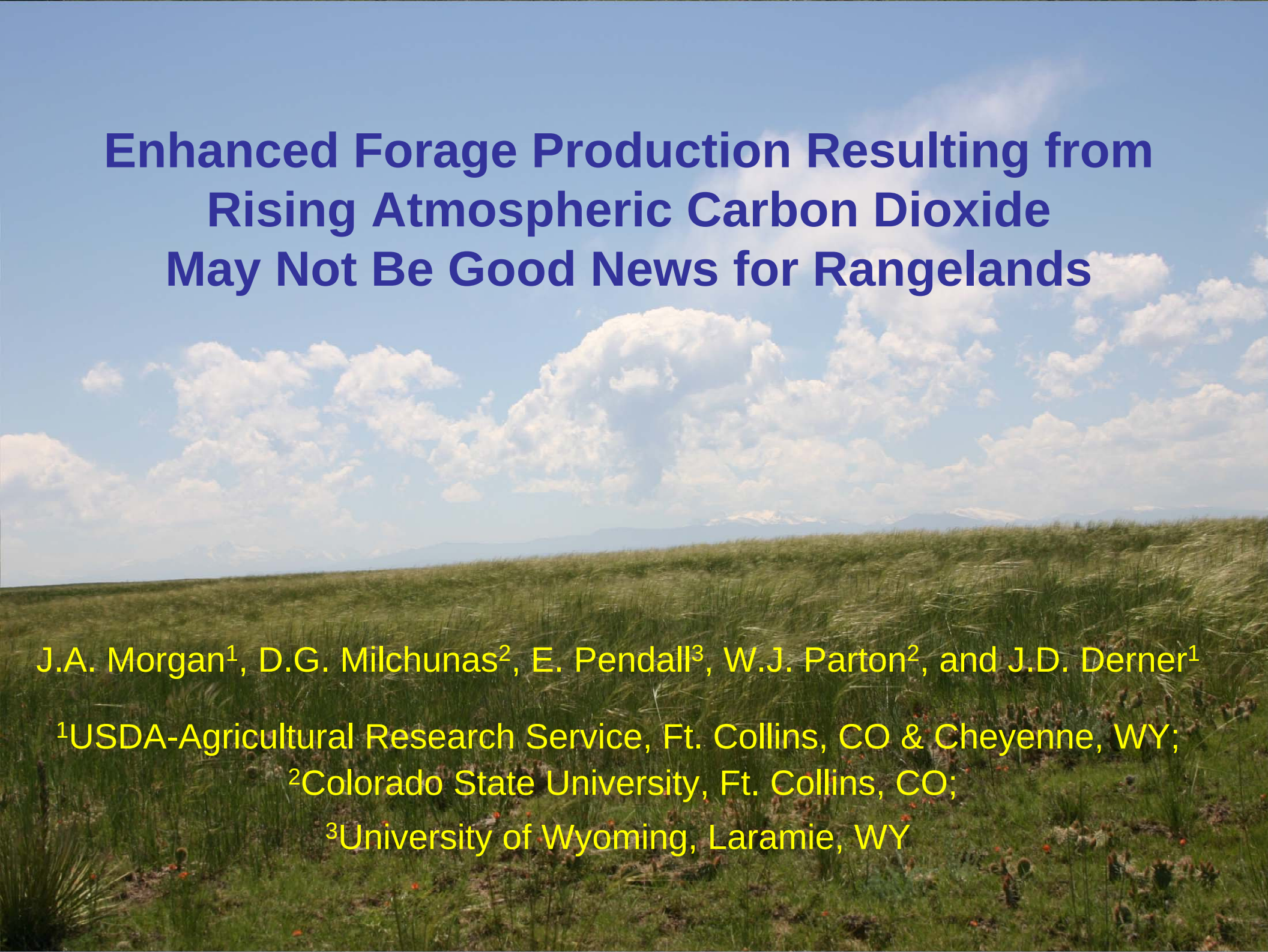

Enhanced Forage Production Resulting from Rising Atmospheric Carbon Dioxide May Not Be Good News for Rangelands

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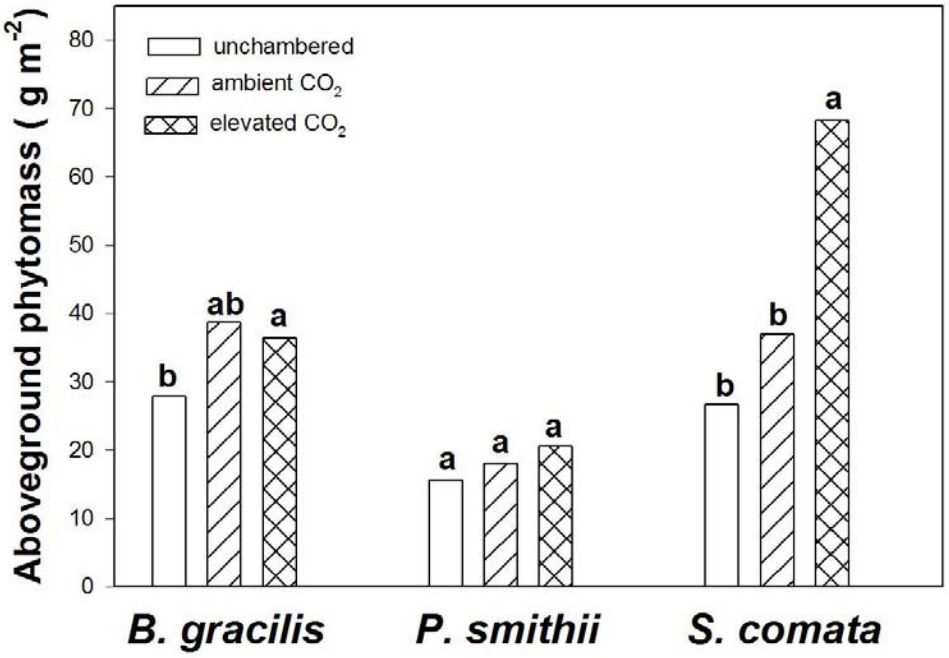
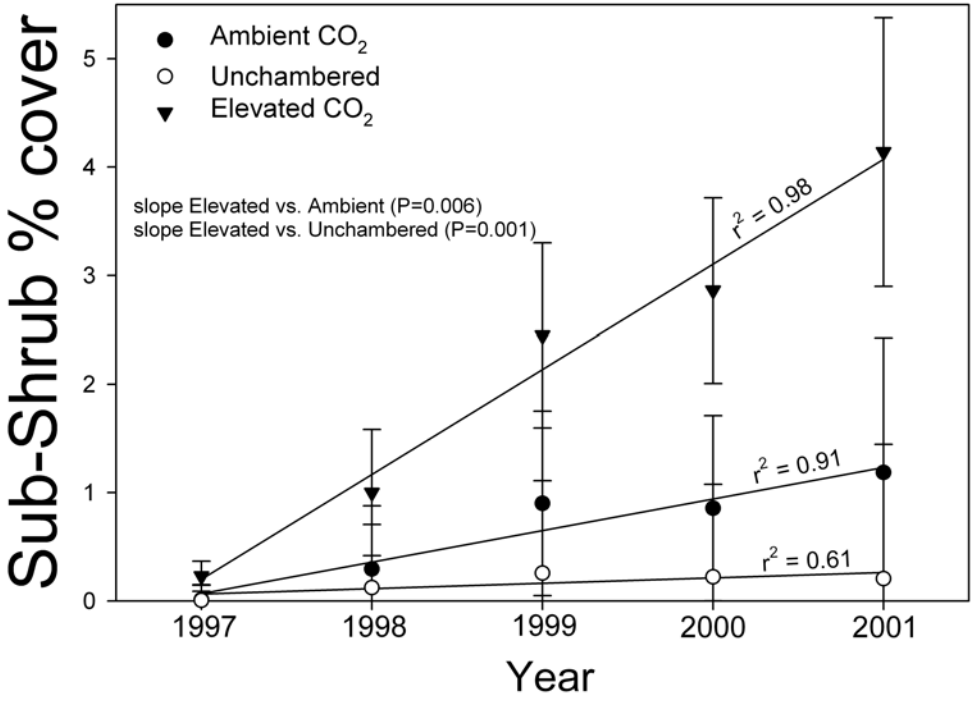
Semi-Arid Grassland Responses to Rising Atmospheric CO_2

- Increased NPP, inversely proportional to available soil water
- Decline in aboveground shoot [N]
- Lower forage digestibility
- Species shifts
  - > *Stipa comata* (C_3 perennial grass); *Artemisia frigida* (C_3 sub-shrub)
  - < *Bouteloua gracilis* (C_4 perennial grass)

CO_2 Increases NPP; Plant Community Less Useful for Livestock Grazing



AGB enhanced > 40%
Primarily *S. comata*
Decline in N and digestibility



Sub-shrub (*Artemisia frigida*) only functional group (C_3, C_4, forbs) to expand under elevated CO_2.