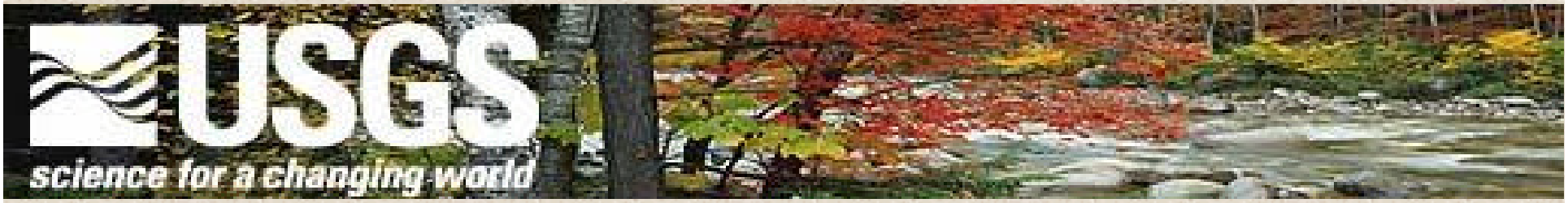
Inventory and Monitoring of Invasive Plant Species

Tom Stohlgren



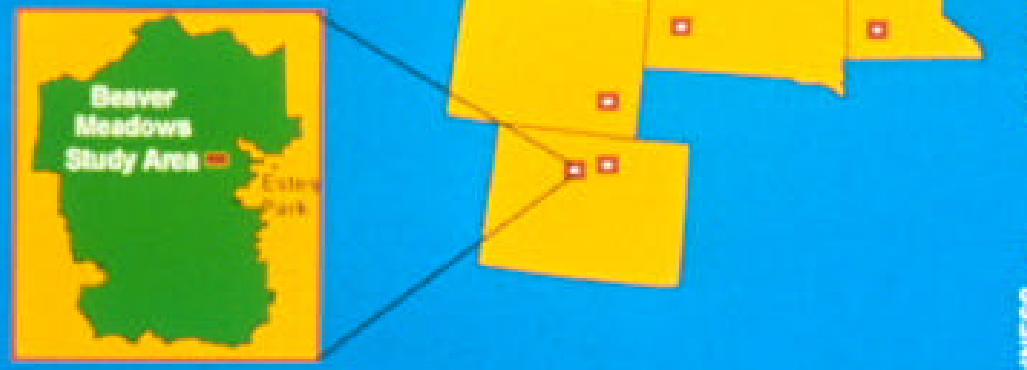
Main Project Web Page

http://www.nrel.colostate.edu/projects/stohlgren

Created August 2000

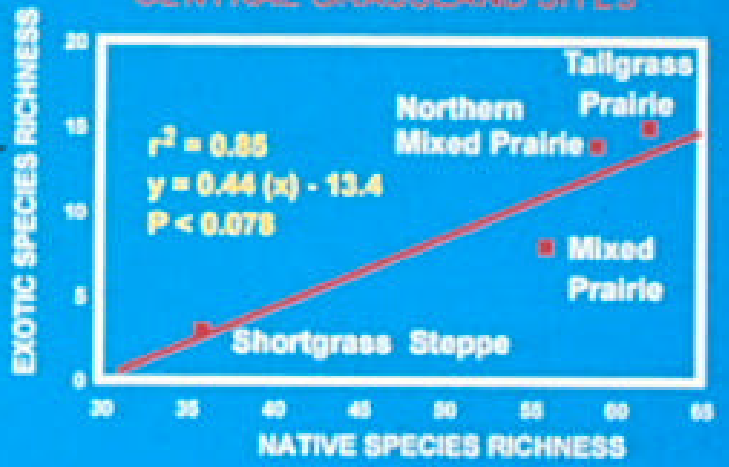
1995-1998

Rocky Mountain National Park

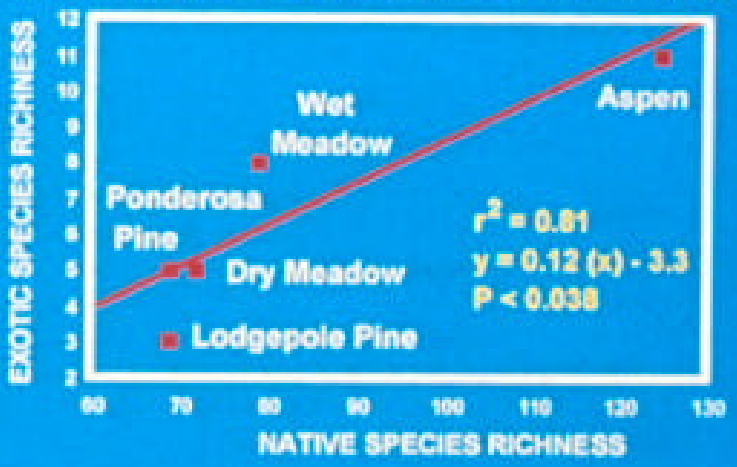


Study sites

CENTRAL GRASSLAND SITES



COLORADO ROCKIES VEGETATION TYPES



Stohlgren, T.J., D. Binkley, G.W. Chong, M.A. Kalkhan, L.D. Schell, K.A. Bull, Y. Otsuki, G. Newman, M. Bashkin, and Y. Son. 1999. Exotic plant species invade hot spots of native plant diversity. Ecol. Mono. 69: 25-46.

1996-1998

Study sites

	UNGRAZED EXCLOSURE PLOTS	GRAZED ADJACENT PLOTS	GRAZED DISTANT PLOTS
NATIVE SPECIES RICHNESS	31.5 (2.5)	32.6 (2.8)	31.6 (2.9)
EXOTIC SPECIES RICHNESS	3.1 (0.6)	3.0 (0.5)	3.2 (0.5)
FREQUENCY OF EXOTIC SPECIES	5.0 (0.8)	5.0 (0.8)	4.8 (0.8)

Stohlgren, Thomas J., Schell, Lisa D., and Vanden Heuvel, Brian. 1999. How grazing and soil quality affect native and exotic plant diversity in Rocky Mountain grasslands. Ecological Applications, 9(1) pp. 45-64.

Results from previous studies

- Hot spots of native plant diversity are highly vulnerable to invasion.
- Invasive plant species enjoy “the good life” (warmth, high light and water and nitrogen).
- Rare mesic habitats are very vulnerable.
- Roadsides and riparian zones are corridors of invasion.
- Disturbance is not necessary for invasion.

Objectives

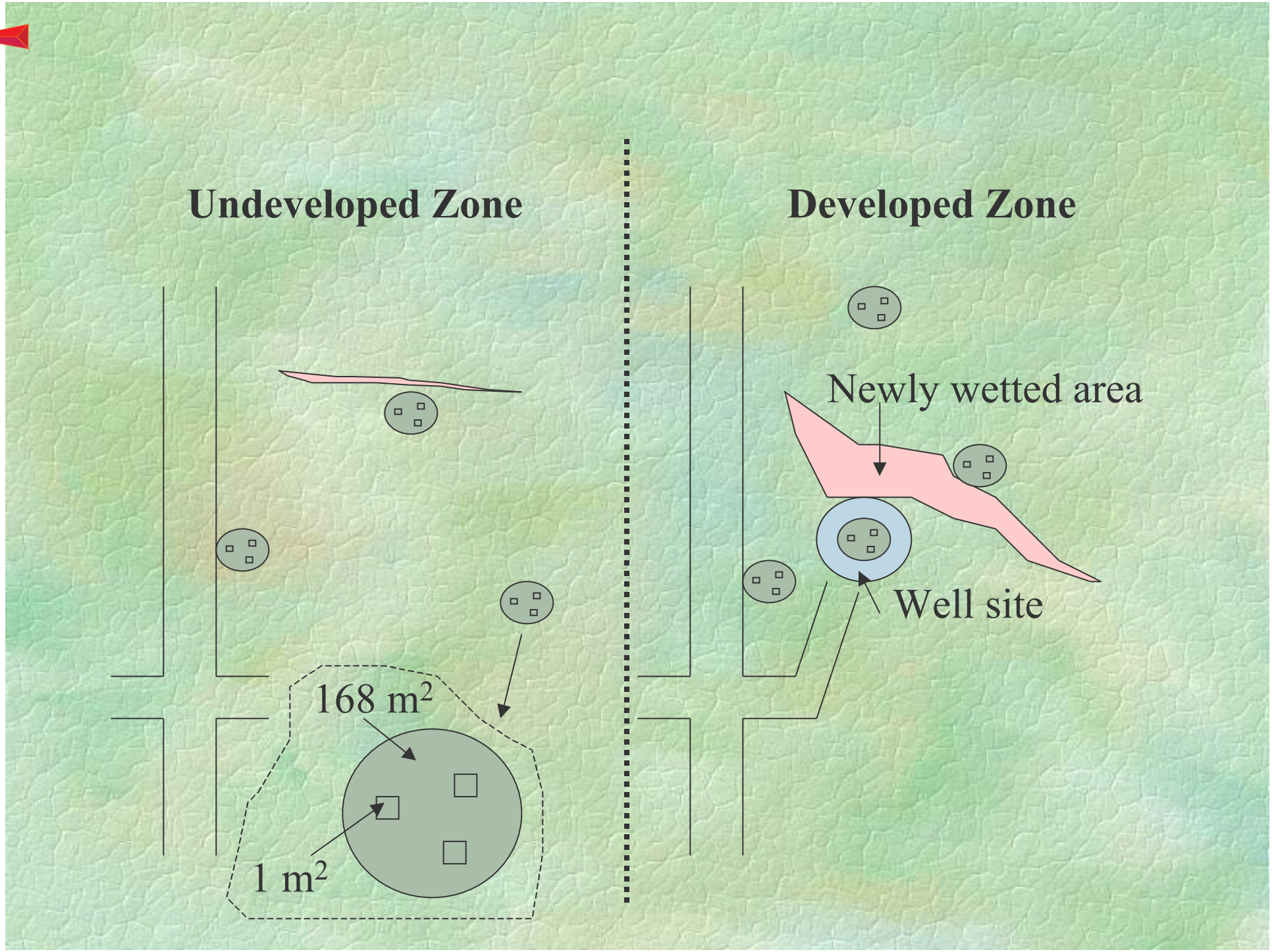
- Measure the richness, cover, and frequency of non-native species on CBE and adjacent landscapes.
- Determine which species invade which habitats.
- Determine the potential extent of invasion.
- (Determine the ecological effects of current invasion)

Hypotheses

- Increased weed invasions along roadsides, on disturbed sites, and in newly wetted habitats compared to undisturbed sites.
- Increased weed invasion near previously invaded sites.
- (Reversal of some weed invasions with the cessation of water additions to the system).

Sampling Design

- Stratify rare and common habitats and disturbance zones (paired plot design).
- Multi-scale vegetation sampling, and soils analysis (soil moisture?).
- Long-term study plots.


Undeveloped Zone
Developed Zone
Newly wetted area
Well site
168 m²
1 m²