INTRODUCTION:
Temperature and precipitation are among the most important climatic factors for productivity in grassland ecosystem. Net primary productivity (NPP), which is biomass increment per unit of land surface and time, is an indicator of grassland productivity. Understanding climatic factors can help in managing grassland better and maintaining its productivity during changing climatic conditions.

OBJECTIVE:
Assess response of grassland productivity to temperature and seasonal precipitation anomaly

METHODS:

RESULTS and DISCUSSION:
NPP reduced with higher summer temperature (Fig. 2) while it increased with higher annual precipitation (Fig. 3; Craine et al., 2012). Annual precipitation explained significant proportion of variance in NPP ($R^2 = 0.36$) compared to summer temperature ($R^2 = 0.19$). Lower than normal precipitation resulted in declined NPP as seen in year 2012 (Fig. 4).

Seasonal precipitation anomaly results showed spring drought is more devastating to NPP compared to summer or fall drought (Figs. 4, 5). Spring drought resulted in soil moisture deficit which persisted throughout summer and negatively affected biomass productivity (Figs. 4, 5, 6).

SUMMARY and IMPLICATIONS:
The study results suggest that dry spring season is more injurious to grassland productivity compared to dry summer or fall and cannot be recovered by summer precipitation. Management of winter or spring precipitation for longer retention period could help in maintaining grassland productivity in Wyoming and similar conditions in western US.

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