

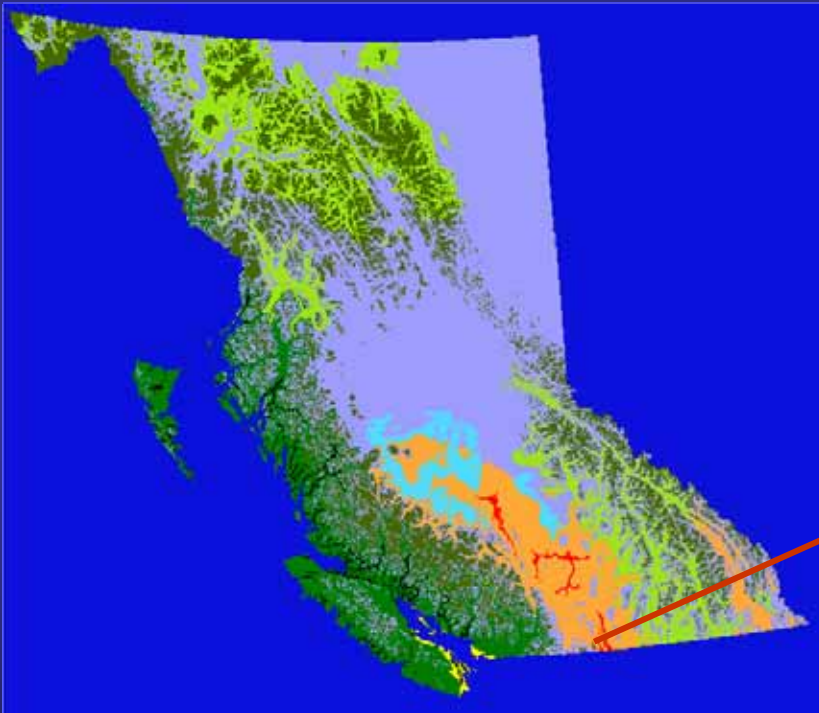


Restoration and Natural Recovery *after wildfire*

Presented by: Lynne Atwood M.Sc., R.P.Bio

Genoa Environmental Consulting Ltd

Project Location



BGxh1 - Okanagan Very Dry Hot Bunchgrass



Background

**August, 2003 wildfire
burned through shrub
steppe and parkland
forest in the Vaseux
Provincial Park and
Protected Area.**

**This area is essential for
many South Okanagan
species at risk**

**A restoration program
was initiated in 2004**



Burned site divided into Management Zones

Management zones were based on the intensity of the fire;
and
the amount of ground disturbance.

Protection Zone: (> 30% native species)

- experienced the lowest intensity burn
- management activities focus on preventing weed invasion.

Weed Control Zone: (11% to 29% native species)

- burn intensity ranged from low to moderate
- management focuses on containing noxious weeds and controlling invasive annuals in seeded or planted areas.

Restoration zone: (high amount of bare ground and < 10% native species)

- moderate to high intensity burn
- management is focused on seeding, planting and weed control

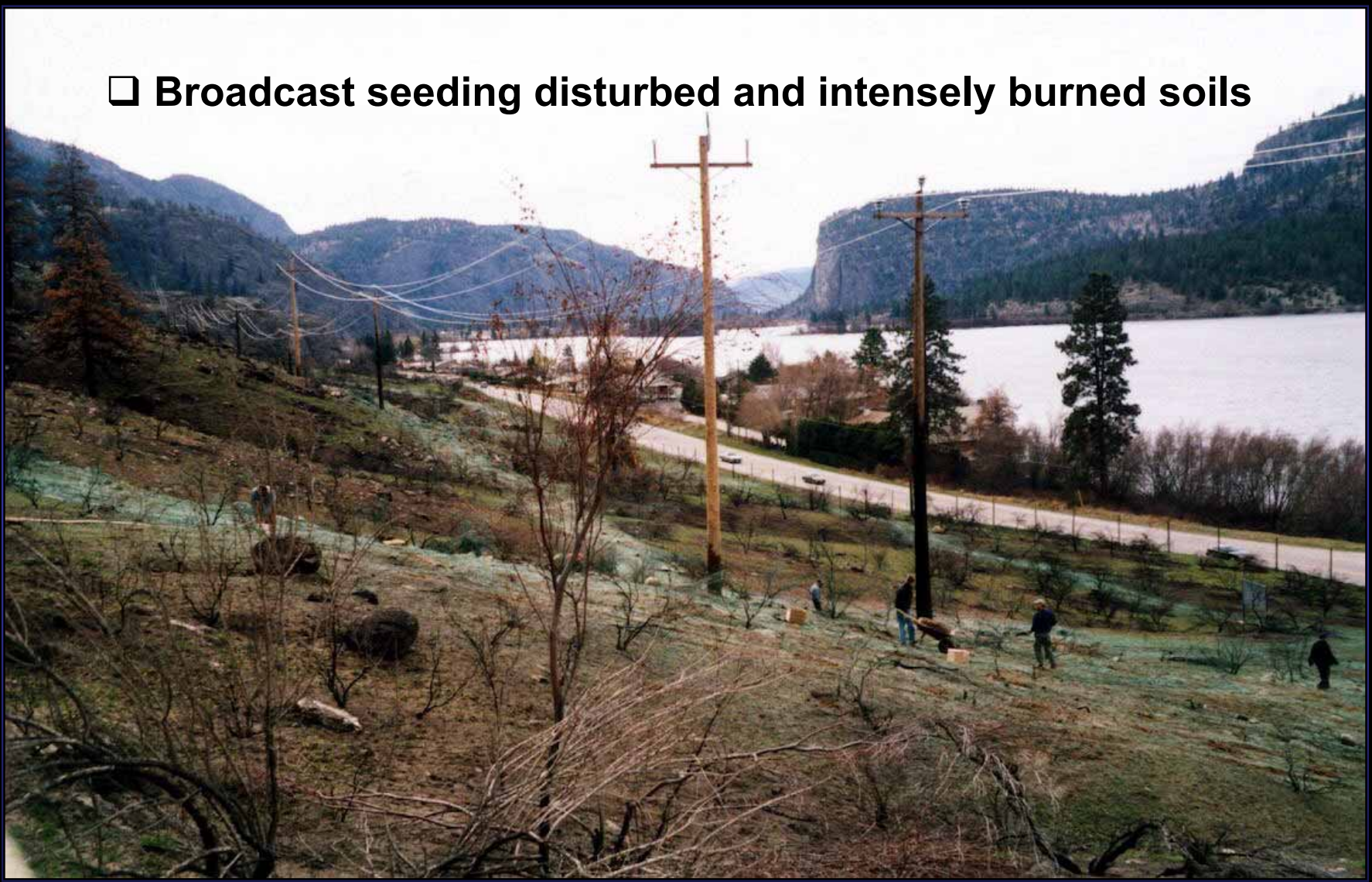
Restoration Activities

- ❑ Planting native bunchgrasses and shrubs



Restoration Activities ..

- Broadcast seeding disturbed and intensely burned soils



Restoration Activities ..

- Manual and chemical weed control



Restoration Activities ..

□ Research and Monitoring

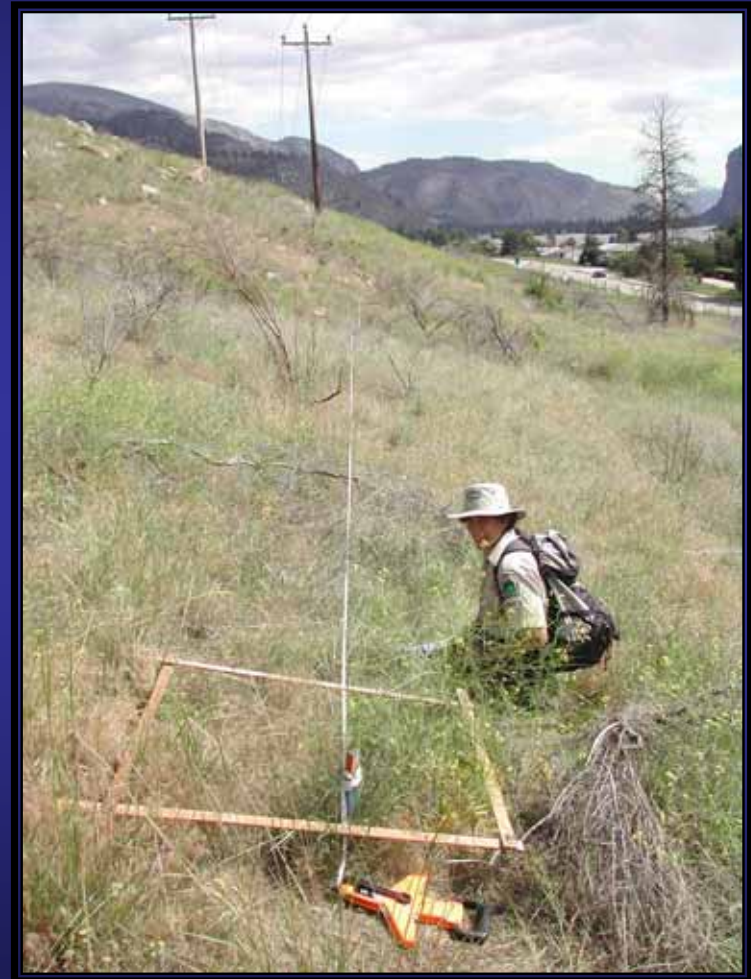
Goals:

- Monitor natural recovery; and
- Evaluate seeding options for natural burns in semi-arid ecosystems.



Monitoring Natural Recovery

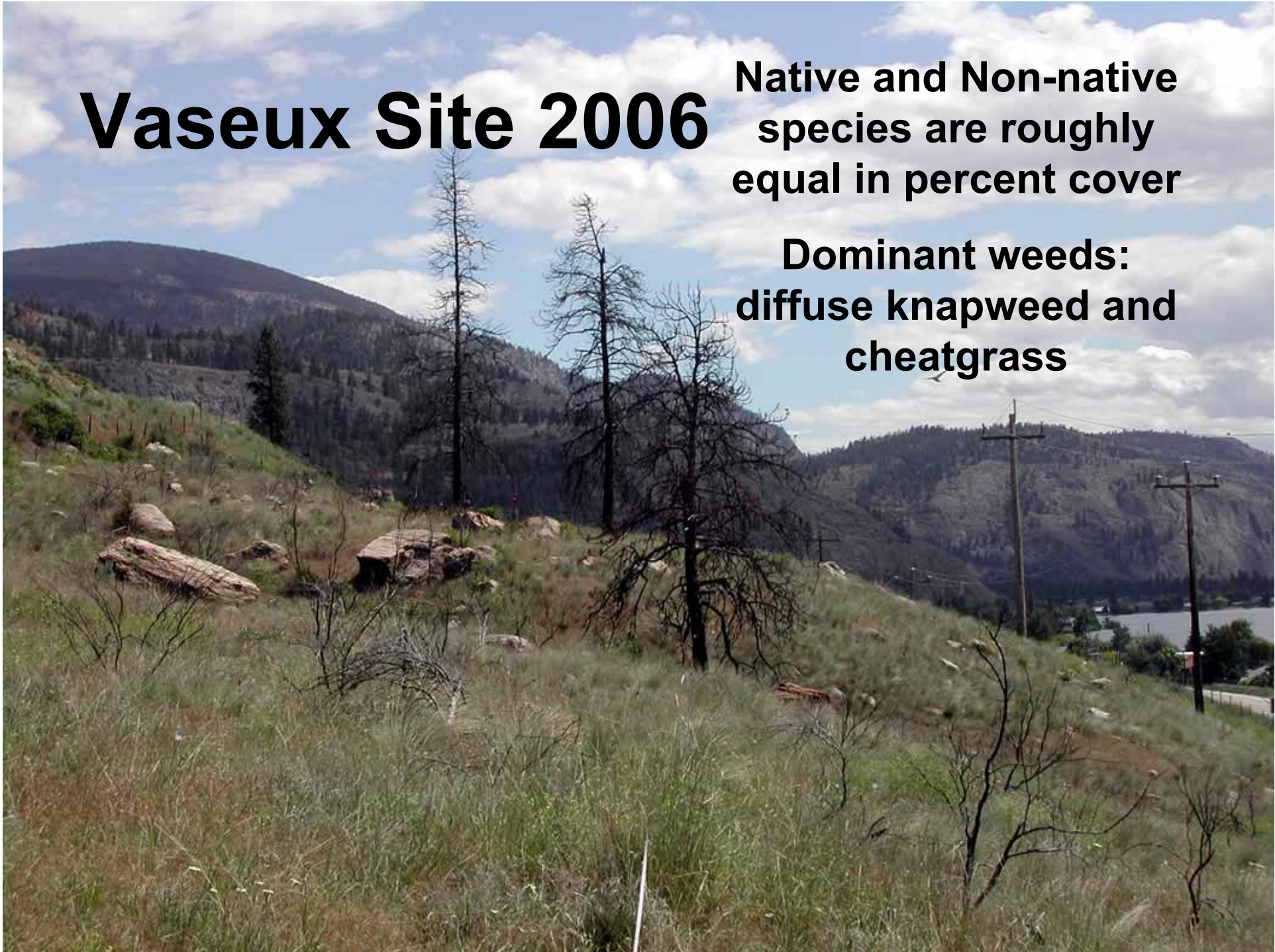
- Monitoring transects were established in each management zone
- Vegetation data collected from 1m² quadrats, every 10m along transects
- Data collected in 2004, 2005 and 2006



Vaseux Site 2006

**Native and Non-native
species are roughly
equal in percent cover**

**Dominant weeds:
diffuse knapweed and
cheatgrass**



Brock Site 2006



Non-native grass and herb cover are twice that of native grass and herb cover. Dominant weeds: Sulphur cinquefoil and cheatgrass

Seeding

- ❑ Experimental plots were established to assess the success of five seed mixes and three annual cover crops
- Seed mixes ranged from all native species to all long-lived agronomic species



Seeding Results ... 2006

Is there a difference in establishment between seed mixes?

GSFRS Site: (average germination < 3%)

Mix 3 (long-lived agronomics with stream-bank wheatgrass) did significantly better ($p = < 0.05$) than other mixes

Lier Site: (average germination < 6%)

No difference between mixes

Seeding Results ..

Which seed mix had the highest number of seedlings?
– What species?

GSFRS site:

- Mix 5 (natives and short-lived agronomics) had highest number of seedlings.
- Sand dropseed (*Sporobolus cryptandrus*) (native) provided 87% of seedlings.

Leir site:

- Mix 4 (all natives) had the highest number of seedlings.
- Sand dropseed provided 68% of seedlings.
- **Sheep fescue (*Festuca ovina*) (cultivar) accounted for 89% (Leir) and 96% (GSFRS) of seedlings in Mix 3**

Seeding Results ..

How did the annual cover crops do?

GSFRS Site

- Fall rye (*Secale cereale*) highest average cover at 0.4%

Lier Site

- Fall rye and Regreen (*Triticale x Agropyron* hybrid) with just over 2% average cover

Seeding Results ..

Does seeding effect the establishment of non-native or native species?

GSFRS Site:

- No difference in average cover of non-native or native species between seeded and unseeded (controls) plots

Lier Site:

- No difference in average cover of native species between seeded and unseeded plots
- Non-natives were significantly lower in plots seeded with Mix 1(short-lived agronomics) and Mix 4 (all natives)

Lessons learned ...

- ❑ Dividing burned sites into management zones allows you to prioritize restoration activities.
- ❑ Native grasses and herbs recover faster from low intensity burns (faster recovery in Protection zone)
- ❑ Seeding has limited immediate impact (one year after seeding cover is low and differences between mixes vary)
- ❑ The most important restoration tool in the years immediately following severe wildfire is weed control (3 years after the fire, weed cover is still very high)

Acknowledgements

Funding and Support:

- BC Ministry of Environment, Environmental Stewardship Division, Okanagan Region
- The Nature Trust of British Columbia
- Canadian Wildlife Service
- Habitat Conservation Trust Fund

Special thanks to:

- Judy Miller
- Rose Gunoff
- Carl McNaughton
- Kevin Wilson
- Sara Bunge
- Crystal Klym
- Tom Duralia
- The Nature Trust field crew

