Clausen, Keck and Hiesey

◆ Pioneers of ecological genetics
  - Combining ‘modern’ tools of genetics (cytology and controlled crosses) with systematics and ecology

◆ Important figures in the evolutionary synthesis

  Stanford group:
  
  Jens Clausen (cytology and genetics)
  
  William Hiesey (physiology)
  
  David Keck (botany/taxonomy)
Achillea lanulosa exhibits clinal variation in natural populations across the elevational gradient in the Sierra Nevada

Objectives

- Move genetics from lab to field: must take natural variation into account in testing evolutionary theory!
- Separate effects of genetics from effects of environment
- Examine cytological variation within and among species
- Determine genetic basis of species differences
- Explore environmental determinants of geographic distribution of ecotypes
- Determine physiological effects of genes
Impact

- Experimental evidence for natural selection within species
- Graphic demonstration of adaptive genetic variation
- Exploration of relative magnitude of phenotypic plasticity versus genetically-based variation
- Demonstration of Genotype x Environment interactions
- Exploration of the genetic structure of populations
- Fundamental insights on the nature of species
- Investigation of “genetic architecture” of complex traits