; federal sensitive and species management concern; state listed in NHP species and ranks.

Literature Citations

Back it up with literature, existing wildlife/habitat association models, etc. – needs to be defensible.

Transitions and Thresholds

More clearly articulation use of state transition model – stronger scientific foundation and documentation for transition and states and how to incorporate into specific management objectives.

Augment threshold analysis – Key ecological functions and important decision factor

Provide plant composition by canopy cover for thresholds between states (e.g. percent cover of juniper that leads to a reduction in understory to the point it won't carry fire) – relates to wildlife habitat suitability. Prompts management action before you've crossed a threshold.

State and transition models should include all historical states/plant communities, clearly define transitions and pathways (cause and effect), identify thresholds and triggers, and coincide with other classifications of adaptive management. – ensure that all states, communities and processes are identified to inform all objectives.

Better descriptions of transitions, thresholds, and disturbances of plant communities including grazing fire, drought, fragmentation. Include land use conversions and paths – more detailed explanations will add predictive functions and more clearly define change thresholds.

Describe indicator of when you will be moving from one state to another – to assist managers in making decisions related to planned disturbance.

Include historical activities, conditions, impacts of those activities. See Dr. Roger Sheley risk model – gives background of site. Will help understand transitions that have occurred to bring site to present condition.

Transition periods and drivers (temporal processes) (intensity) need better descriptions. How long does it take to transition between states? What modifiers can retard or expedite the transition?

Identify/describe rates of erosion – This is fundamental to the process. The users will need to determine if the rate of soil building is outpacing the rate of erosion.

Focus interpretations on pathways and transitions, and what happens to plants and animals when moving between states.

Describe why transitions are irreversible (difficult, expensive, risky).

Include how wildlife species tie into transitions and pathways.

Soils

Prioritize soil surveys in important wildlife habitat, rather than solely based on economics – to ensure we are working with accurate baseline data.

Incorporate biological soil crust information (important in terms of weed infestation potential) – relates to weed resistance.

Reclamation and Rehabilitation/Restoration

Provide a brief discussion on the site potential for reclamation/rehabilitation to better define what actions are realistically feasible.

Include restoration/reclamation pathways per ESD (can it be managed or not?) – If we have no control, we must know it.

Restoration “where do we want to be and how do we get there” – need to know what works and what doesn’t. What tools (prescription fire, Dixie harrow, chaining, etc.) will get us to the ESD that we want to accomplish. What is the associated risk, cost effectiveness and chance for success? Discussion of ways to work “move” system back to reference state from its current state.

More information needed on: rehabilitation, individual species range of foliar or canopy cover, height range, percent composition by weight, biological soil crust (potential impacts, results of degradation), ecology – not just management, definitions (frost-free vs. freeze-free), interpreting indicators of rangeland health and other agency protocols, and soil information by phase (increasing or decreasing erosion). – the more complete they are, the more they will be used. Makes ESDs useful to a broader constituency.

Describe potential of sites or states to restore ecological function informed by historic plant and animal communities – current ESDs do not include much information on restoration options or historic plant communities.

Landscape Scale

Describe the scale of the landscape that an ESD typically occurs – standardize understanding of each ESD composition.

Address issues of scaling of data and legitimate uses of data – facilitating data scaling and ID legitimate scientific uses will allow larger scale planners and implementers to make more science based recommendations with known degrees of accuracy.

Identify associated ES on a landscape basis that contribute to the spatial needs and seasonal use of wildlife. – Understand landscape level relationships to meet the needs of wildlife. Importance of inclusions.

Integration with other Evaluation Mechanisms

Need to develop ways that the ESD can better integrate with other rangeland evaluation processes such as TR1734-6 interpreting indicators and rangeland health assessments – ESDs are used in other decision processes. Need consistency.

Make sure the ESDs incorporate other NRCS tools and ensure consistency between tools – "tools coordinated"

Need to have crosswalk between ESD and other classification systems – to provide consistencies between different classification systems.

General Presentation

List/prioritize wildlife species, game/non-game, T&E, minor species needs – for regional relevancy, increased efficiencies of wildlife inclusions, and improved communication.

Need more detail in both wildlife and plant community descriptions. Breakout species, season of use, plant preference (see Forest Service reference) – need more detail on interactions of wildlife, livestock and plants.

Standardization for site descriptions and methodology for measuring variables, i.e. structure (cover etc.) – Plant and animal scientific name should be added for clarity. Common format will enhance user friendly.

Eliminate value laden terms like "degraded" and substitute well defined ecological terms. Include reference to a glossary. Eliminate range/forester bias.

Historic wildlife/anthropogenic uses – adds context and cultural importance.

Need for supporting scientific data – soils data, habitat references, model transition reference.

Cite the sources and methods used in making entries in ESD sections – unclear if it is opinion, scientific fact, etc. How robust are the sources?

Provide options for discussing uncertainties, caveats, and source of data – should be some way to track information.

Document when (dates) and where (references) data was acquired. Coordinate other data sources from other agencies to increase number of data points. – Want to know if data is

correct, conditions can change (precipitation for example). Want to know who did the work and what kind of surveys. Other agencies have valuable info.

Insure that the data in the ESD is accurate, complete, and referenced (including metadata) – improve credibility.

Document influence of adjacent or unique ESDs (e.g. riparian areas). – Important to evaluate influences to a site at a spatial and temporal scale.

Riparian Issues

Current ESDs do not deal with riparian issues well given their importance – Riparian areas are very important and are understated.

ESD Development and Format

More user friendly both online and field in acquiring information – online site not easy to bring up maps, ES, and crosswalk to ES descriptions.

Develop a consistent, standardized format – increase ease of use and facilitate communication.

Be specific as to species (plant and animal) in the narrative, define all terms and standardize the ESD format – East of use, especially for new employees and those new to this concept.

Organize categories for each animal species, sensitive plant species, noxious weeds, keystone species, etc.

Standardize ecological site names within MLRA across administrative boundaries – need common language for communication across landscape and administrative boundaries.

Standardization of ESD across state lines – currently large variation in format across state lines leading, potentially, to inconsistent application.

Organization and structure should be standardized within the document. – It would be easier to search documents if the organization and structure was somewhat standardized.

Data organization. Make site names same use either soils names of plant communities. Reorganize text so ideas do not mix. Keep plant and animal community info separate but linked. Make data quality clear. – compartmentalizing and linking data in an improved structure will allow for more interps and analysis.

Consider referencing/hyperlinking as a method to reduce the size of individual ESDs, for example WETS table for precipitation info and soils descriptions – ease of use, especially in the field. Allow inclusion of more detail without inflating ESDs to the size of books.

Utilize GIS as a standard tool in developing ESDs – this will standardize; allows visualization across landscapes

Prioritize information sharing within and between agencies – to facilitate communication and buy-in with peers, upper management, end users and to improve ESDs by incorporating interdisciplinary teams to review drafts.

Make more user-friendly by: including photos of each phase along with variations, including a descriptive name along with site codes, common and scientific names, put plant association in site name – makes ESD more useful to non-technical users.

Establish searchable database and standardize format across all states. Track treatments and monitoring and keep updated – enforces consistency, enables ease of use (computer user friendly) and greater access to info.

Include measures important to other resource specialists: cover, height and frequency for biologists, fuels for fire managers – promote/facilitate use by other specialists by providing common frame of reference.

Get interagency MOU (state and federal) setting ESD as the standard baseline and on spatial data standards – create seamless information. Assist NRCS in obtaining needed funding to develop highly useful ESDs.

Agencies, states, etc. need consistent overlap of ESD development and implementation – for consistency, comparable, decrease political boundaries.

Anthropogenic Impacts

Land use – recognize components and choices

Include descriptions of anthropological influences to a site (e.g. roads, recreation, urbanization) and their permanence on the landscape – direct human influences are important in understanding potential states and transitions.

Include potential effects of key 'atypical' disturbances on pathways/transitions (for example, energy development: wind, oil & gas, etc.) – some disturbance types may be unique to an area but very important. New disturbances developing all the time.

Include a description of historic human and current human impacts on site type, i.e. grazing, mining, etc. – this would be very helpful in the Ecological Site Interpretation section.

Include cumulative effects in narrative state and transition models possibilities (i.e. housing, energy development) - more user useful.

Climate and Precipitation

Include variability of precipitation – including such data will aid in setting production potentials for given sites. Also, this data can help in predicting within-state composition changes, ex. Prolonged drought resulting in dramatic increase of snakeweed in grassland community.

ESD needs to incorporate climate change (increased CO_2 and how that could potentially influence predicted highs and lows of expected above ground primary productivity and cover of

different plant species – eventually this will be one of the biggest drivers of expected plant composition in the intermountain west.

Reference Sites

The ESDs need to give re-assurance that all the info this is driving the estimations of potential above ground primary productivity and percent cover needs to be based on best possible ungrazed "relict sites"/reference areas (especially including estimation of expected rates, amounts and kinds of erosion) – so users can trust and have good faith in the potential estimates given in the USD!

Disturbance Regimes

Disturbance regimes, i.e. fire frequency and effects of drought, grazing, insects, disease, etc. effects of common weed species – this has already been discussed but needs to be more intensive. Right now it is vague.

Minority Opinion – This was provided by one individual who refused to work within his group. Many, if not all of his comments have surfaced in the summary

1. Develop a credible scientific basis for developing ESDs.
    a. Use accepted vegetation classification methods
        i. Canopy cover data
        ii. Floristic analysis
        iii. Structural data
    b. Make process veg-driven, not soils-driven; or redefine the soil survey process to adequately incorporate veg ecology expertise.
    c. Recognize the distinction between classification and mapping. ESDs are currently map units which are retrofitted soil polygens. In many cases, the soil maps are not adequate to the task.
    d. Vegetation cover by species should be the primary criterion for defining ESDs and further subdivision could be based on productivity differences that are correlated climate, physiography, and soil properties. ESDs can be viewed as sublevels of PNV plant associations.
2. Develop quantitative definitions and descriptions of each plant community in an ESD.
    a. Includes clear definition of thresholds between states
    b. Allows habitat suitability of each community to be assessed for any wildlife species as needed.
3. Describe natural disturbance regimes in the reference state and the range in mixes of communities within that state that resulted from that regime.
4. Develop a hierarchy of ESDs that will allow combination to address issues at landscape scales.
5. Crosswalk all communities to the NVCS or use NVCS tapes as the communities on ESDs.
    a. NVCS is also a work in progress so data collection should serve both ESD and NVCS development.
6. Develop rigorous criteria/processes for building STMs consistently. Include data requirements for each state and community within a site.
7. Design a testing process for ESDs and STMs, and a rating system for ESDs that indicates their reliability to decision makers.

a. Based on amount of data available on the site and the amount of research literature supporting assumptions of the STM.

Partnerships

The development of ESDs as presented at this workshop is on fundamental opposition to the methods used in the Forest Service. This issue needs to be resolved in order to move forward with formal interagency implementation of ESDs. (David Taft, USFS-R4)