

2008 Bonanza Creek LTER Symposium

Charge to the Breakout Groups:

In the LTER proposal, we proposed that we would conduct a synthesis for each of our major themes over the four years of our current LTER grant: (1) Climate Sensitivity in 2006; (2) Successional Dynamics in 2007; (3) Thresholds in 2008; (4) Integration/synthesis in 2009. So our breakout groups for this year's symposium are specifically focused on making progress in the synthesis and integration of the thresholds and state changes theme. We proposed two questions and three tasks under the thresholds and state changes section of the proposal:

1. How often and under what circumstances does wetland drying or thawing of permafrost cause a change in ecosystem state?

Task T1. *Document hydrologic changes in permafrost-dominated wetlands (extent of open water) inside and outside burns.*

2. What disturbance-induced changes in functional types might trigger a change in ecosystem state, and what are the ecosystem consequences?

Task T2. *Determine the effects of altered disturbance regime on successional trajectory and ecosystem processes.*

Task T3. *Document impacts of disease and insect outbreaks on ecosystem processes.*

As with our goals with the previous research themes, we want to integrate more effectively our research efforts among these tasks with tasks in the other major thrusts of the research program (changing climate sensitivity, and successional dynamics). The overall goal of the breakout group activity in today's symposium is to help put together a road map of how we can achieve more effective integration of the thresholds and state changes research being conducted by BNZ LTER. Please remember that the NSF site review team was skeptical that the research described in the proposal would provide a rigorous analysis of whether thresholds were occurring or not.

To accomplish this, we will break into three groups organized around responses to different aspects of threshold and state changes in interior Alaska: (1) Hydrologic and permafrost changes in wetlands; (2) Consequences of threshold changes in successional trajectory, (3) Disease and insect effects on ecosystem processes.

Each of the breakout groups should address the following issues:

A. Detecting thresholds:

1. How can we most effectively use our experimental design to detect thresholds?
2. Do particular datasets hold the greatest promise for detecting state changes (including datasets other than those directly associated with the research tasks)?
3. How do we detect thresholds or state changes?

- B. Integration of threshold and state change research:
1. How can we achieve more effective integration of threshold and state change research among the threshold and state change tasks?
 2. How can we achieve more effective integration of threshold and state change research with the tasks in the climate sensitivity, succession, integration and synthesis themes?
 3. How can we achieve more effective integration of threshold and state change research with human dimensions research?
- C. What product or products should we work towards producing over the next year to provide a preliminary synthesis of our understanding of the threshold and state changes in interior Alaska? Should we work towards a *BioScience* paper or towards a special issue of a journal?
- D. What “threshold and state change” talks specific to your particular breakout group should we organize for the monthly BNZ LTER meeting that we will hold over the next year? Please identify both speakers and titles. For each breakout group, we should identify a minimum of three talks, but feel free to propose more talks if there is interest.