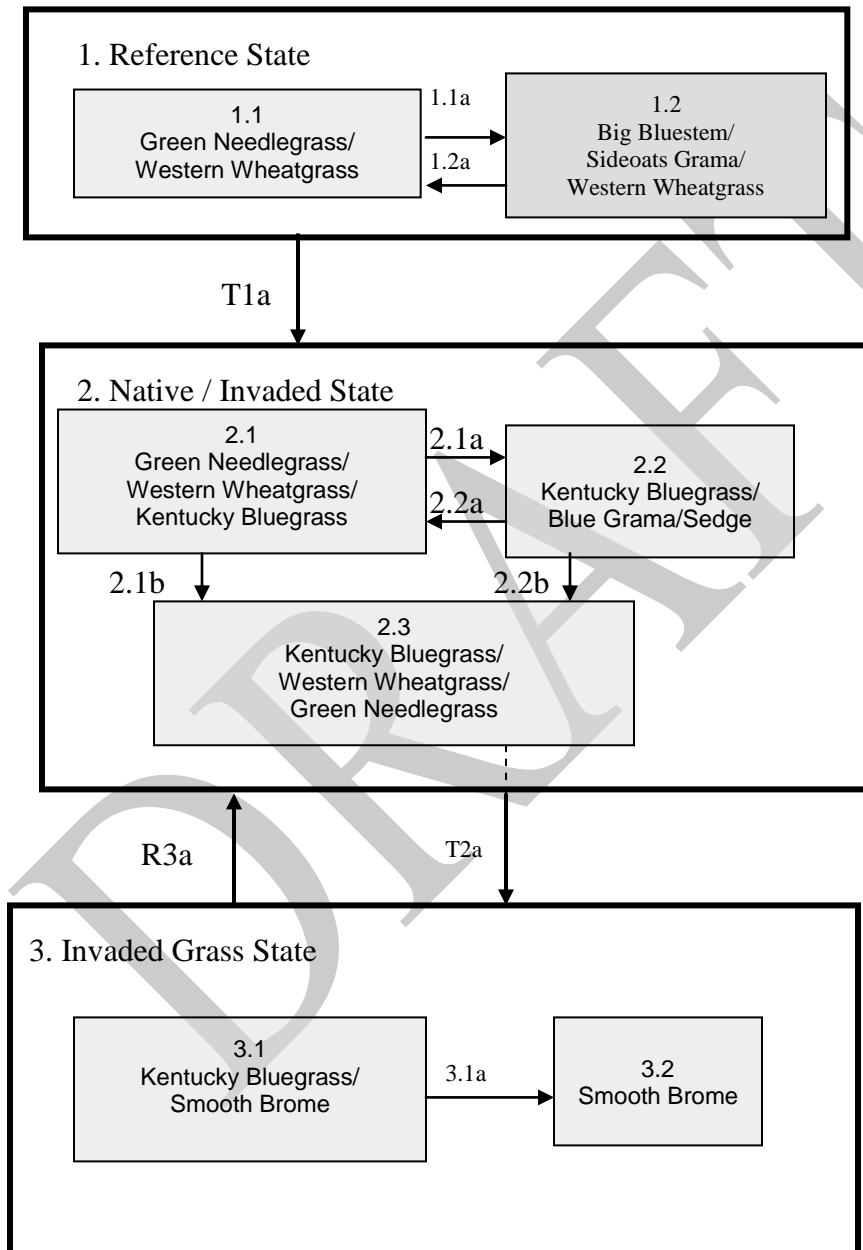


Summary notes of threshold discussions from the meeting at the Mandan ARS station on October 30 – 31, 2007.

The following discussion would relate to loamy and possibly sandy ecological sites (unless otherwise noted) and would address the threshold occurring at transition T2a.

### DRAFT Loamy Ecological Site (055BY011ND) DRAFT



Jeff Dibenedetto – USFS

The pattern in the data suggests a shift occurs when cool season species (this cool season group would include upland sedges, native bluegrasses and prairie junegrass with K.

bluegrass making up 15-22% of this group) as an aggregate are > 20% of the canopy cover AND mid grass species are generally < 10% of the canopy cover.

#### John Hendrickson – ARS

Threshold appears to occur at 30 to 40% canopy cover (?) of native species. < 30% native species canopy, K. bluegrass will continue to increase and dominate regardless of management. > 40% native grass canopy cover and recovery may be possible without large outside inputs.

#### Jay Volk – BNI Coal

Large increase in K. bluegrass was recorded in 1998 – 1999 on two reference areas.

#### Shawn Dekeyser – NDSU

Significant increases in K. bluegrass and smooth brome grass on all sites between the initial inventory date in 1984 and the follow-up inventory in 2007. Some sandy sites did not show as significant increases in K. bluegrass as the other sites. Appeared K. bluegrass was replacing blue grama in these plant communities. Only disturbances occurring between the two study dates was an occasional fire on a portion of the prairie.

#### Kelly Krabbenhoff – KDK Consulting

Results of monitoring on reference locations for mine reclamation work established in 1979. K. bluegrass began to show up in plots in 1989 regardless of the management (grazed or rested). K. bluegrass increased in 1999 – 2000. Appears K. bluegrass is replacing blue grama on most sites. Over time, % cover seems to increase sooner than production but once either reaches approximately 10%; K. bluegrass begins to increase exponentially.

Thin sands ecological site show increase in K. bluegrass occurring in 2005 while shallow loamy ecological site has not shown an increase.

#### Mike Brand – ND State Land Department

Basis of the studies in Grant and McLean Counties was to determine is deferment benefits range recovery following drought. Study was on Sandy and Loamy ecological sites. K. bluegrass increased dramatically in 2002 on these sites.

#### Bob Patton – Central Grasslands Research Extension Center, Streeter

Frequency measurements across Bob's season-long grazing intensity study (light, moderate, heavy and extreme stocking rates) showed K. bluegrass increased across all treatments regardless of stocking rate (this would seem to indicate that the sites had already crossed a threshold prior to study – JLP).

Kevin Sedivec, NDSU Extension Service

Data collected from Sandy ecological sites at Camp Grafton (Eddy County). As K. bluegrass increased on the sites, warm season grasses (especially Prairie Sandreed) and native forbs decreased. Prairie sandreed was the first native grass species to decline followed by needle-and-thread. As K. bluegrass increased, bare ground initially increases and then decreases. Bare ground increases again as plant community approaches a monoculture of K. bluegrass.

Summary thoughts:

Based upon these discussions, we are proposing a starting point for the threshold discussion would be:

Plant community phase 2.3 is approaching threshold T2a when Kentucky bluegrass exceeds 30% of the plant community (by weight, frequency or basal cover?) and native grasses and less than 40% (by weight, frequency or basal cover?).

We never did resolve the issue of weight vs. frequency vs. basal cover. The next issue would be how to test this threshold. Also, 30% K. bluegrass may be the point where we begin to see the impacts. The true threshold might be something less than 30% K. bluegrass.