
VACEA Update: Canada

Objective of the VACEA Project

To reduce risks associated with extreme climate events for rural agricultural and indigenous communities.

Outline

1. Project overview

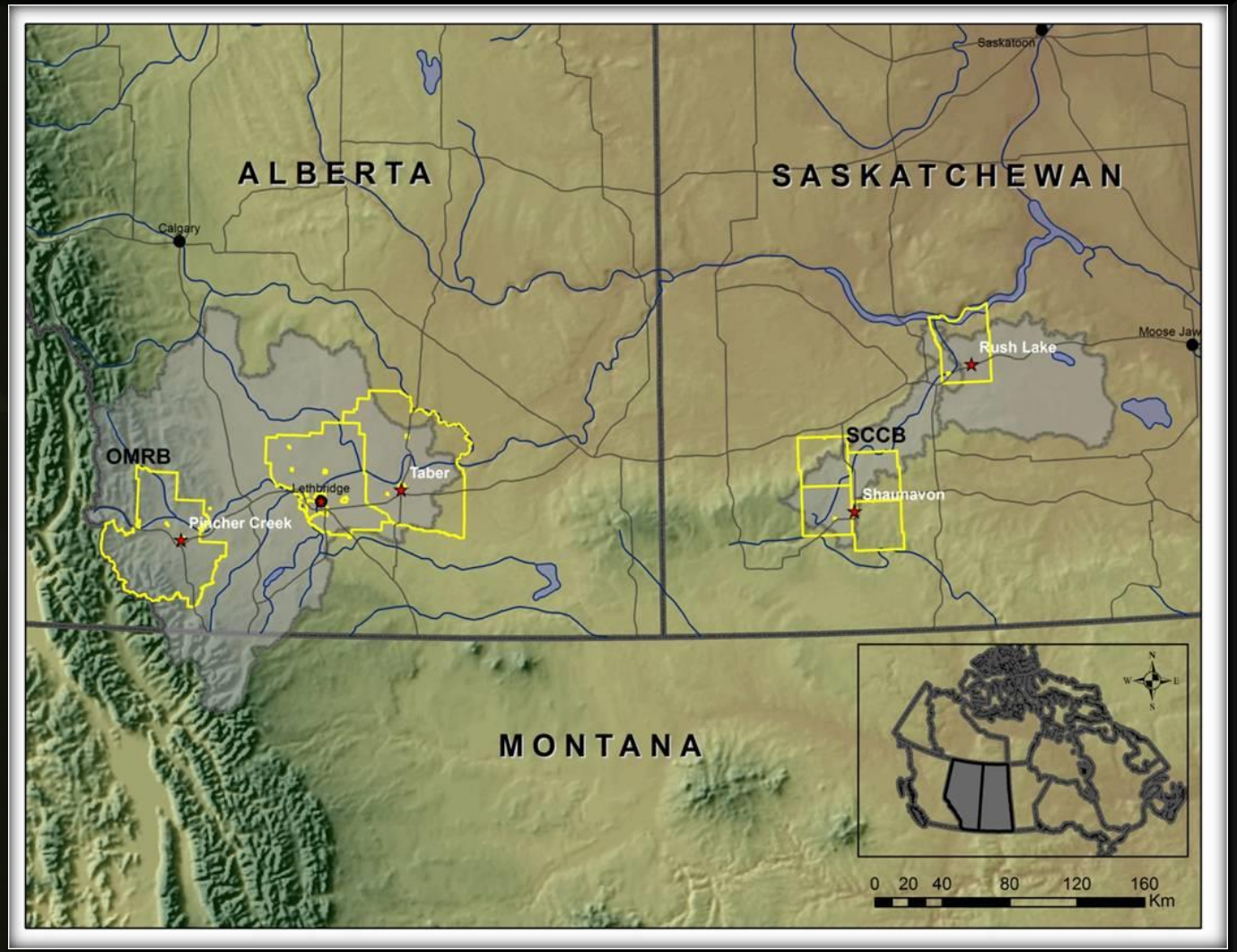
2. Vulnerability and Adaptation

    - Emerging themes

3. Linking social and natural science

    - Outstanding extreme years

Study areas


ALBERTA
SASKATCHEWAN
MONTANA
Saskatoon
Calgary
Moose Jaw
Rush Lake
SCCB
Shaunavon
OMRB
Taber
Lethbridge
Pincher Creek
0 20 40 80 120 160
Km

Fieldwork Overview

February – March 2012: Rush Lake, Saskatchewan

May – June 2012: Pincher Creek, Alberta

June – July 2012: Shaunavon, Saskatchewan

July 2012: Taber, Alberta

Blood Tribe: to be conducted

Purpose of CVAs:

The Community Vulnerability Assessment (CVA) has the objective of developing a systematic understanding of the present and past vulnerabilities of rural actors to extreme climate events.

Purpose of Governance Assessment:

Understanding how institutions manage water resources and respond to climate variability, hazards and extreme events.

Community	CVA	Governance
Rush Lake	17	6
Shaunavon	34	18
Pincher Creek	33	20
Taber	16	26
Total	100	70

Total participants =170

Multi-level Governance:

Local & Municipal

Stewardships; water co-ops; NGOs; watershed organizations; Irrigation districts; Mayors; Town Administration; Reeves; Municipal Council; Emergency Response

Provincial

Water infrastructure; provincial ministries of agriculture, environment, wildlife/wilderness

Federal

Federal NGOs with local presence

Emerging Themes

Vulnerability & Adaptive Capacity

People and communities are affected differently…

Vulnerability → susceptibility to climate extremes

Coping → short-term, reactive response

Adaptive capacity → proactive response, future preparedness

Vulnerability & Adaptive Capacity

Different forms of capital (resources) make a difference…

- Social capital
- Economic capital
- Institutional capital
- Natural capital

Social Capital

Features of a community, such as its values, networks, and social trust, that facilitate cooperation for a common vision (based on Putnam 1995)

Photo courtesy of Jessica Vanstone

Social Capital

Pincher Creek → strong awareness of social & environmental issues; issue-specific lines of disagreement but mutual respect; strong networks; high level of community involvement

Taber → strong faith community; sharing of technological knowledge; community identity connected to food industry (“symbols”)

Economic Capital

Material resources such as wealth, property, etc. that can constitute the means by which we can obtain many of our human and social goals (based on Hancock 2001)

Economic Capital

Individual income / resources affect vulnerability…

Adaptation is limited by funding….

- “Out of sight, out of mind” (hinders preparedness)
- Proactive response limited by funding

Institutional Capital

Resources available to the local communities from formal institutions at multiple levels (local, provincial, federal governments, and NGOs)

Institutional Capital

- Environmental Farm Plans (individual, flexible yet institutionalized)
- Strong preparedness & knowledge of local government and organizations
  - Proactive action limited by funding
- Strong cooperation between organizations
  - E.g., Pincher Creek CVA (SASCI and MD Pincher Creek)
  - Less in SK

Institutional Capital

- 2001: Water Sharing Agreement
  - “bottom up” initiative
  - Social capital became institutional capital

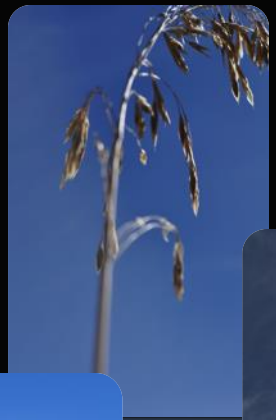
Institutional Capital

Emergency response and contingency plans

- Having emergency plans mandated/legislated/enforced makes a difference (AB vs. SK)
- Separate disaster mandates
- Community cooperation in response (formal + informal)
- Private sector response (e.g. oil companies)
- AB: rural route markings, GPS technology strong

Natural Capital

Natural resources that can be used to secure livelihoods (water, soil, etc.)



Natural Capital

- Quality and quantity of natural resources

- Management of Natural Capital:

Variability can be attributed to: natural climate cycles, human activities, religious attributions

<u>Traditional Knowledge & Scientific Knowledge</u>

- Observing nature
- Farmers' Almanac
- Generational knowledge
- Internet (e.g., Weather Network)

Natural Capital

- Management of Natural Capital:

(Some) Adaptive Practices

- Weather change as a constant: focus on managing own resources
- Generational differences in adaptation

Participant suggestions:

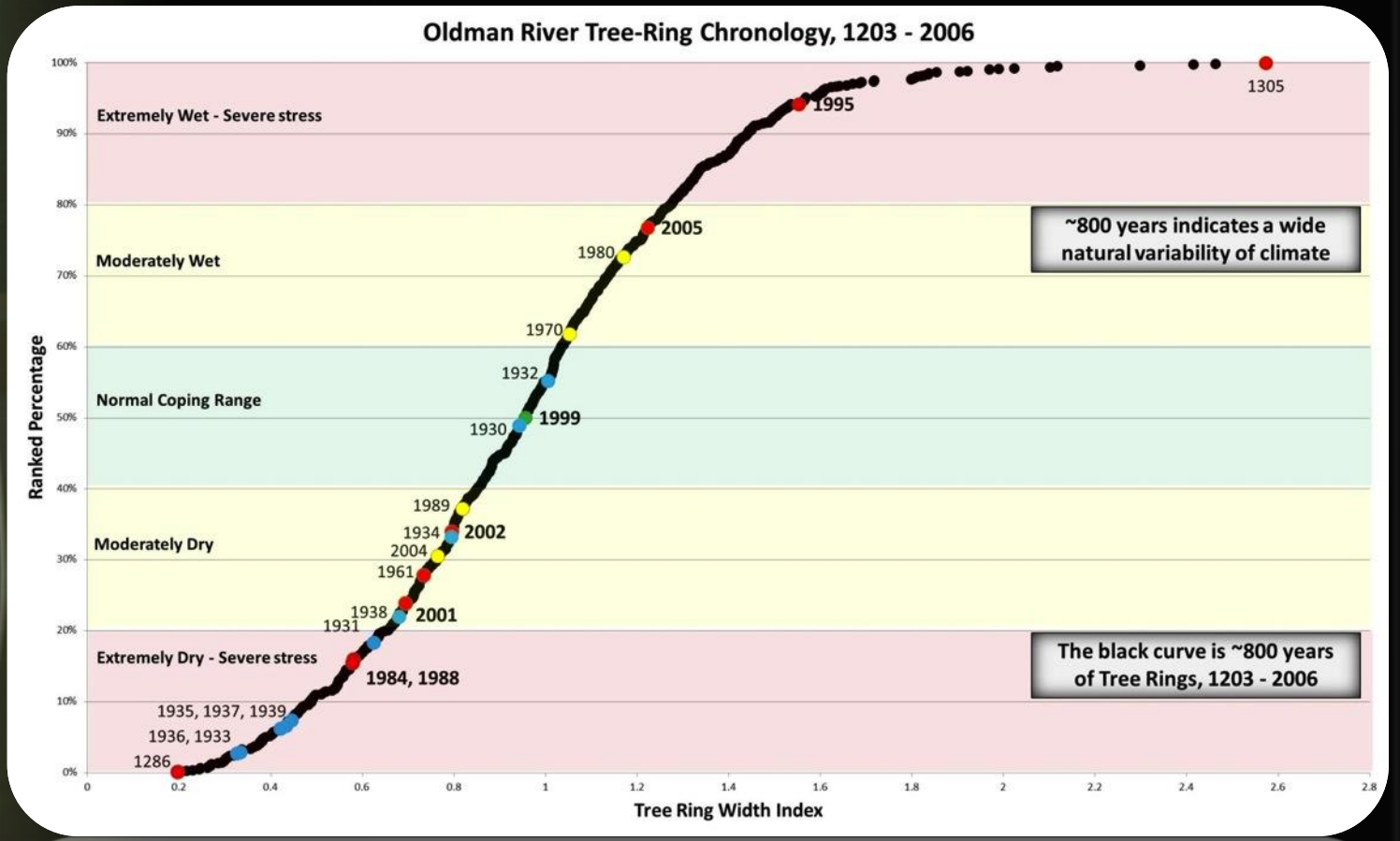
→ groundwater mapping

→ short-term and long-term scenarios for farm-level planning

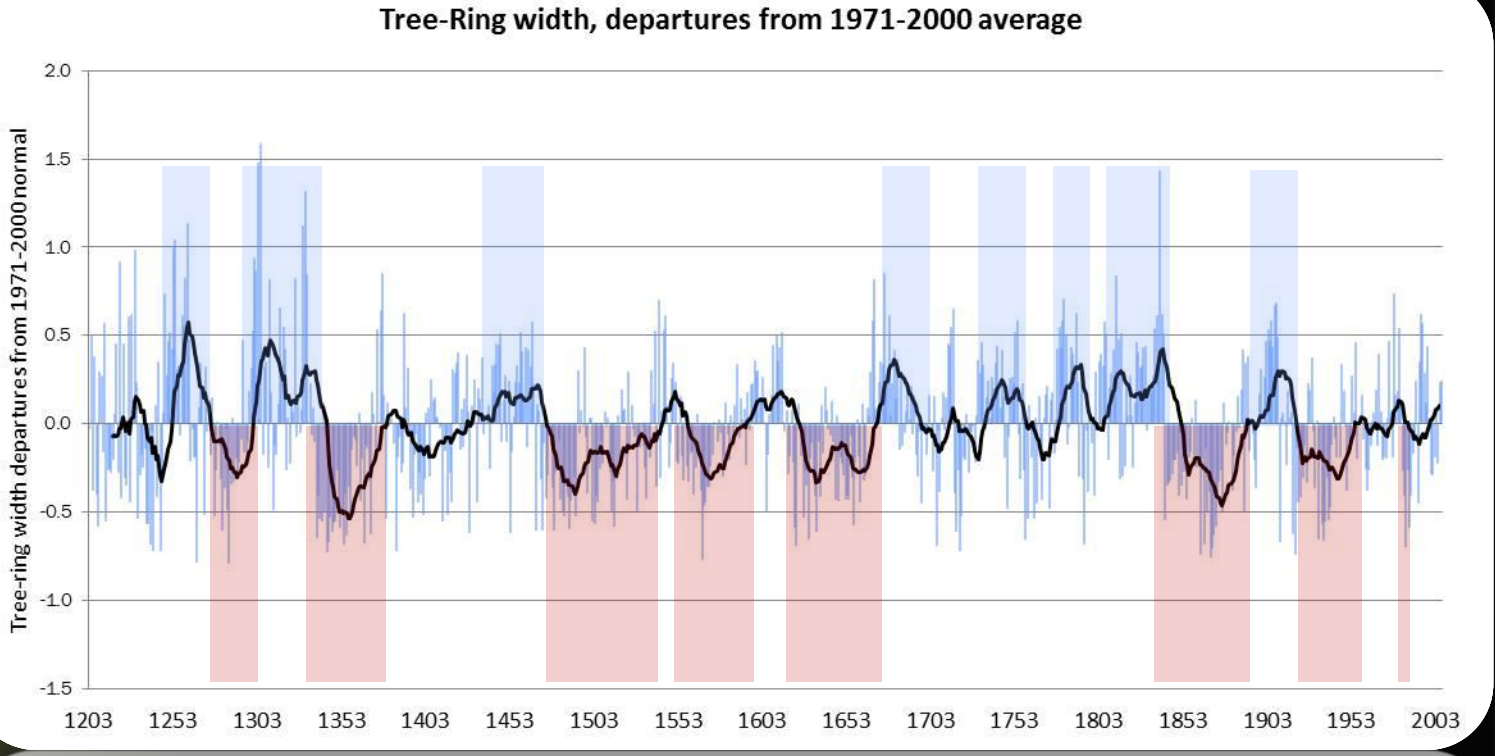
Outstanding Extreme Years

Pincher Creek		Taber/Lethbridge	
Date	Extreme	Date	Extreme
1984	drought	1984	drought
1995	**extreme flood**	**1995**	**extreme flood**
2001	**extreme drought**	**2001**	**extreme drought**
2002	drought	**2002**	drought
2005	flood	2005	flood
2010	flood	**2010**	flood

Outstanding Extreme Years



Long term variability



Next Steps

- Analysis using computer software (NVivo)
- 100-year historic instrumental record
- 1000-year record of natural variability
- Future climate scenarios

Rush Lake, SK

Next Steps

- Upcoming workshops:
- Brazil – 5 country collaboration - Canada, Chile, Columbia, Argentina, Brazil
- www.parc.ca/VACEA
- Twitter: @VACEA1
- Facebook: Vulnerability and Adaptation to Climate Extremes in the Americas (VACEA)

Rush Lake, SK

Comments? Feedback?

If you have any additional comments or experiences you would like to share…

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