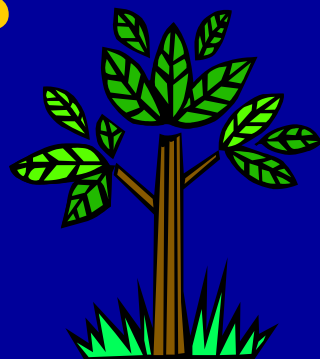
Slim Sam Aspen Restoration Project

Project Objectives:

- Explore the dynamics of small aspen stands
- Determine what limits successful regeneration
- Compare the effectiveness and costs of treatments



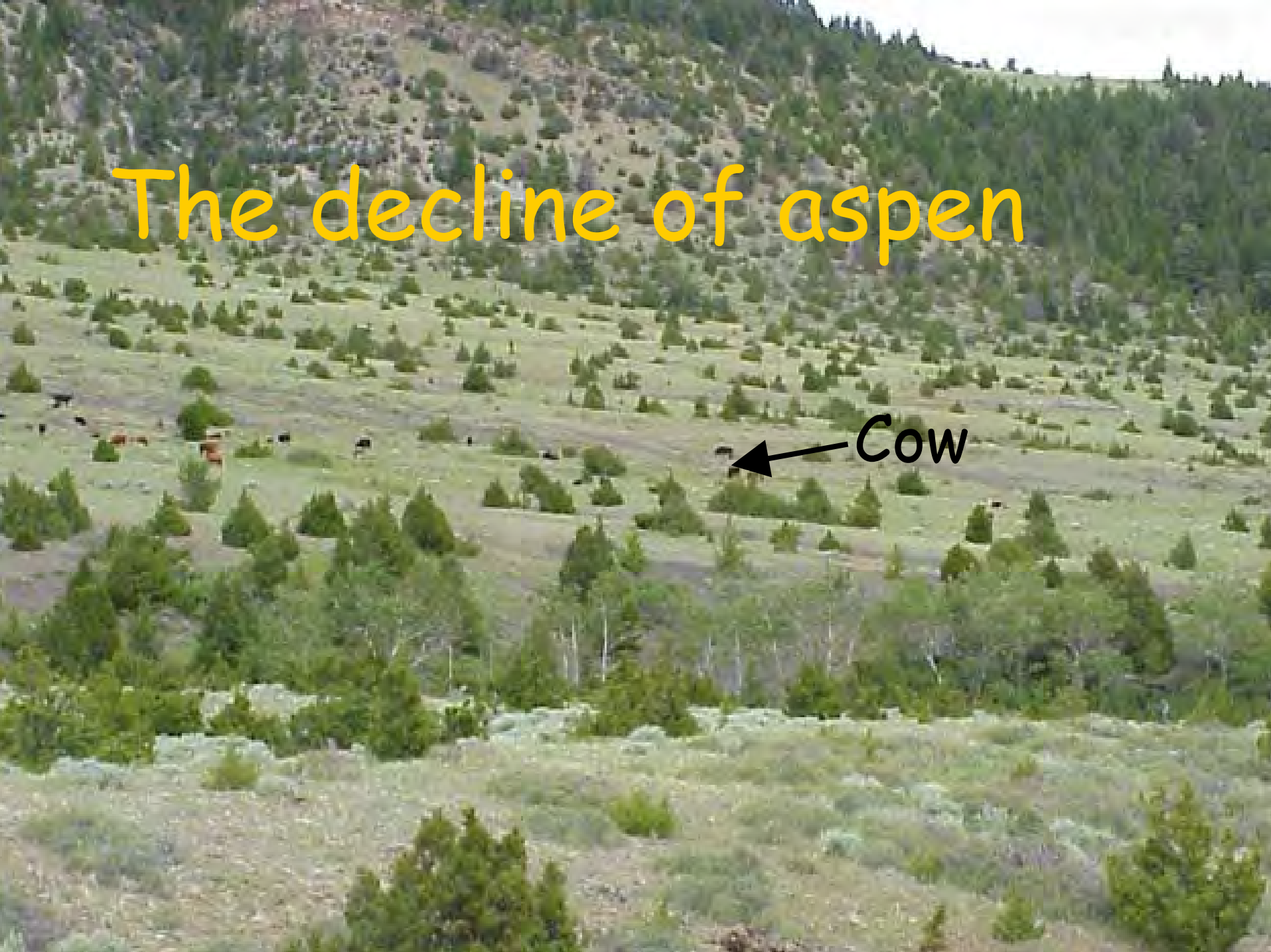
We love aspen!

- Aspen has declined by 64% in Montana.

- Many aspen stands on the HNF are literally falling apart.

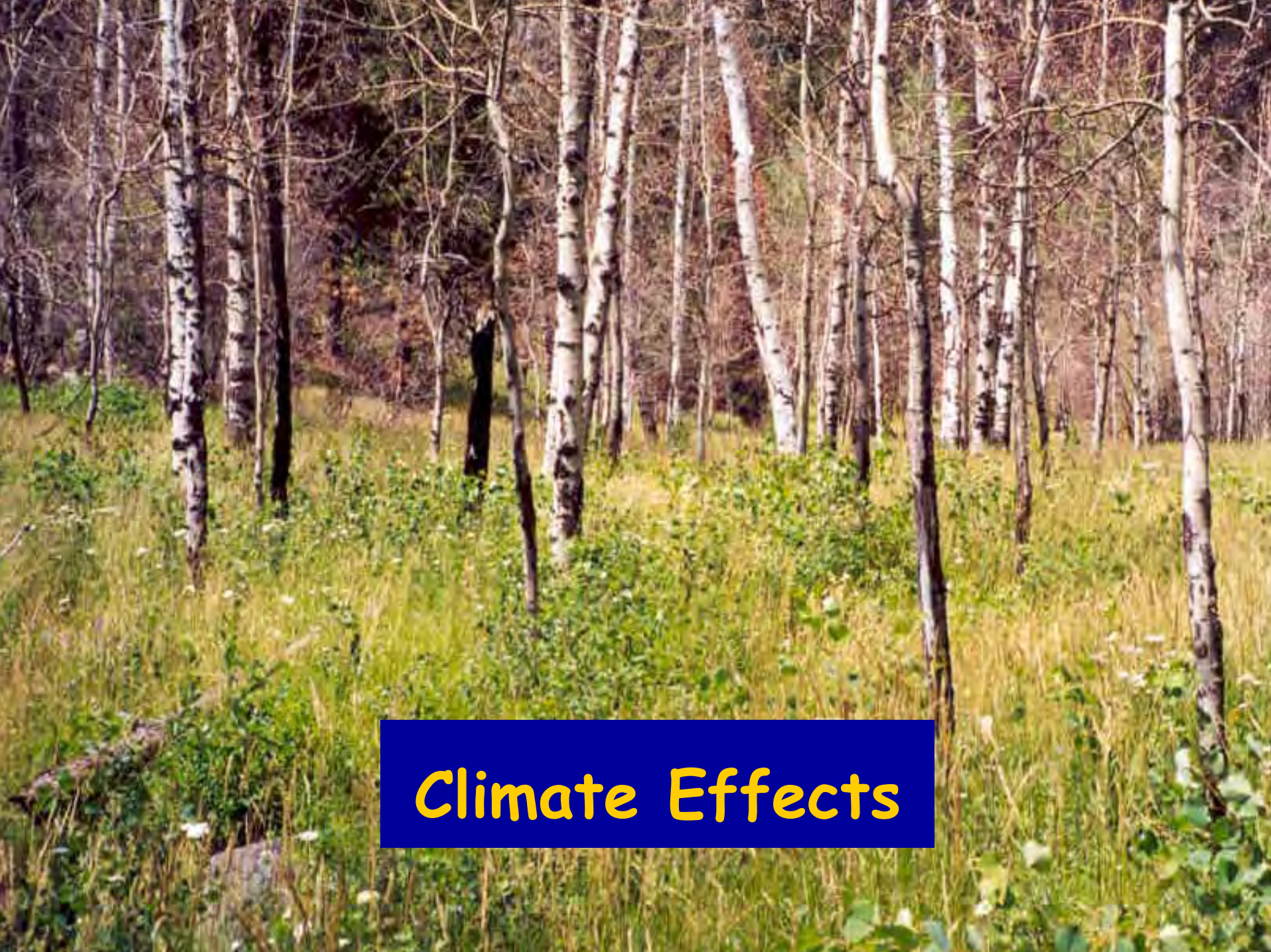
Aspen Characteristics

The decline of aspen



Fire

Ungulate effects



Climate Effects

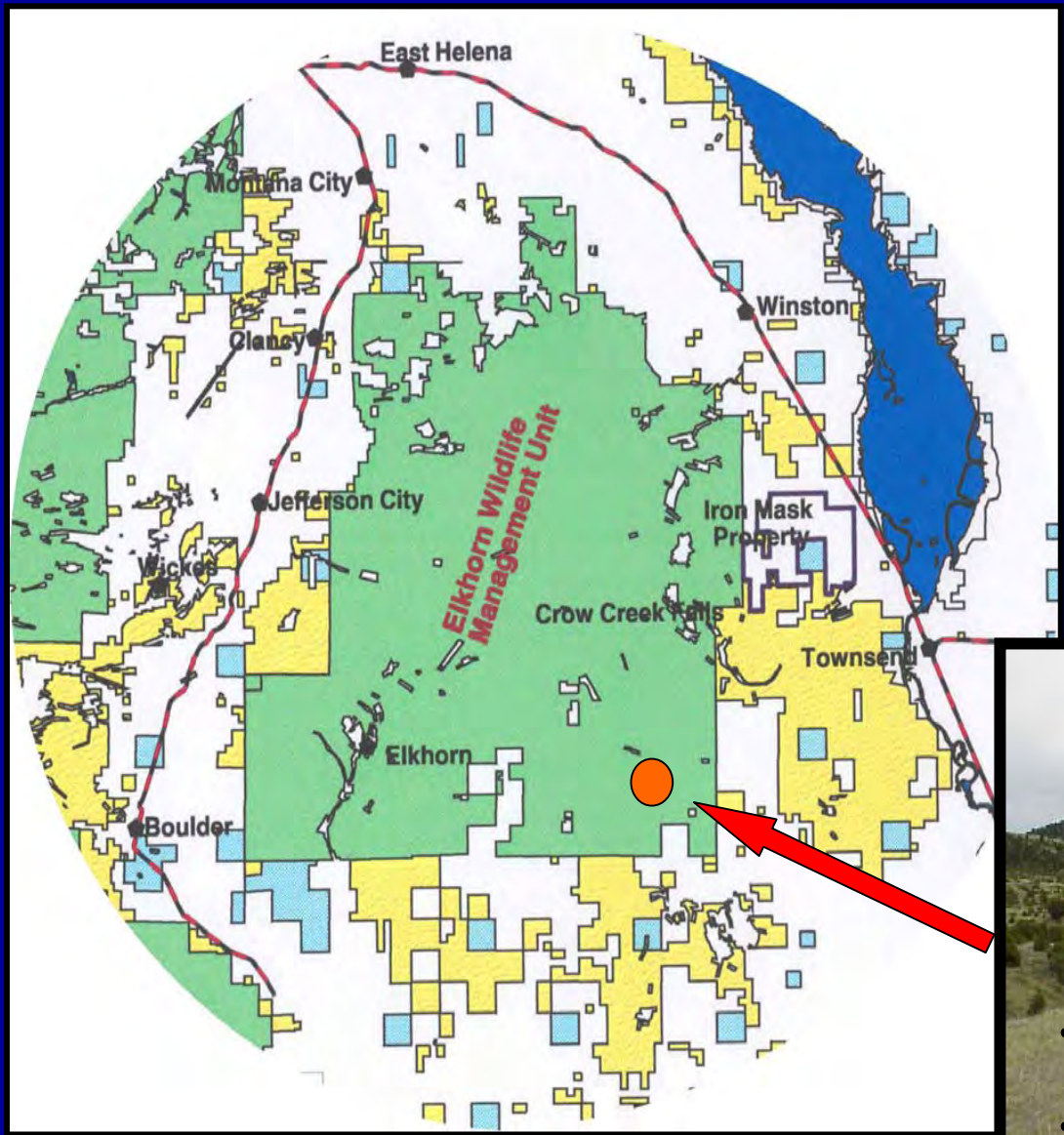
Aspen Regeneration Triangle

Hormonal Stimulation

Environment

Protection

The Elkhorn Mountains

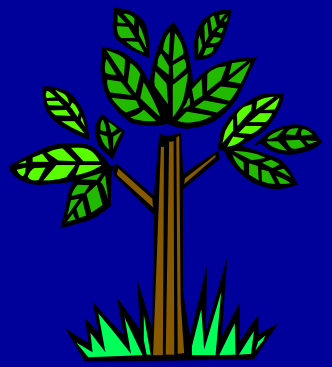


Slim Sam Aspen Project

18 aspen stands

- 2 + stands untreated
- 8 stands w/ conifers removed; 5 w/ slash barriers
- 8 stands burned in spring 2002; 6 fenced post-burn

Stands were 1-5 acres in size



The 19th stand

Methods

100 sq. ft.
belt transects

Point Counts and
Microplots

RESULTS

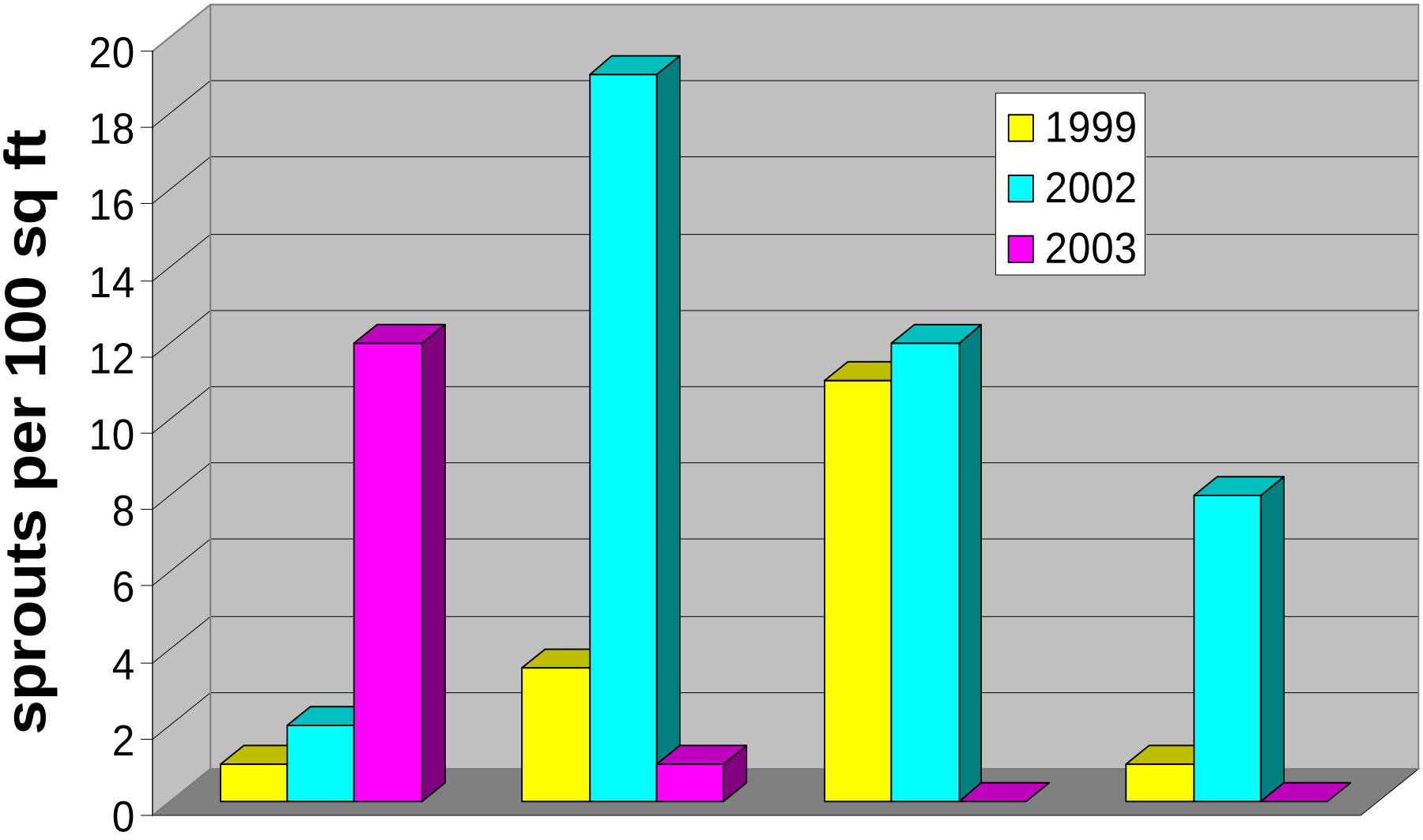
Density of live sprouts
100 ft sq belt transect

Newly burned stand-2002

1st year sprouts -2002

2nd year - 2003

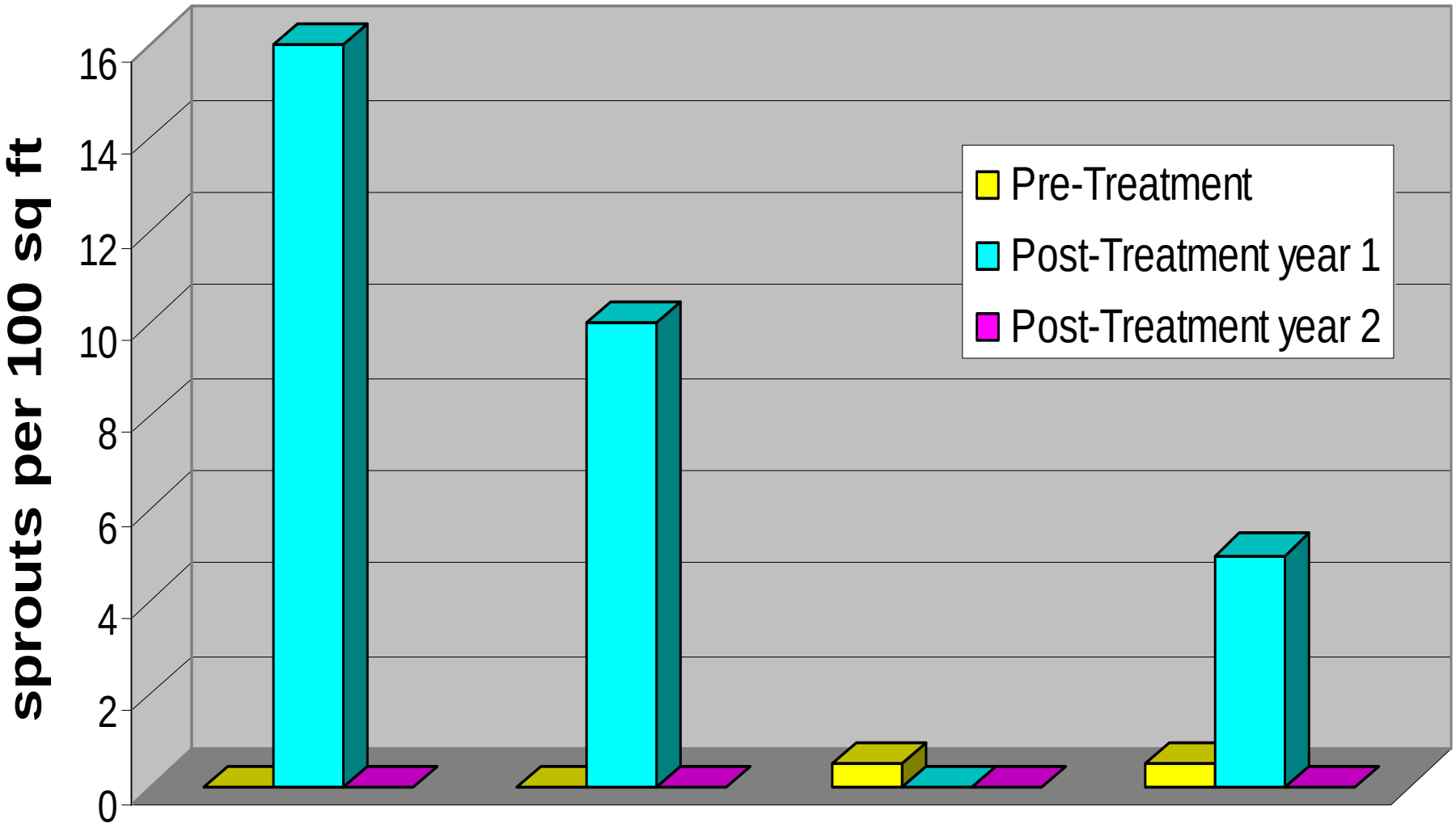
Transects - No treatment



Example - No treatment

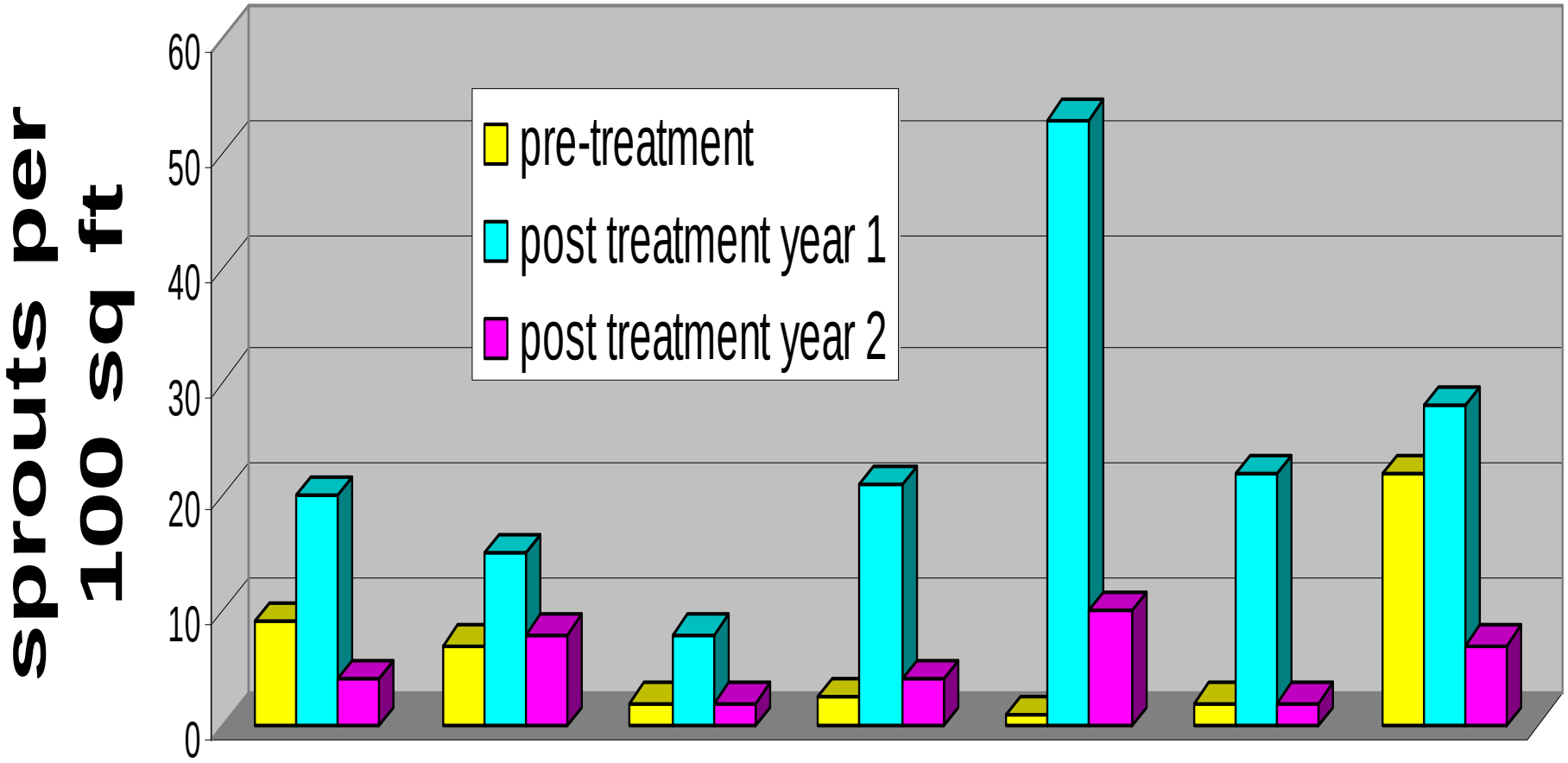
Example 2 - No treatment

Transects - Conifer removal



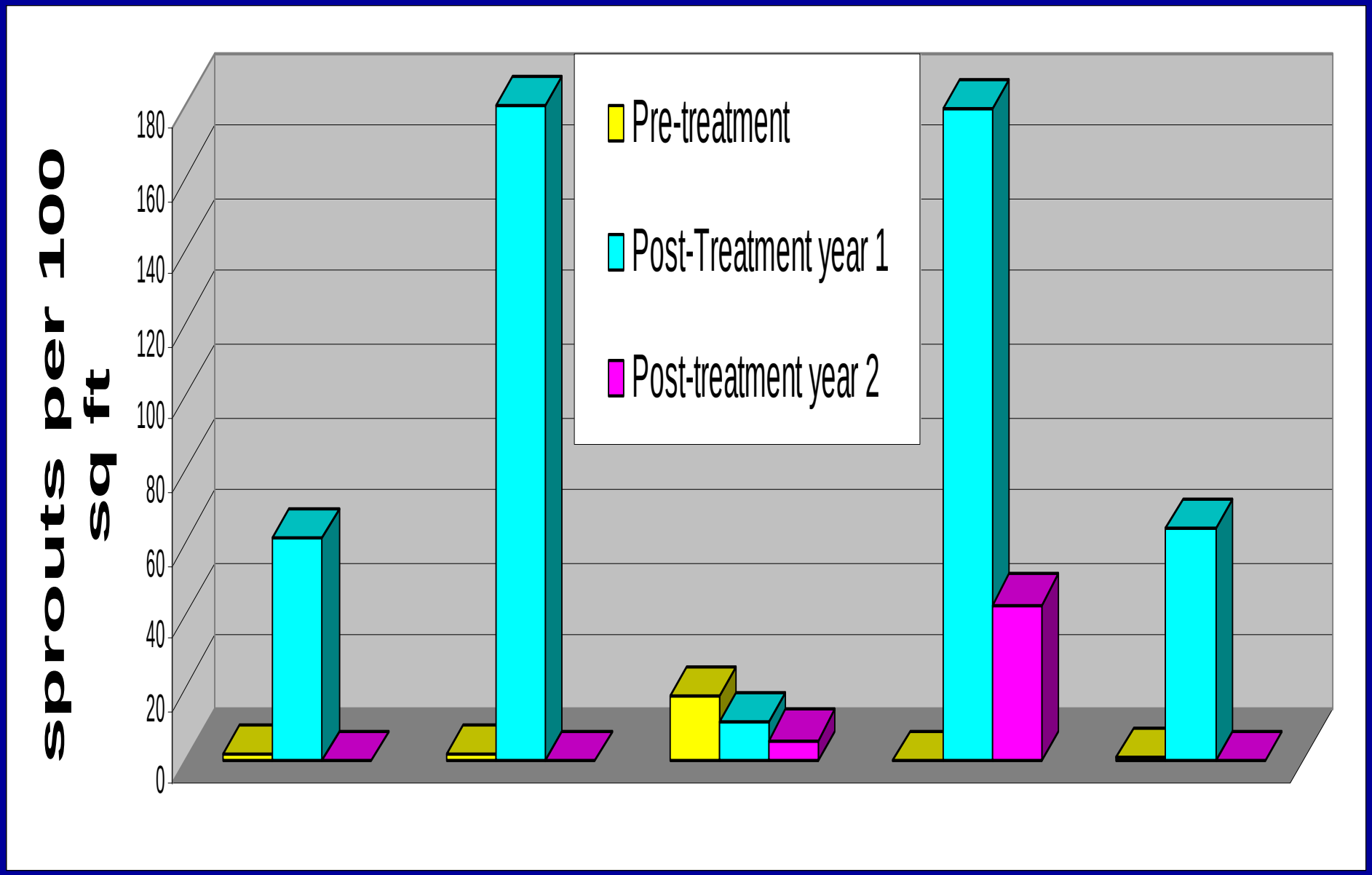
Example of Conifer Removal Treatment

Transects -Brush Fences



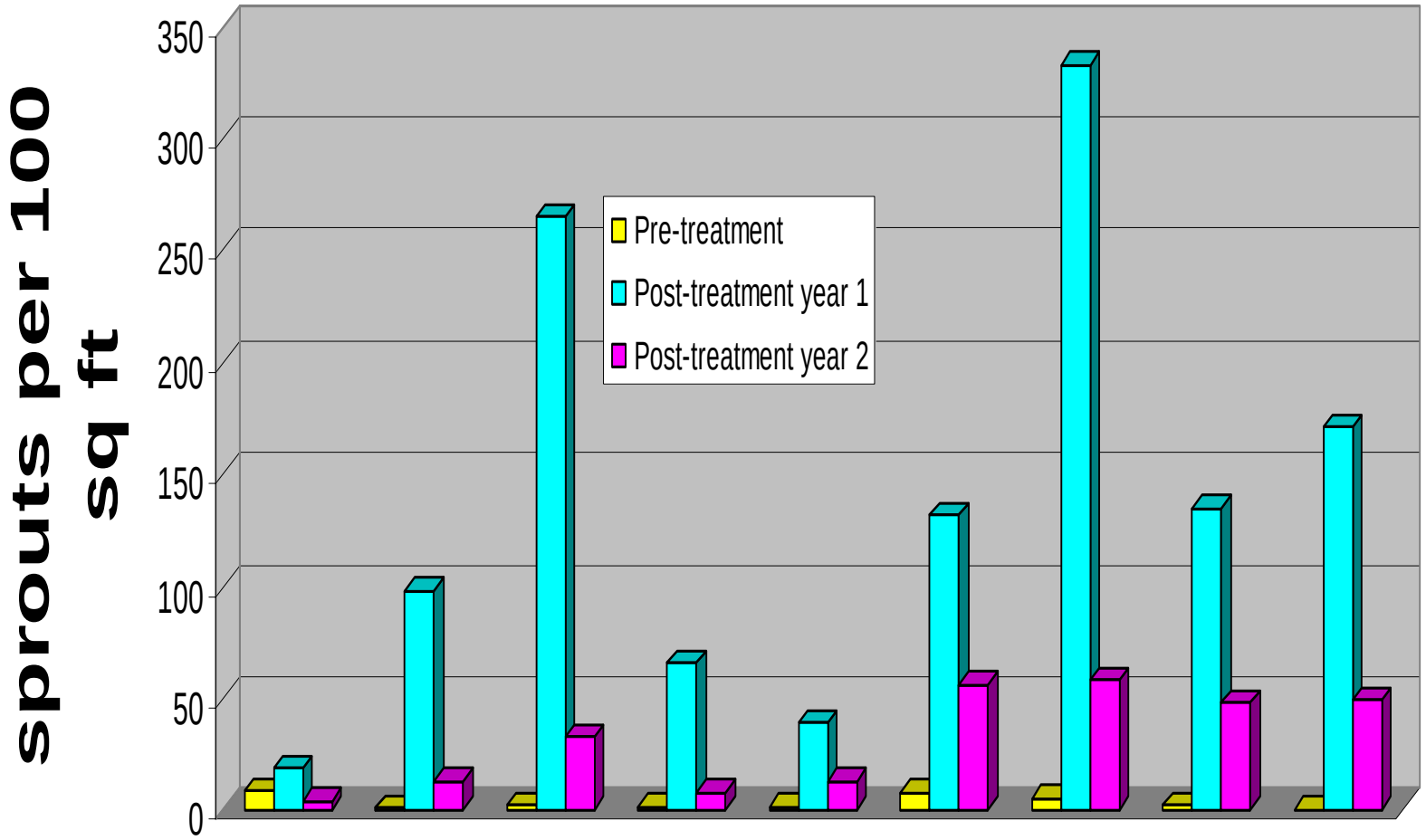
Example of brush fence

Transects- fire only



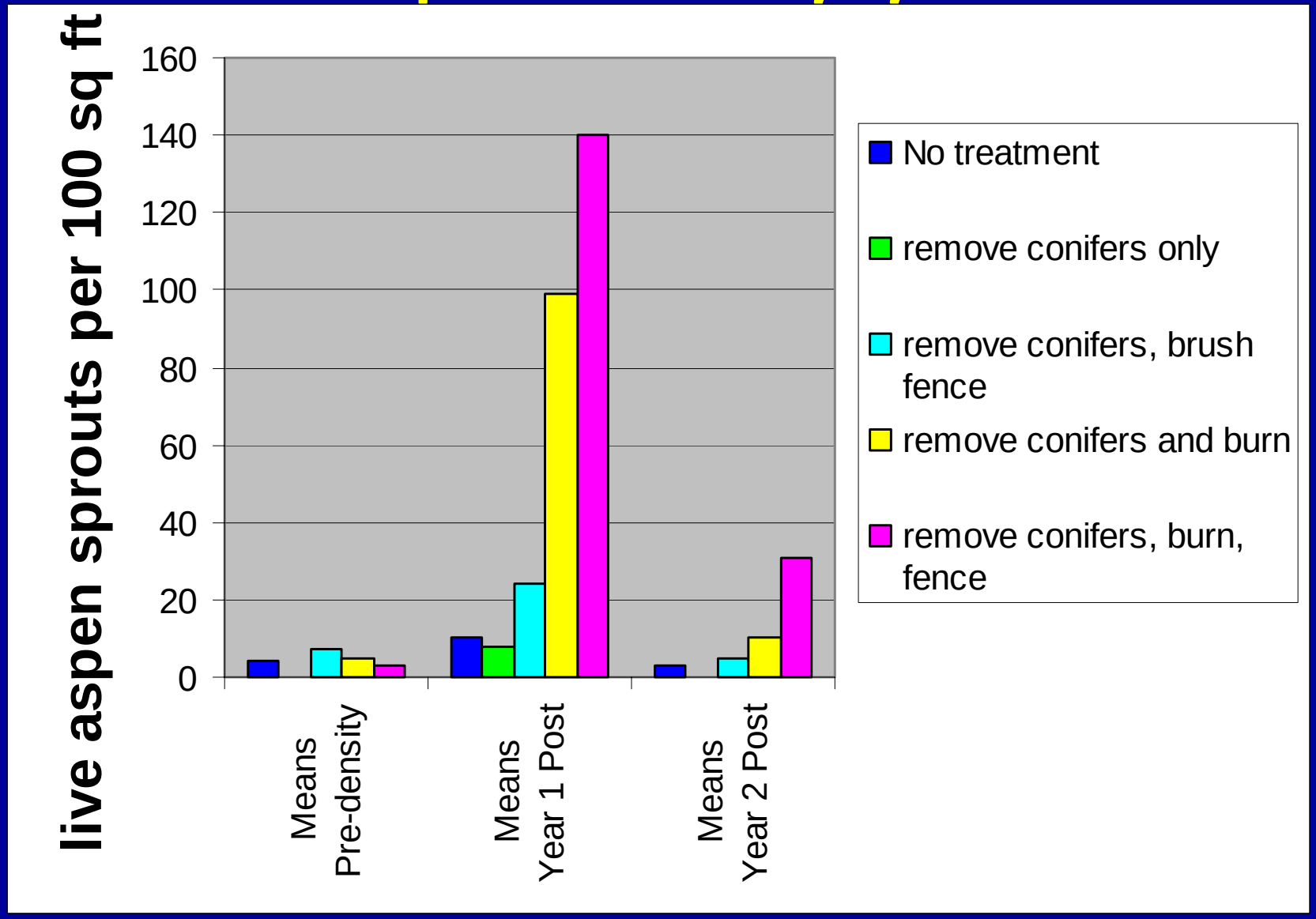
Example of fire only

Transects - Burned and Fenced

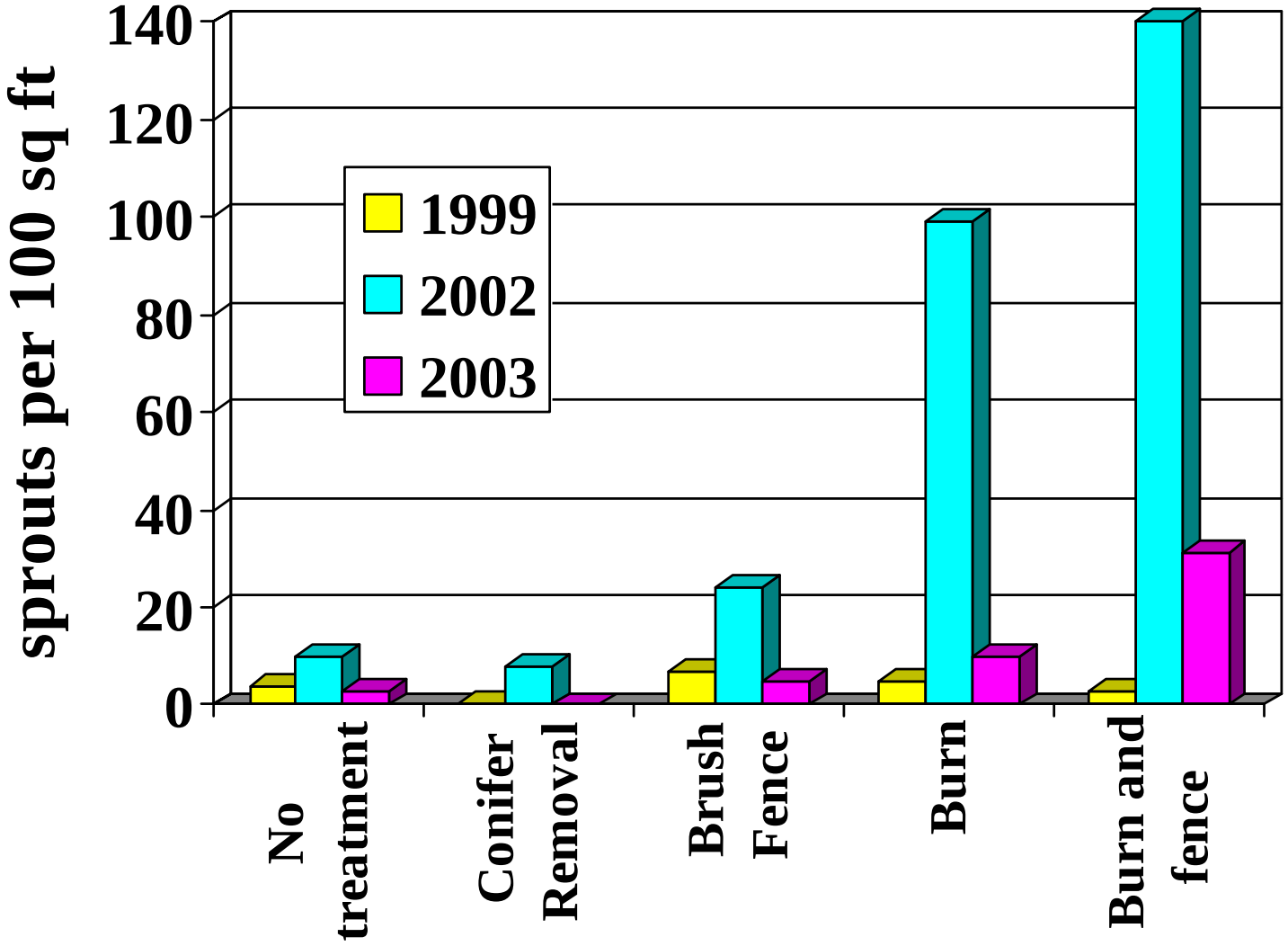


Example of burned and fenced

Comparison by year

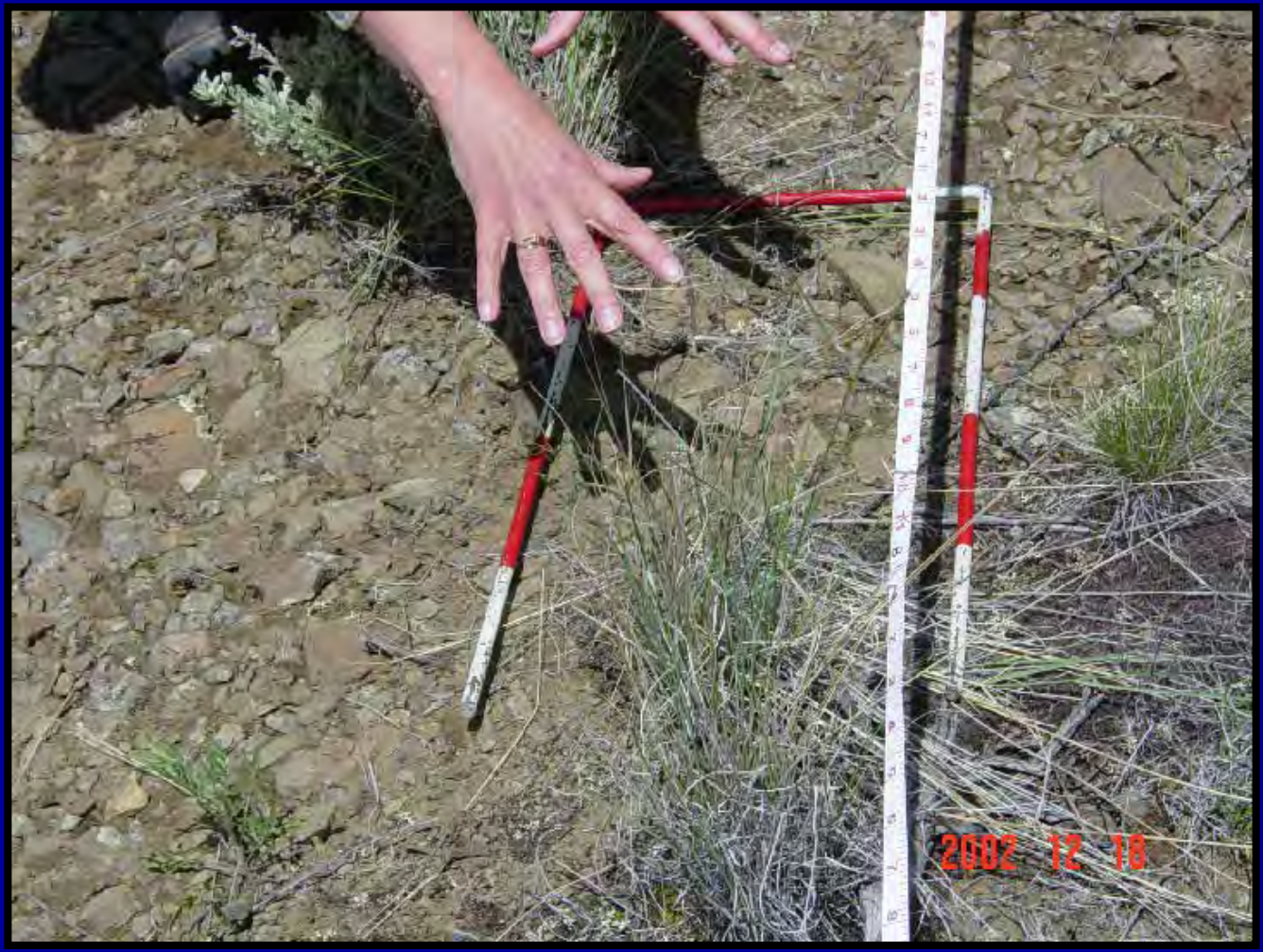


Comparison by treatment

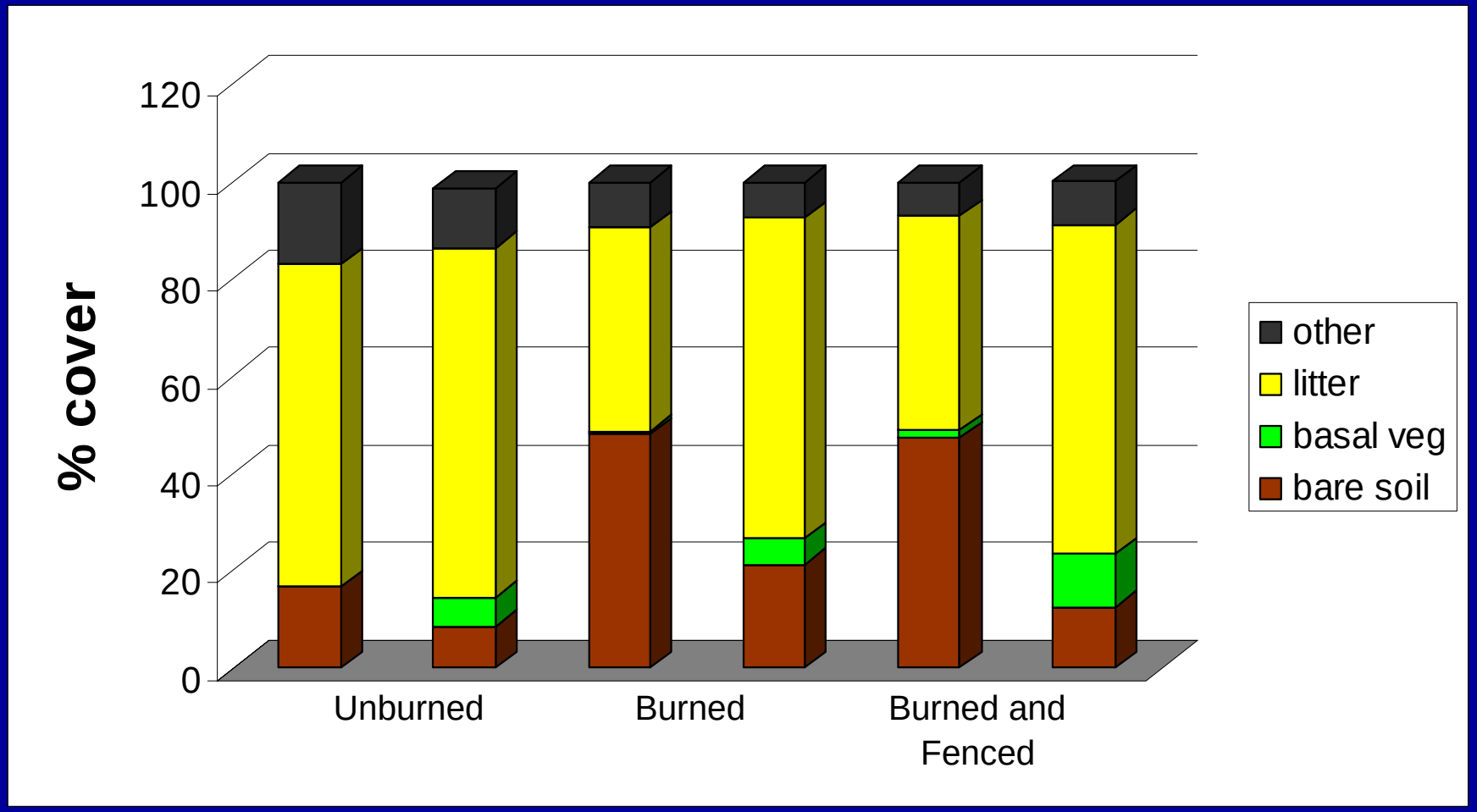


RESULTS

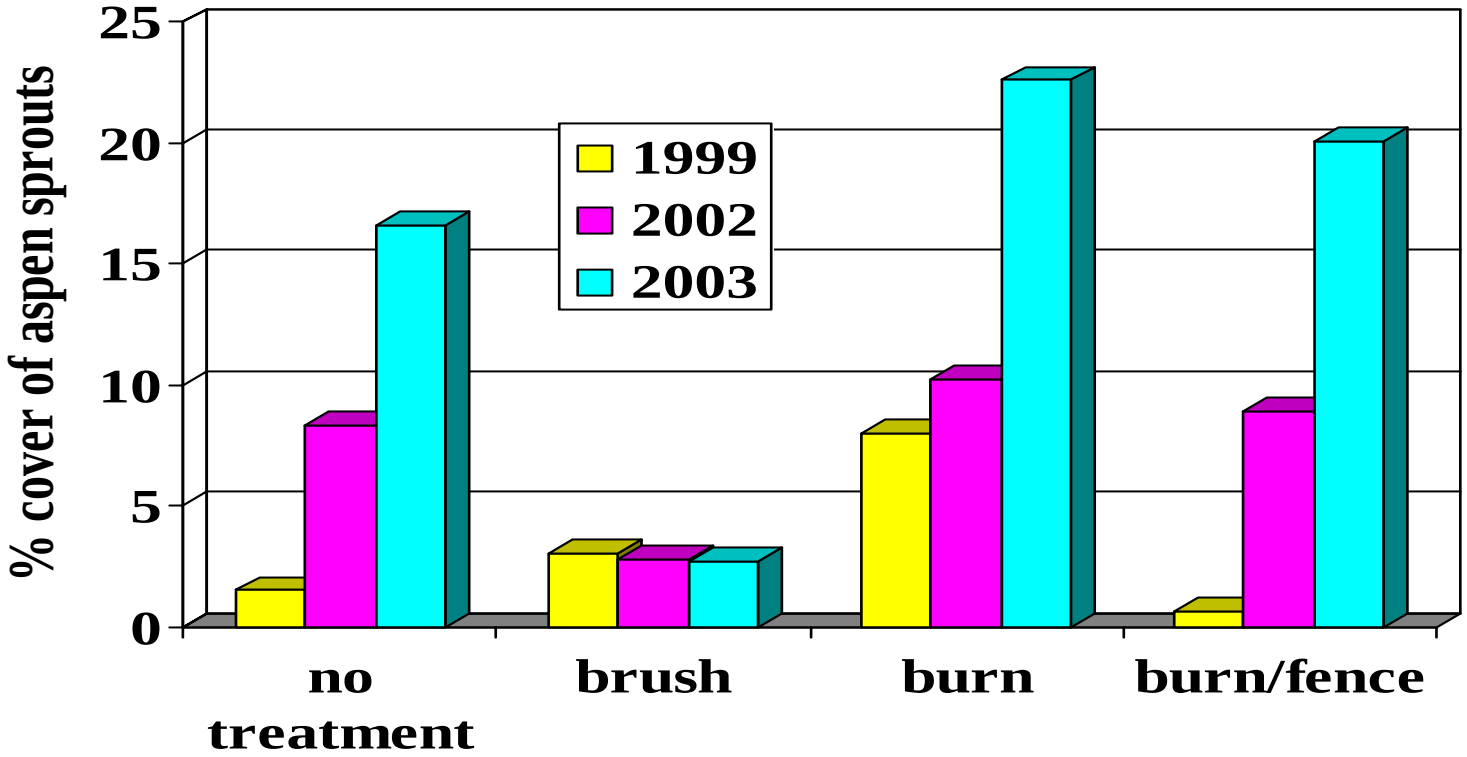
Point cover and microplots



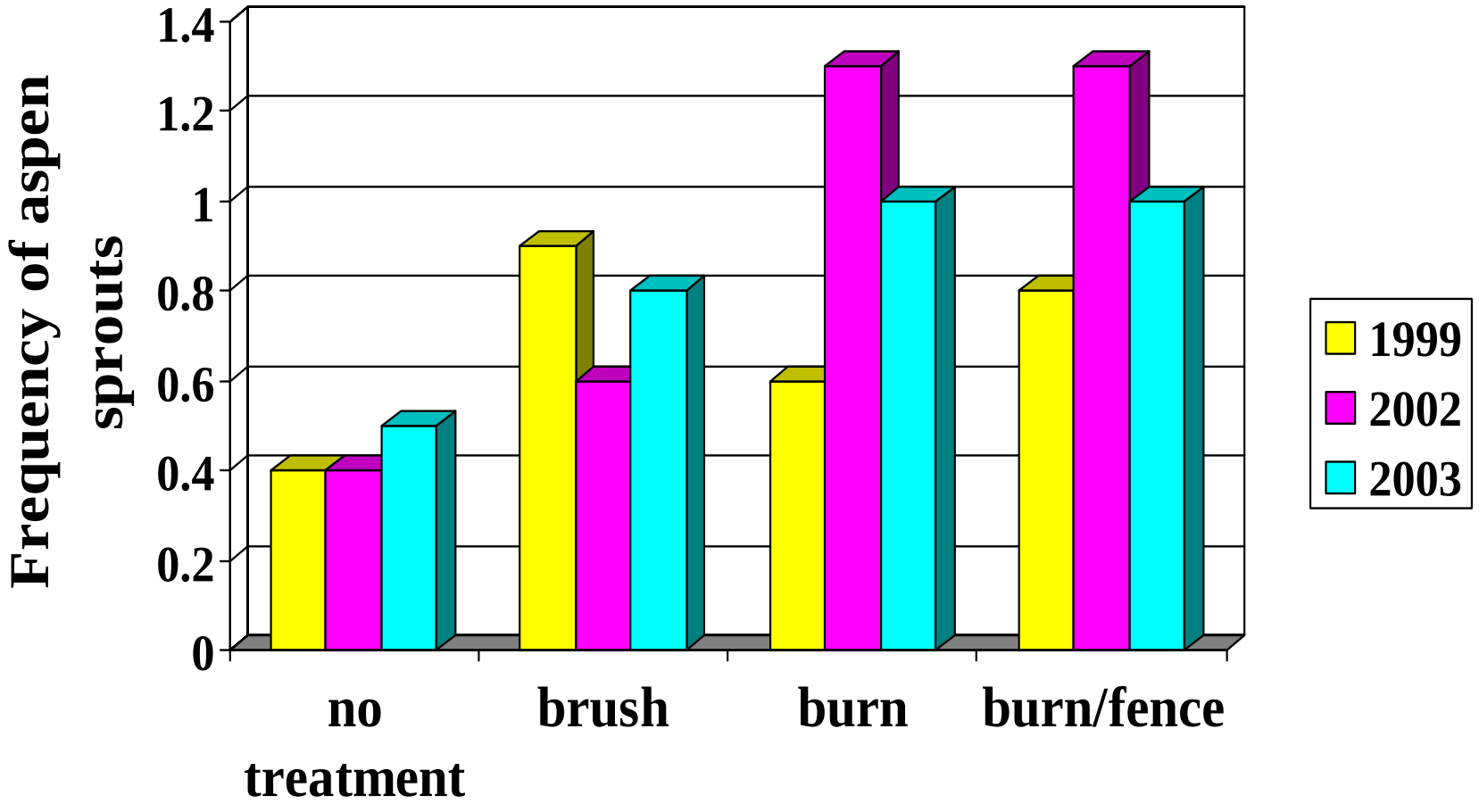
Point count ground cover for 2002 and 2003



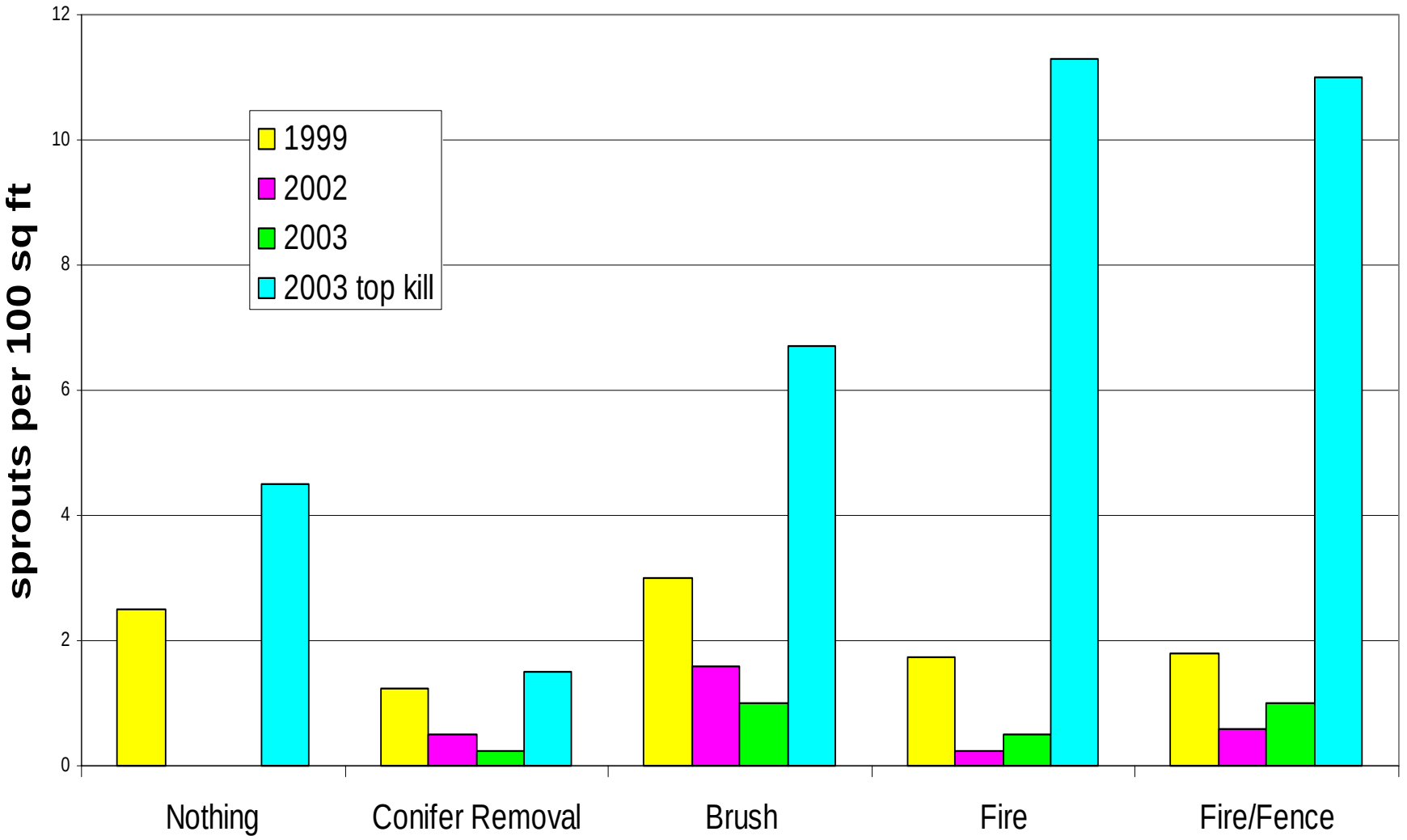
Microplot canopy cover live aspen sprouts



Microplot frequency live aspen sprouts



Dead and damaged aspen sprouts



Project Trends (1)

- Each stand had its own history and responses even within a treatment were variable
- Sprout densities increased in 2002 in all treatments
- Sprouting increased dramatically in burned stands

Project Trends (2)

- Sprout densities in year 2 declined in all treatments, but stayed highest in the fenced stands

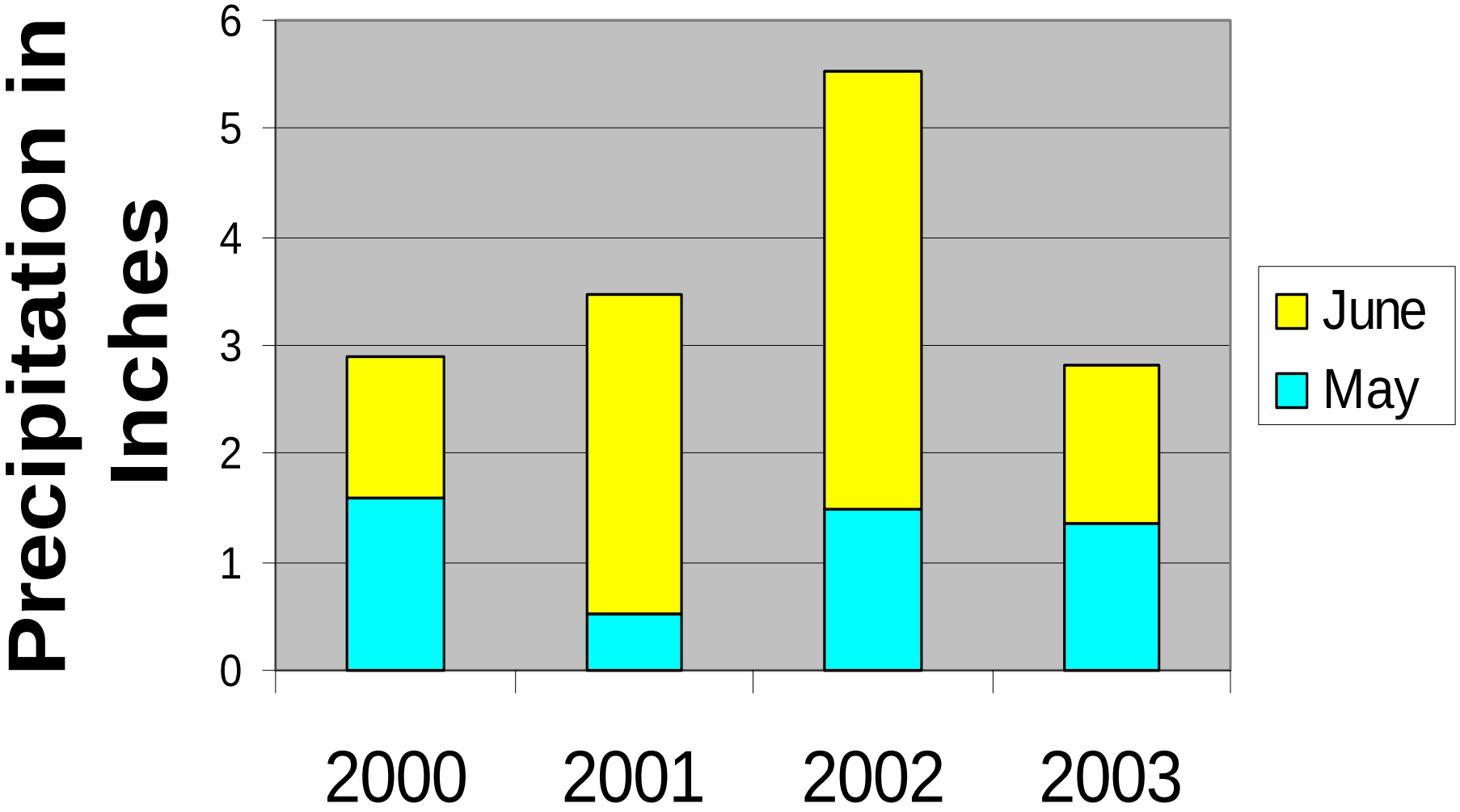
- Canopy cover of aspen sprouts increased over time in all treatments except brush fences

Project Trends (3)

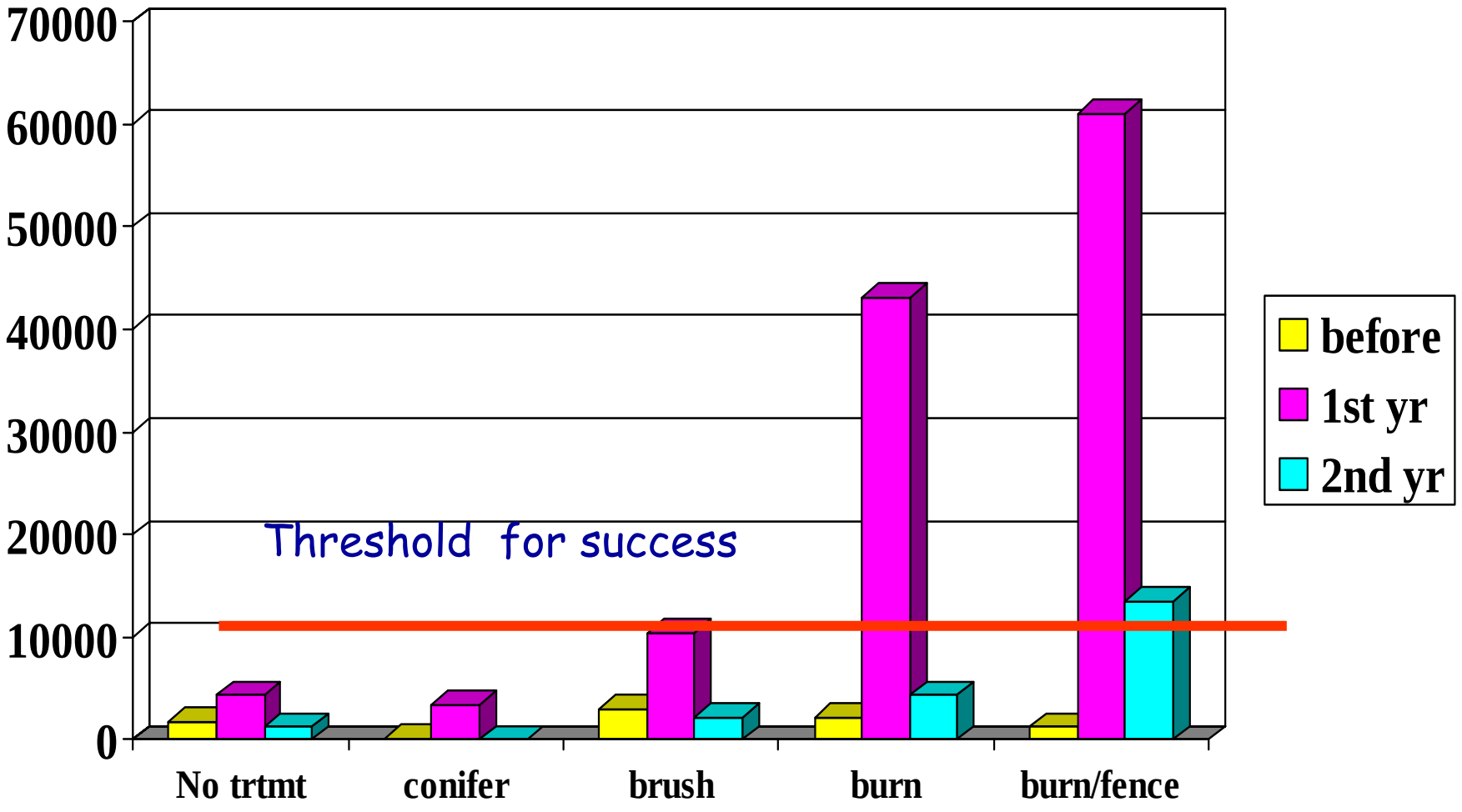
- Burning increases bare soil the first year (weeds)
- Dead sprout densities decreased in all treatments compared to "pre-treatment", but the number of top-killed sprouts increased, especially in the burned stands

DISCUSSION

Climate Effect



Aspen sprouts per acre



Effectiveness

Rx: remove conifers, slash aspen, burn, fence

Average Cost per Stand

ALL STANDS: Inventory and Monitoring	300$
BRUSH FENCE: Saw work, maintenance	$2,000
BURN ONLY: Saw work, burning	$1,500
BURN AND FENCE: Saw work, burning, fencing, maintenance	$4,700

Logistics

Real World Woes

Conclusions

- Burning and wildlife fencing produced the best overall results; burning introduces the chance for weeds
- Wildlife fencing is expensive and can be logistically difficult
- Sprouting occurs naturally under the right conditions, but sprouts may quickly disappear if not protected

Recommendations

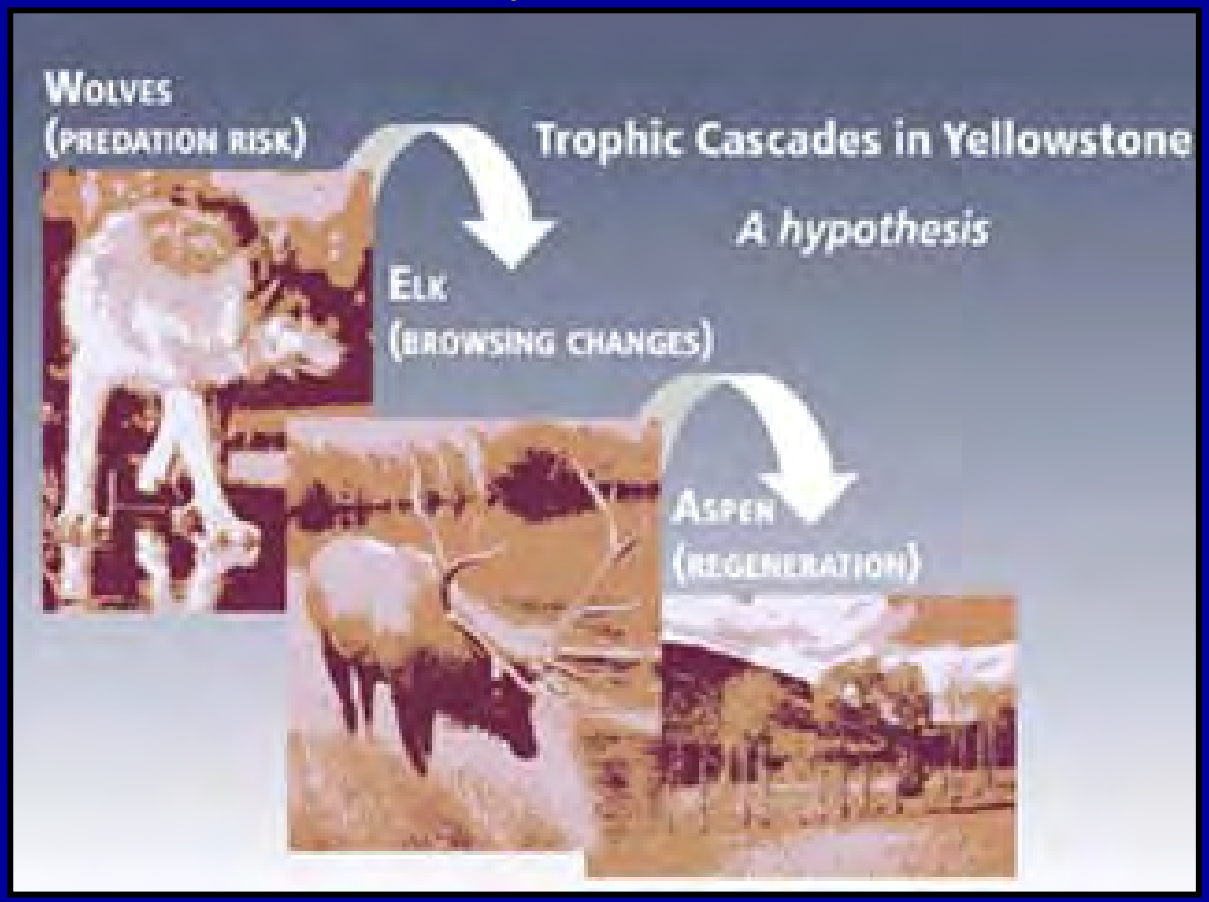
<u>Prioritize aspen treatments:</u>

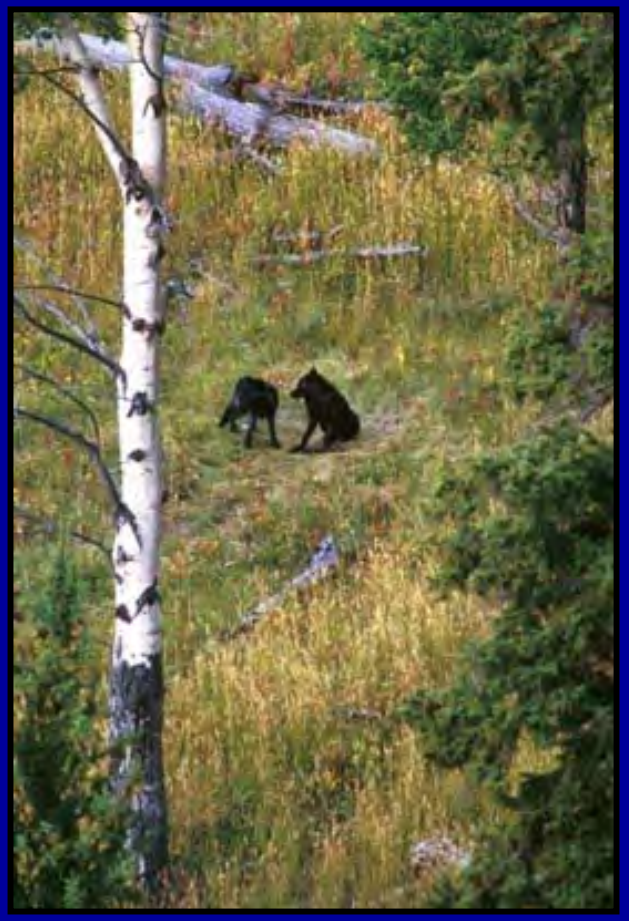
- Stands with some vigor; good soils
- Stands with heavy conifer colonization or sagebrush

<u>Protect your investments:</u>

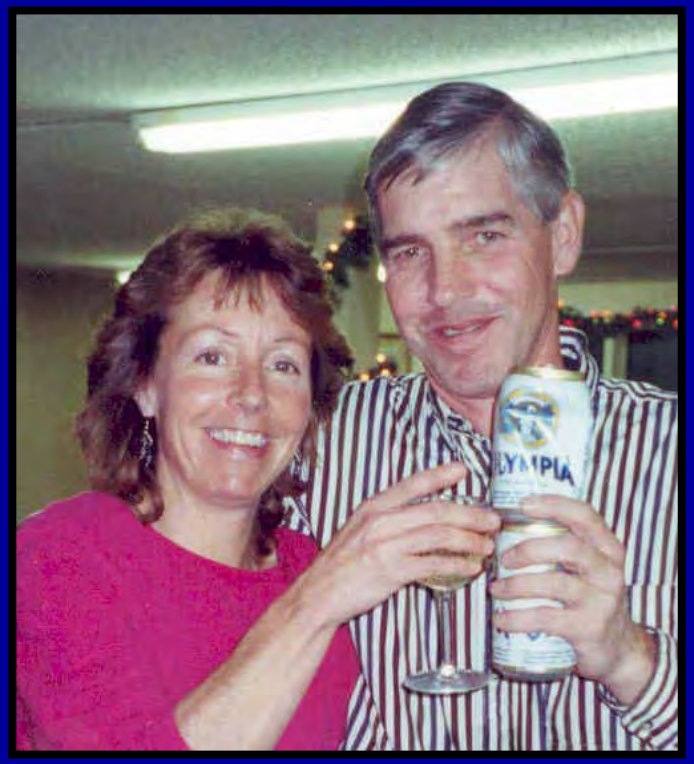
- Aspen in association with palatable forage that can also be burned.
- Stands outside of cattle allotments or big game winter range
- Spend $ and fence; spend time to maintain

Cheaper Alternatives?





Acknowledgements



- Fearless leader – George Weldon
- Fire Crews
- Seasonal Fence Crew and Bio Techs
- Forest Ecologist Lois Olsen