

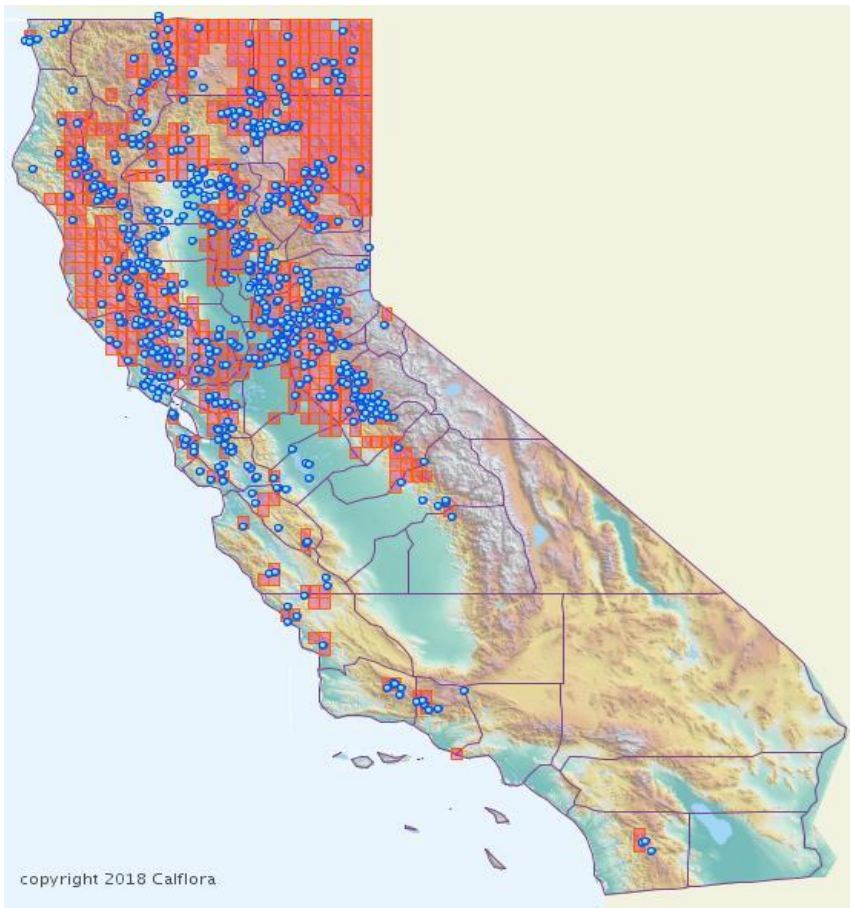
Invasive plant impacts on rangeland ecosystem services

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Economic impacts of medusahead



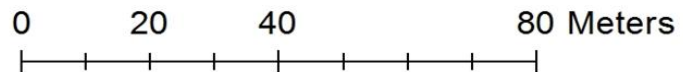
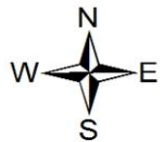
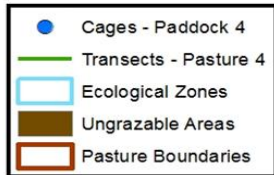
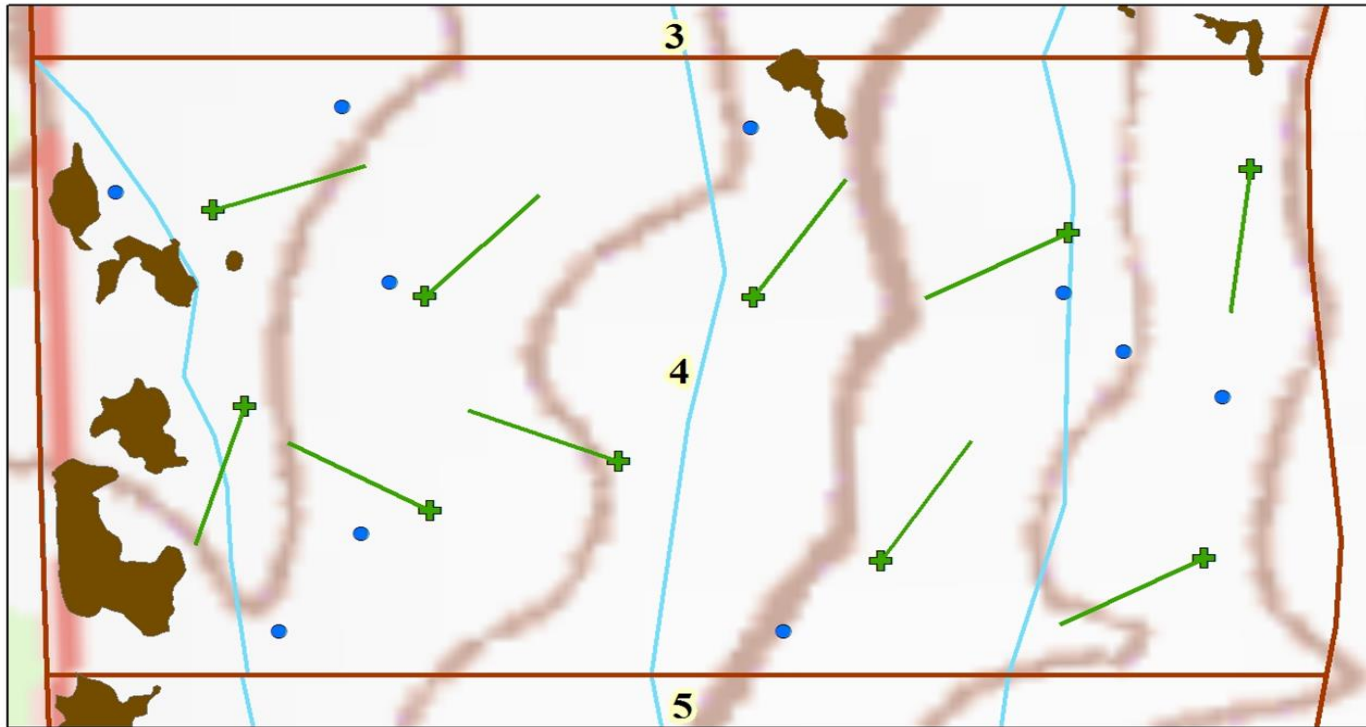
- Forage nutrition
- Forage quantity
- Avoidance





Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Pasture Four Cages and Transects

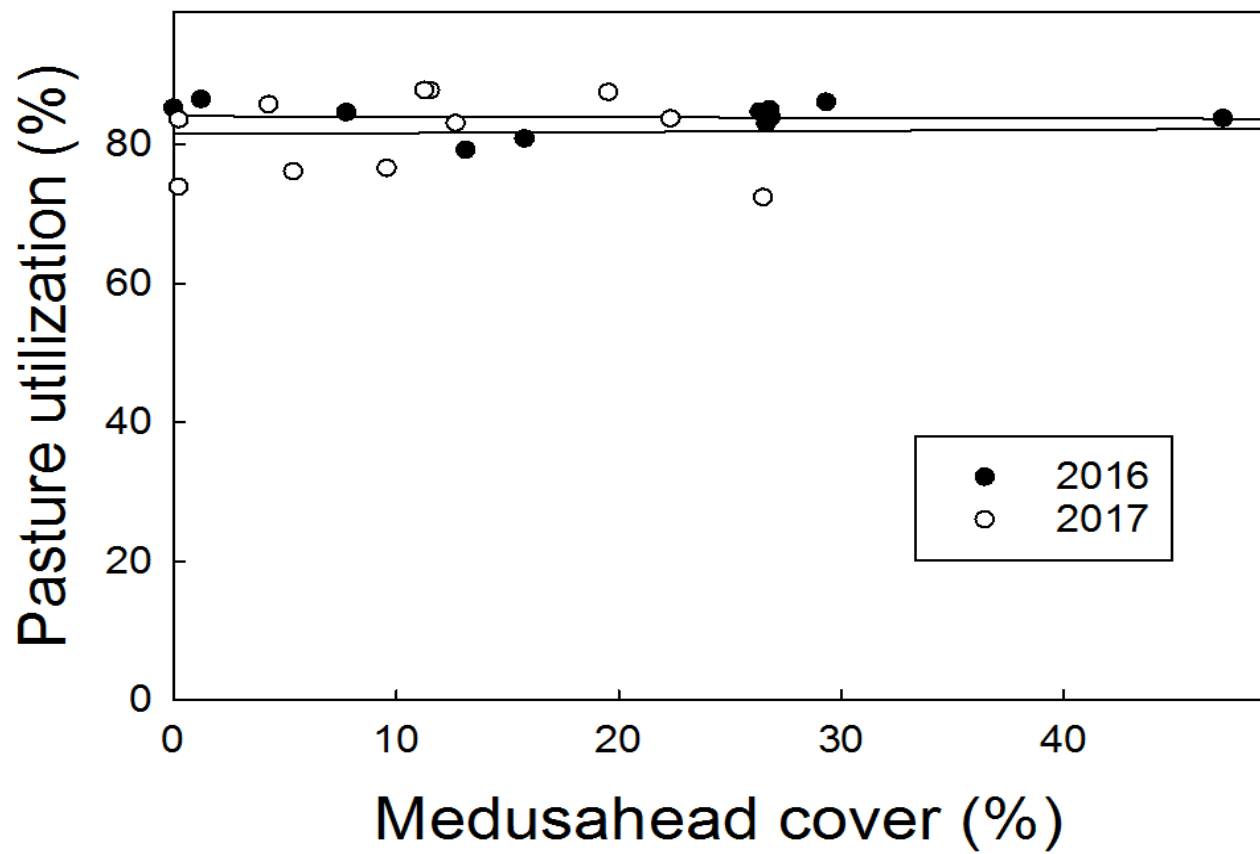


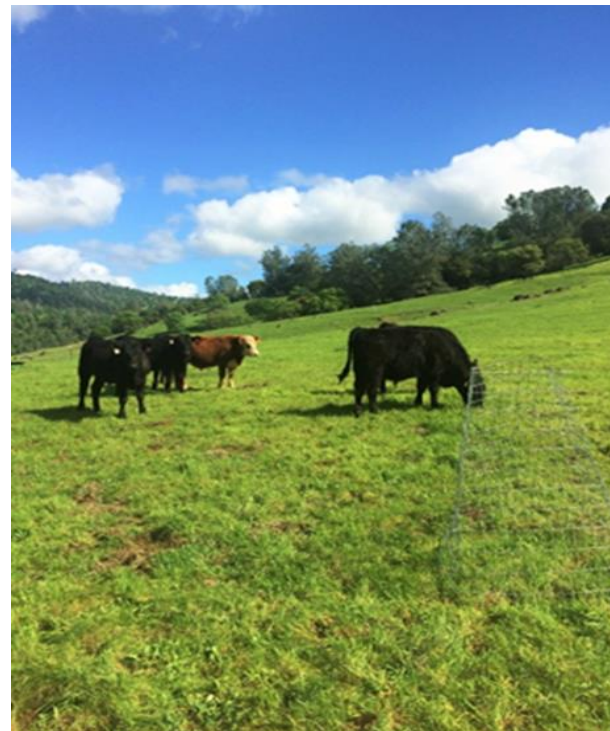
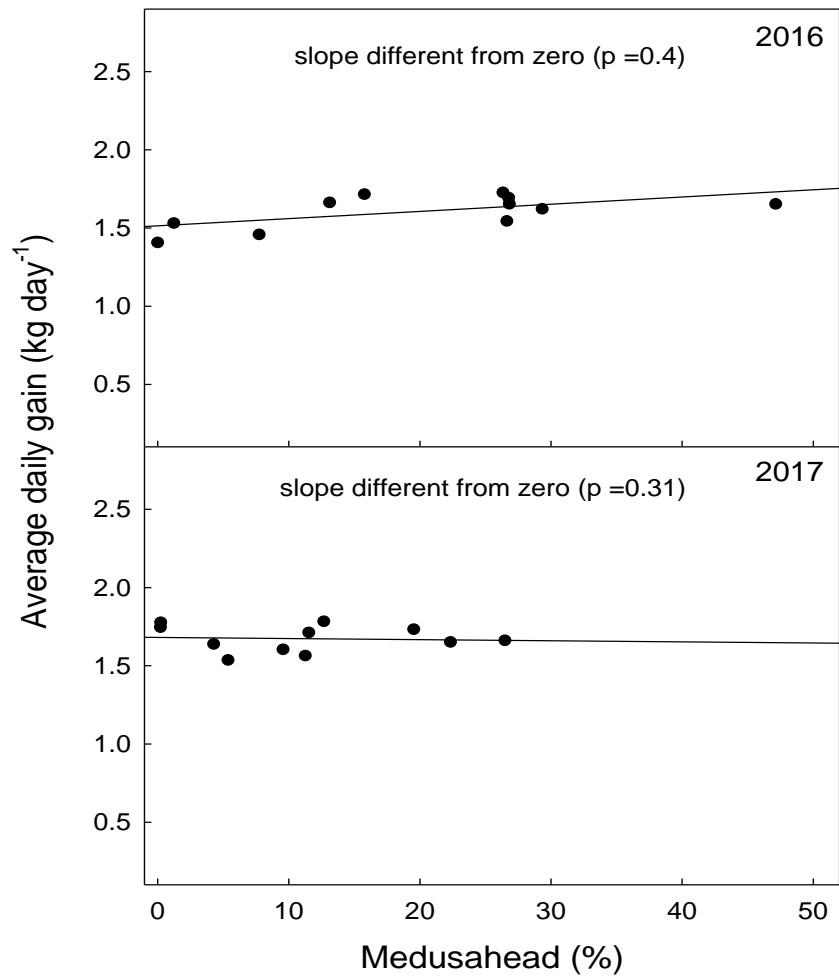
Stocking

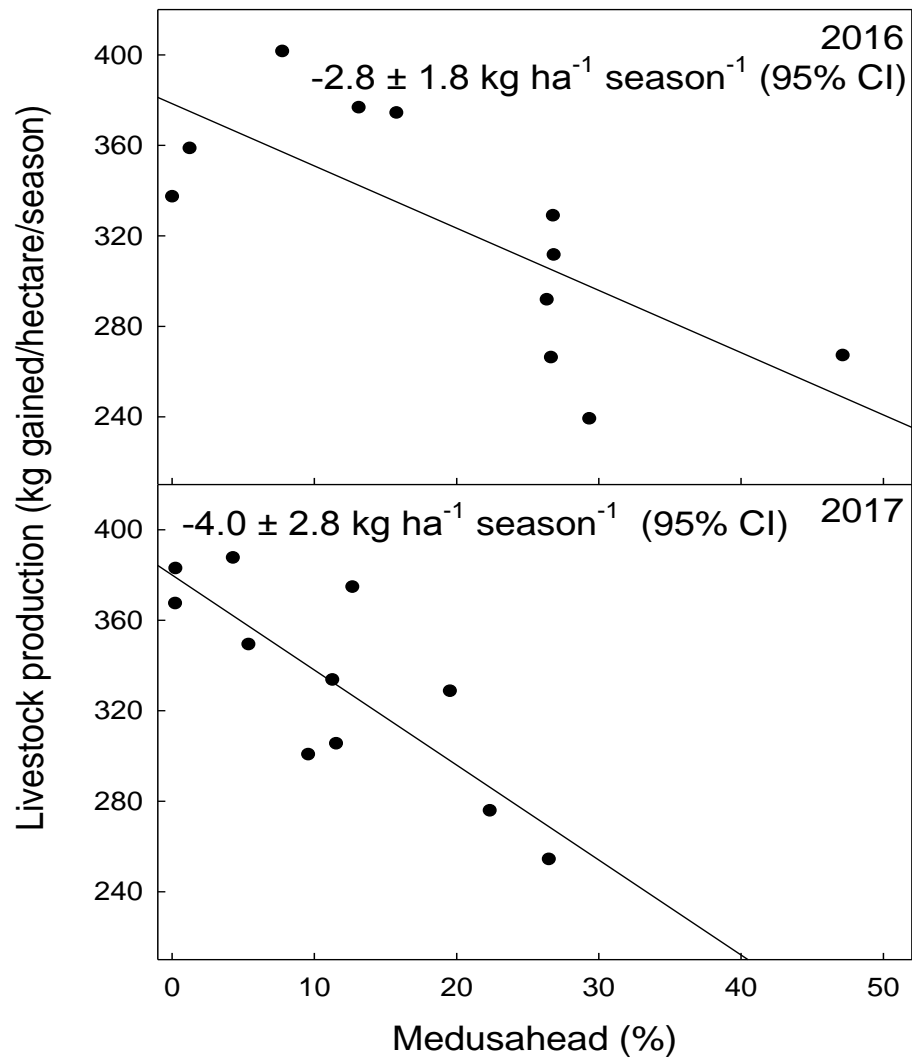
- Conducted trial in 2016 and 2017
- Stocked pastures (5 acre) with 6 steers March 1
- Weighed steers April 1 and put steers back on trial
- Increased or decreased stocking on April 1 depending on forage availability
- Weighed steers May 15

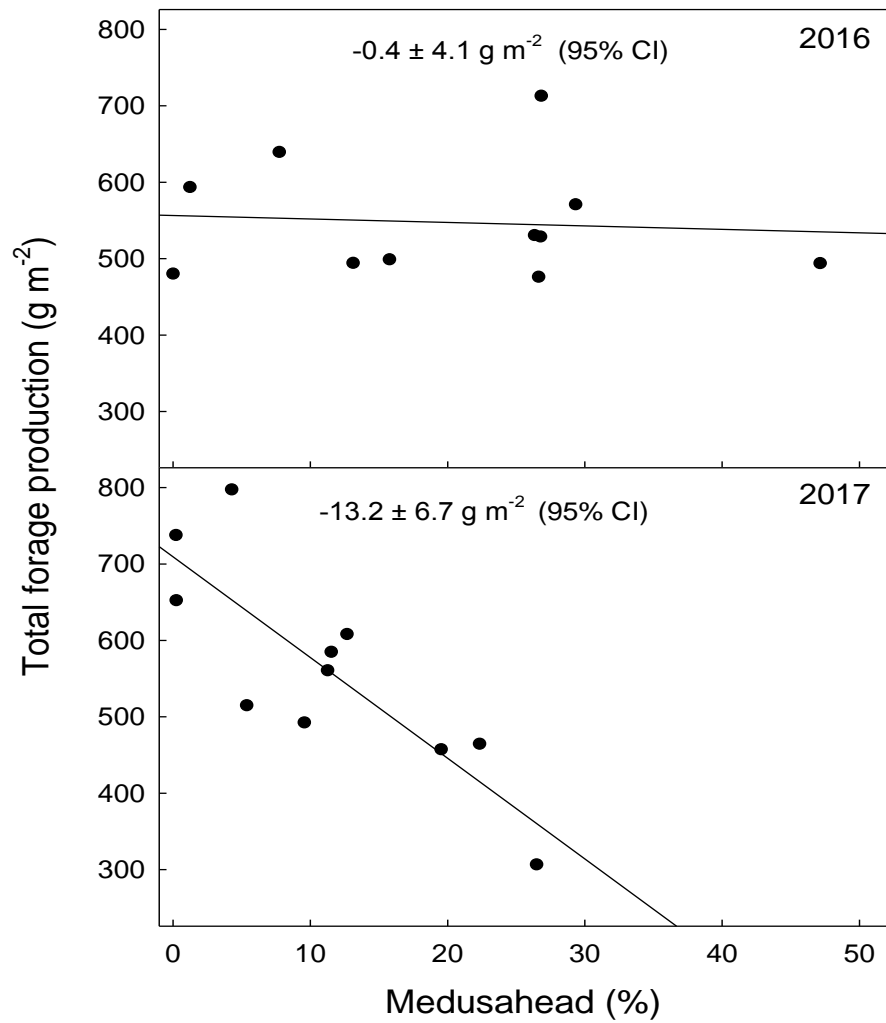




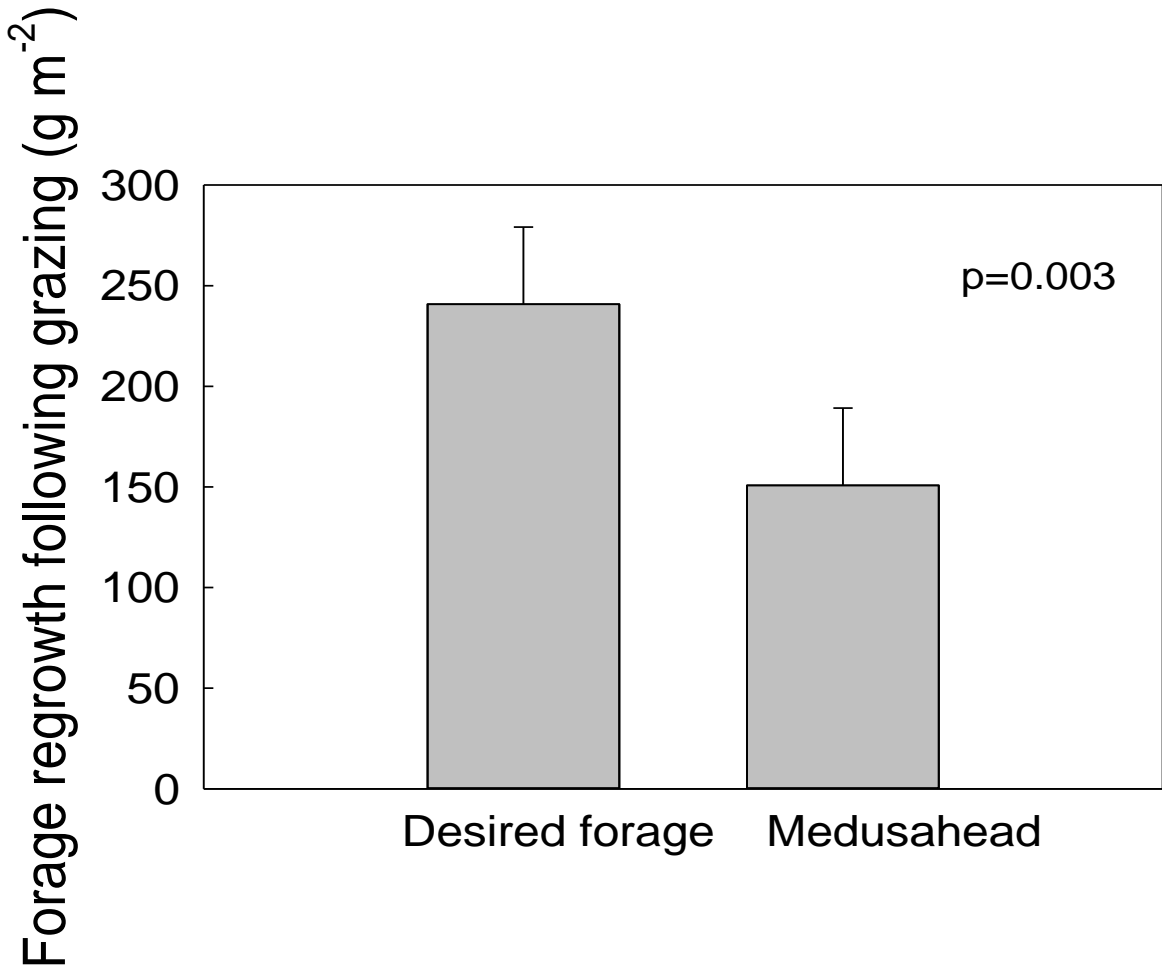








	Forage quality (Average \pm SE)	
	Across pastures	
CP	7.7 \pm 0.3	
ADF	39.4 \pm 0.5	
NDF	62.5 \pm 0.8	
	Annual rye	Medusahead
CP	8.1 \pm 0.6	9.5 \pm 0.8
ADF	33.5 \pm 0.9	38.5 \pm 1.4*
NDF	53.0 \pm 1.8	61.3 \pm 2.2*



Implications

Medusahead decreases gains by lowering carrying capacity rather than individual animal gain

Average effect size 3.4 lbs./ac/season range (0.8 to 6). At \$1.19 per lb. cattle, with a 10% reduction in medusahead, average revenue increase could be \$40/ac/season (range \$9 to \$71).

Cost/benefit heavily depends on stocking rate and timing

Effects on agricultural production moderately negative and align with effects medusahead has on other ecosystem services

