

Climate change risks and adaptation strategies for local communities

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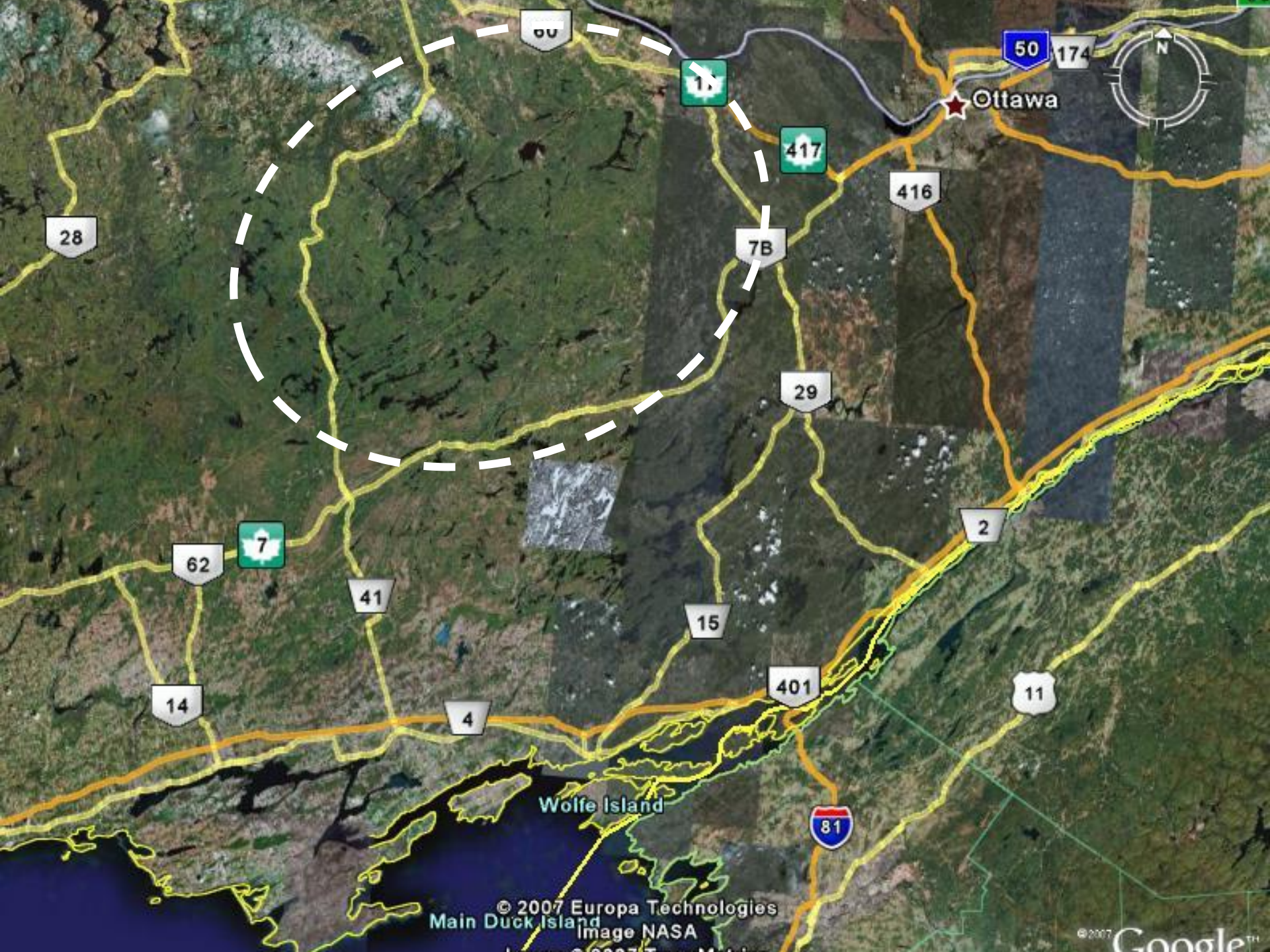
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Eastern Ontario Highlands



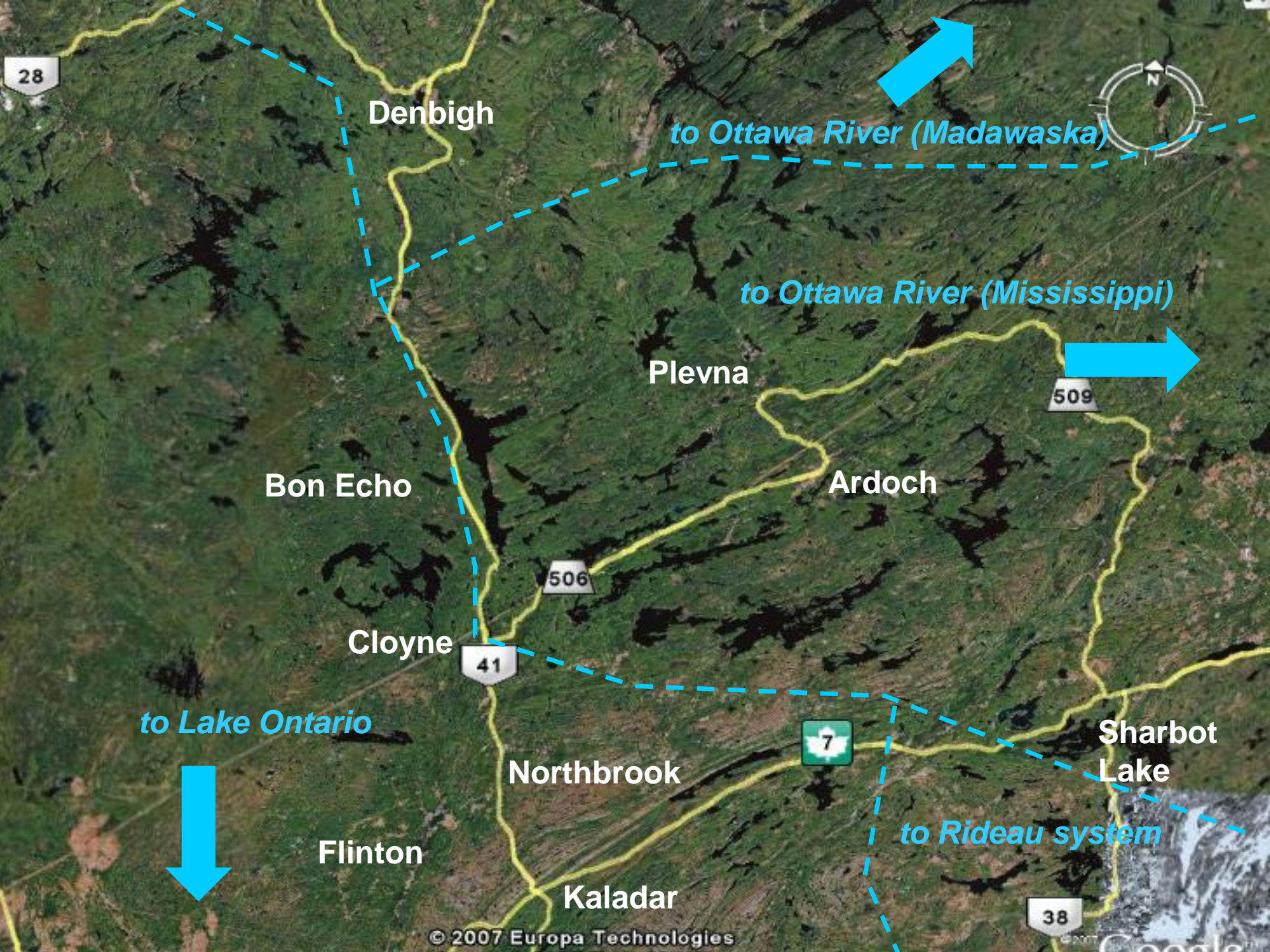


Ottawa

Wolfe Island

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Main Duck Island
Image NASA

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28

Denbigh

to Ottawa River (Madawaska)



to Ottawa River (Mississippi)

Plevna



509

Bon Echo

Ardoch

506

Cloyne

41

to Lake Ontario



7

Northbrook

Sharbot Lake

to Rideau system

Flinton

Kaladar

38

What we're doing

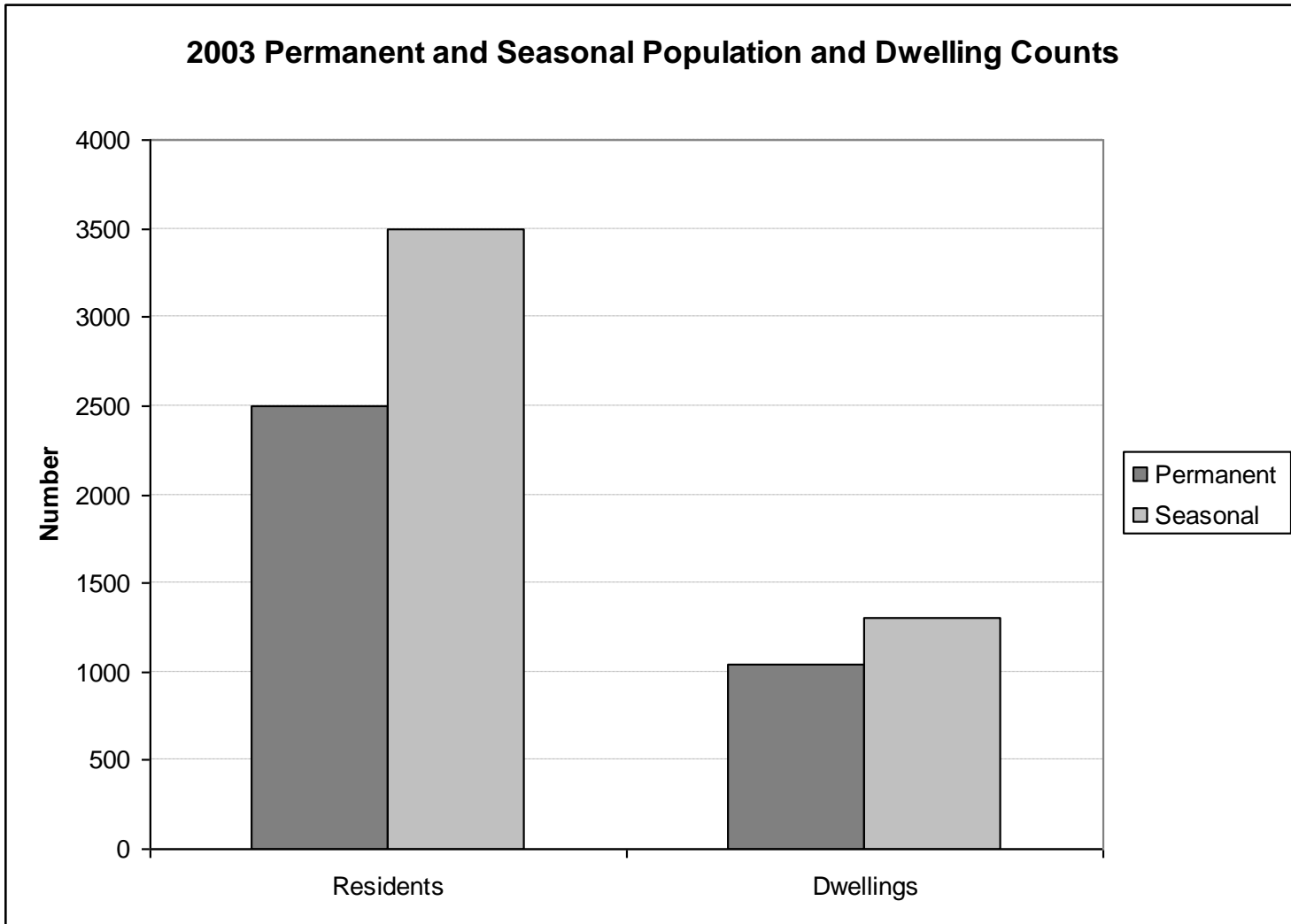
- uOttawa, Queen's, University of Guelph
- Fleet of grad students
- Human impacts of climatic variability and change in rural, seasonal economy communities

This is a unique region

- Socially, economically & climatically not like the rest of southern Ontario

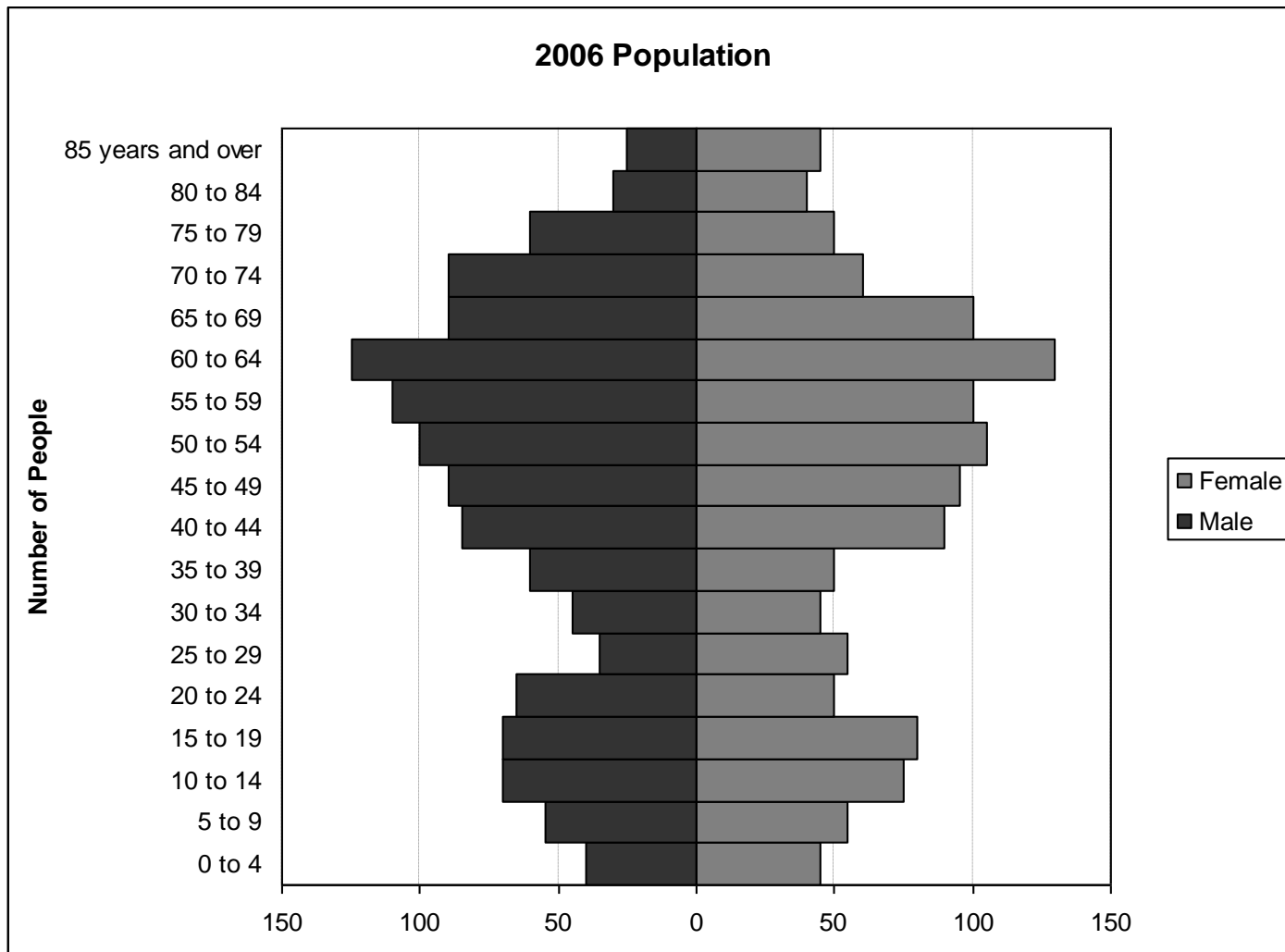
Residence characteristics

Addington Highlands township



Rural demographic makeup

Addington Highlands township – an extreme case



Economic characteristics

- Economy is very seasonal
- Biggest sectors = construction; retailing; tourism; services; small scale forestry

Summer tourism

- Consists of seasonal residents (cottagers) and vacationers (campers, sportfishers, climbers, paddlers)
- Bon Echo draws 150K+visits each summer
- Many private campgrounds, family-run lodges
- Historically many American visitors from NY, PA; exchange rate & recession is killing this off

Bankrupt fishing lodge



Winter economy

- Forestry
- Providing goods & services to residents, snowmobile tourists, ice-fishers
- Many retailers close after Thanksgiving, reopen in May; those that stay open shorten operating hours

Swiss Inn, now shut down



Forestry

- No large mills, businesses family-operated
- Sustainable forestry managed by Mazinaw-Lanark Forest Inc
- Many 1-person operators who cut private land
- Many residents who work in forestry do so out of the region

Family-operated sawmill



Climate trends in the region

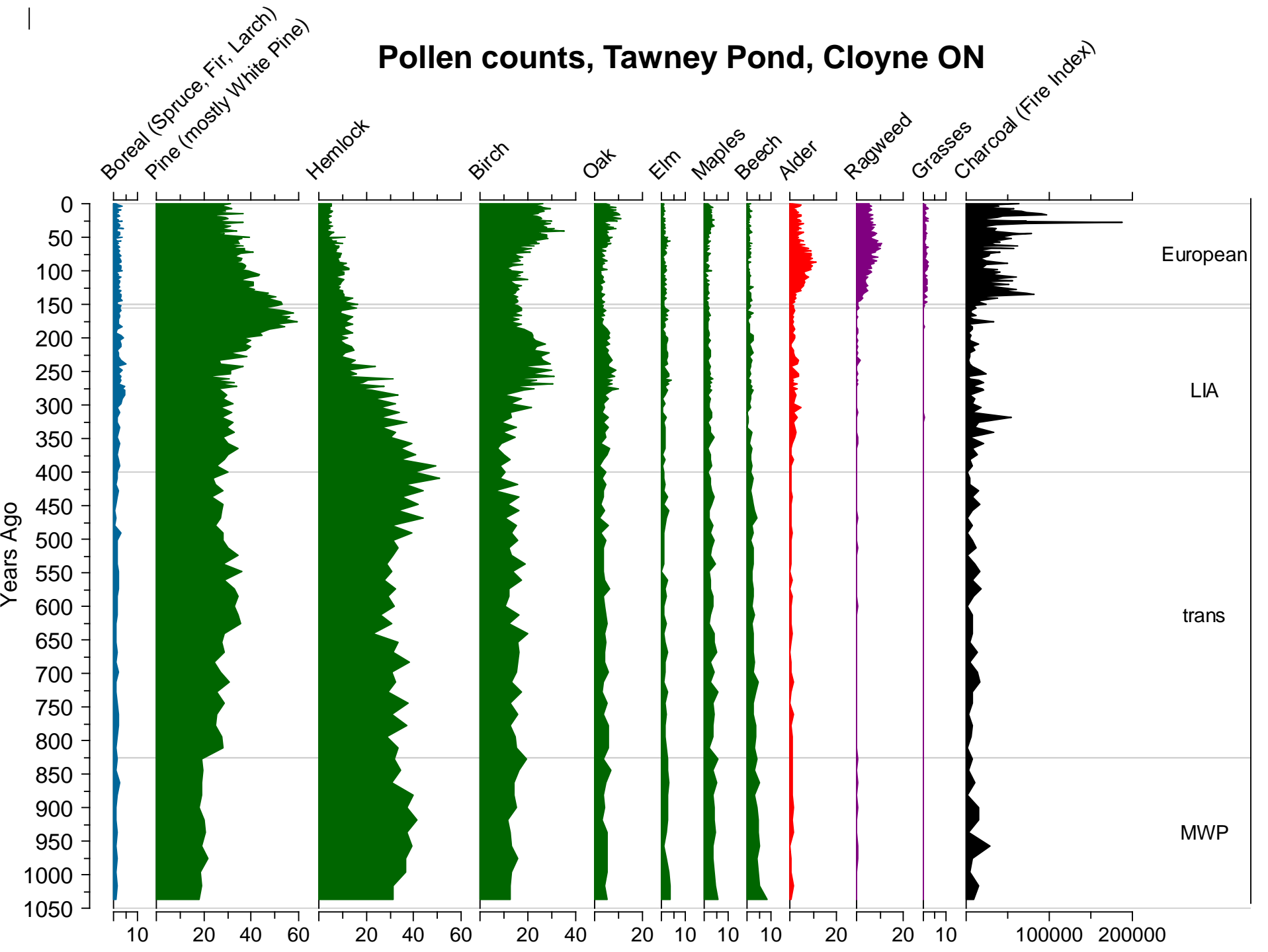
- Long term (i.e. last 1000+ years) shows warm from 1000 AD until 400 years ago, then cool until recently
- Short term (last century) shows a warming trend

Sediment coring

- Better understanding of climatic trends over longer term



Pollen counts, Tawney Pond, Cloyne ON

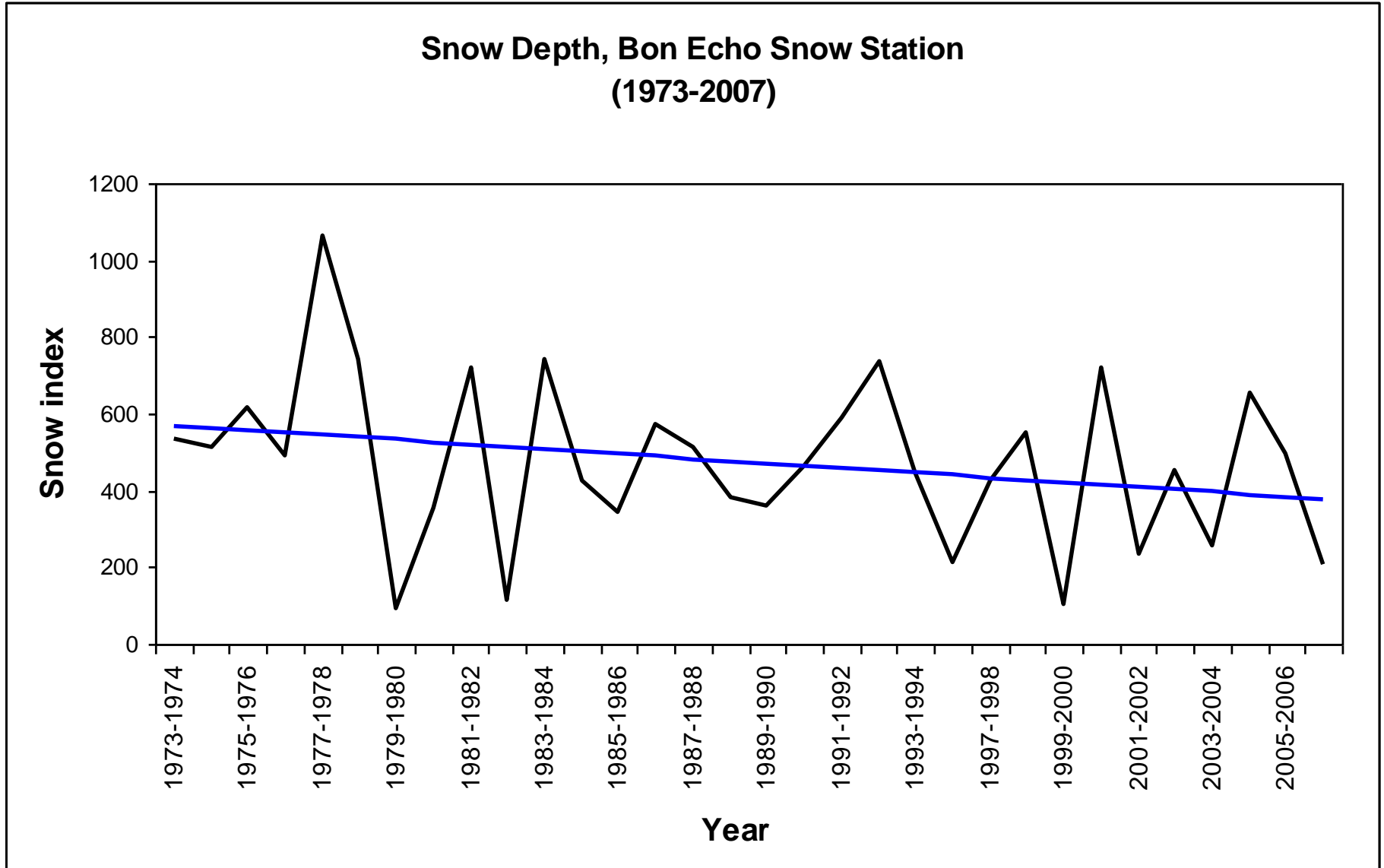


What the pollen tells us

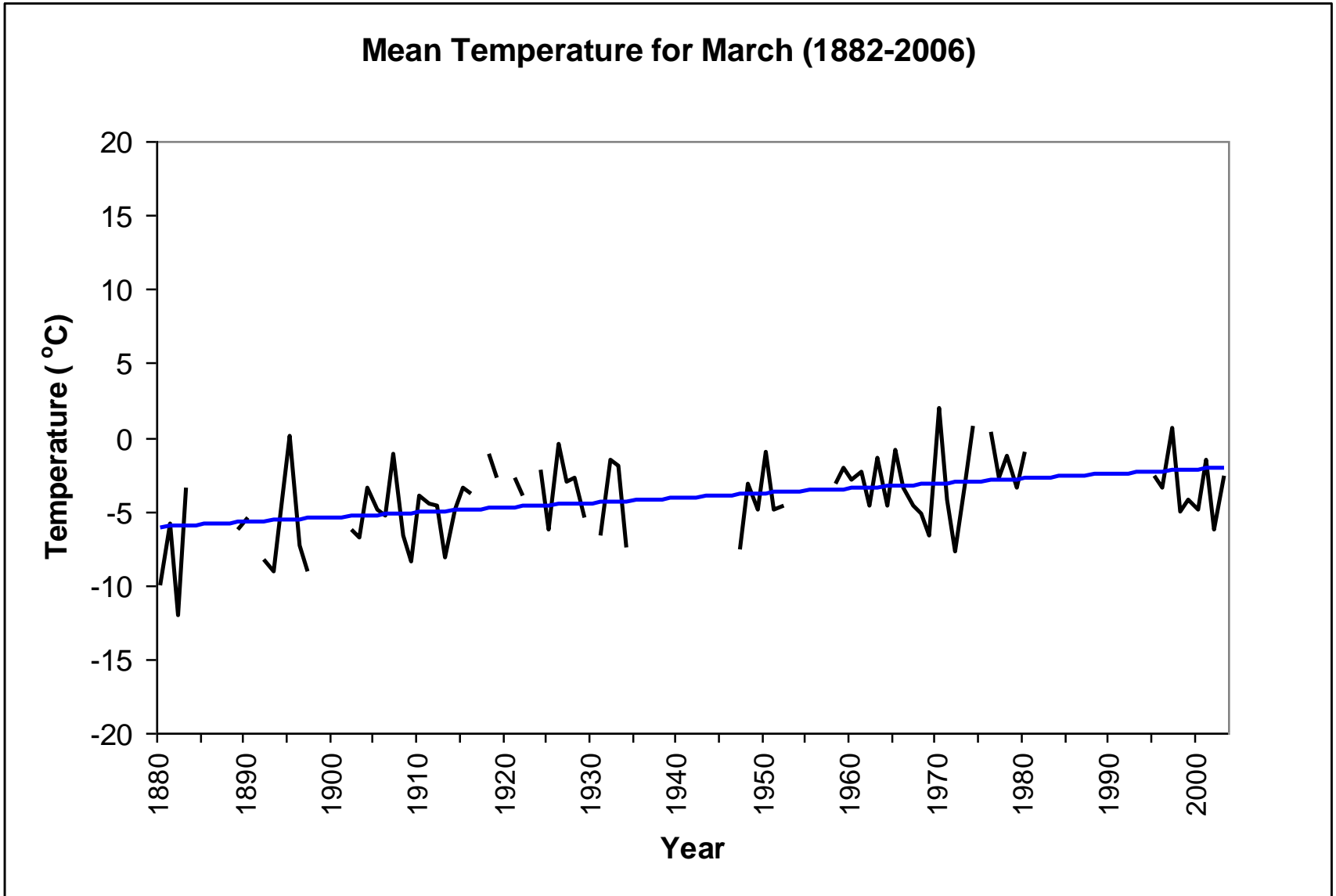
- Hemlock, beech and other warmer-climate tree species were abundant until ~400 years ago
- They declined during the “Little Ice Age”
- Birch, white pine, spruce, fir & larch have been increasing in recent centuries; they may be doing better because of increased disturbance
- Note the amount of charcoal in the core goes up following European arrival (more fires)
- If climate warms, we may see hemlocks, beech do better

Shorter term climate trends

Winters are becoming less snowy

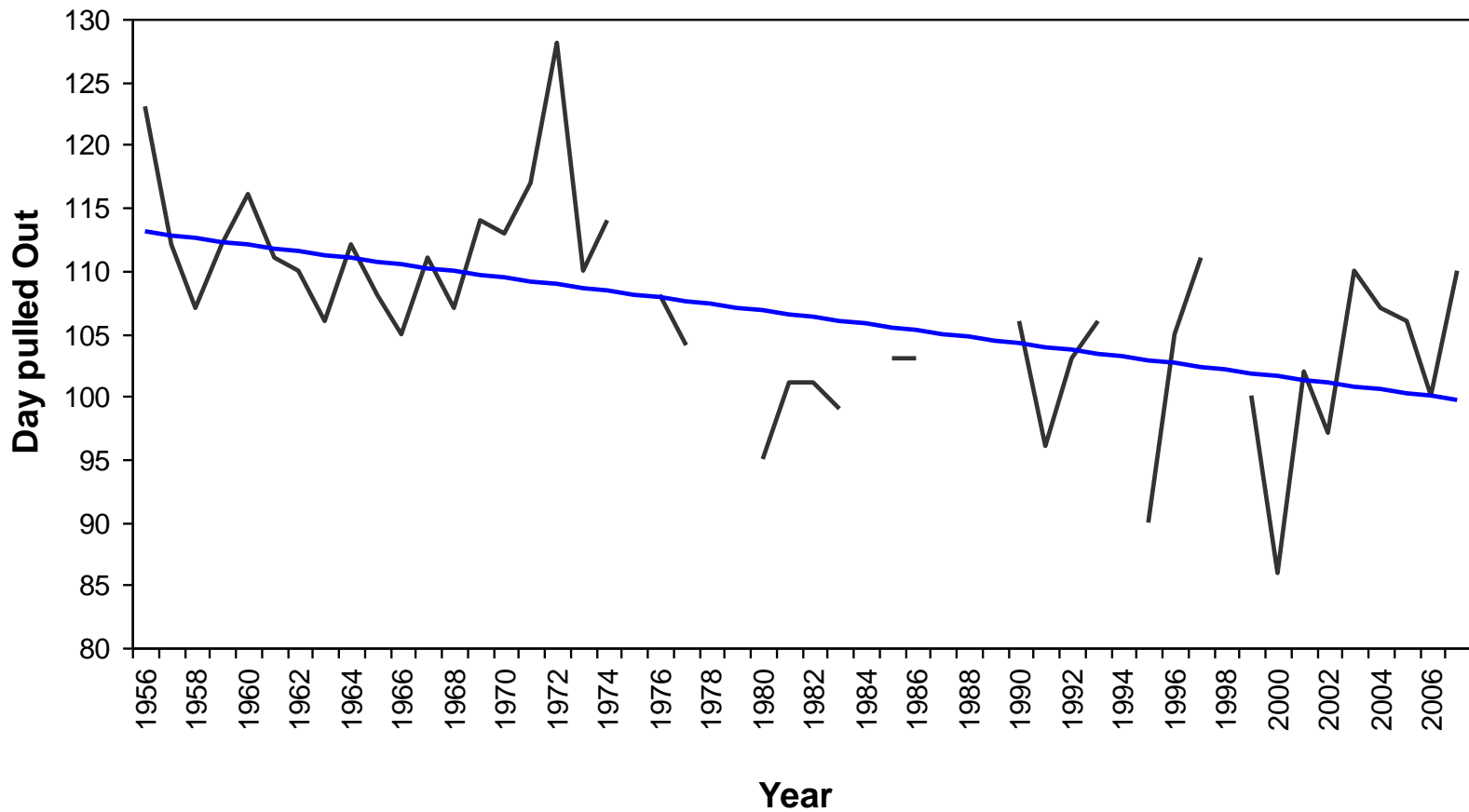


Winter are milder and shorter

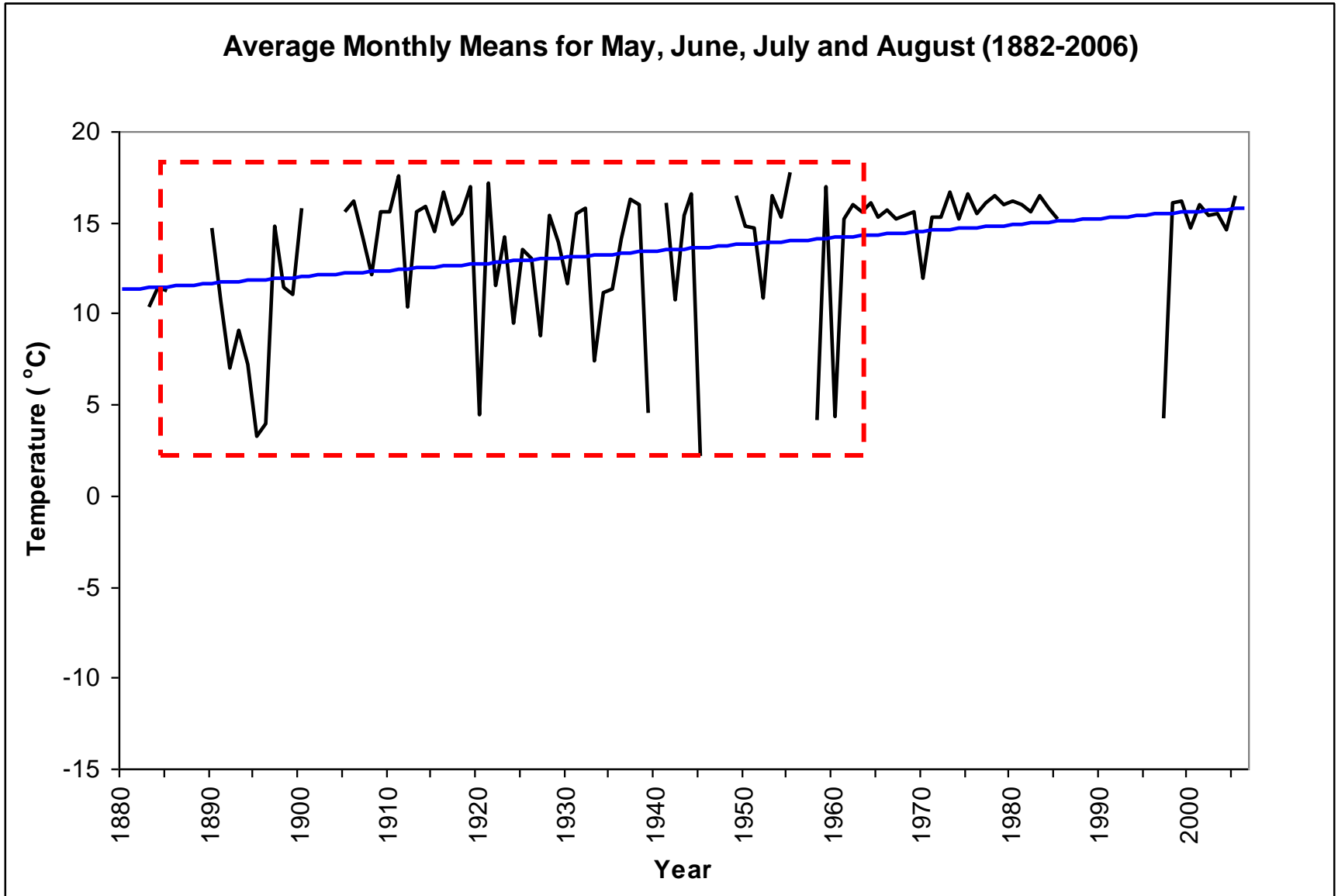


Maple sap runs earlier in year

Hasler Farm Maple Sugar Bush
Date taps removed from trees, by year



Hot, dry summers more frequent





Forest Fire Hazard
Risque d'incendie de forêt

MODERATE
MOYEN

HIGH
ÉLEVÉ

LOW
FAIBLE

EXTREME
TRÈS ÉLEVÉ

FIRE BAN ON





Pros & cons of recent climate trends

Winter trends

Positive

- Contractors can work almost year round
- Real estate agents can sell year-round
- Less snow to clear
- Winter heating bills

Negative

- Lake ice dangerous
- Snowmobiling bad
- Forestry season shortened
- No snow = no fun
- Hard on road-maintenance budget

Summer trends

Positive

- The heat is good for tourists, visitors, cottagers & businesses that depend on them

Negative

- Wind damage to property, lines
- Fire risks
- Wind conditions on lakes more treacherous for small watercraft

Non-climatic stresses

- Lack of permanent employment opportunities
- Limited health care services
- Poor cell-phone, internet
- Rising waterfront property prices (and taxes)
- Fuel prices
- US dollar

Non-climatic stresses on local governments

- Providing services for aging population
- Declining school enrollments
- Competing demands in more populated areas to the south
- Replacing aging infrastructure
- More regulations imposed from above

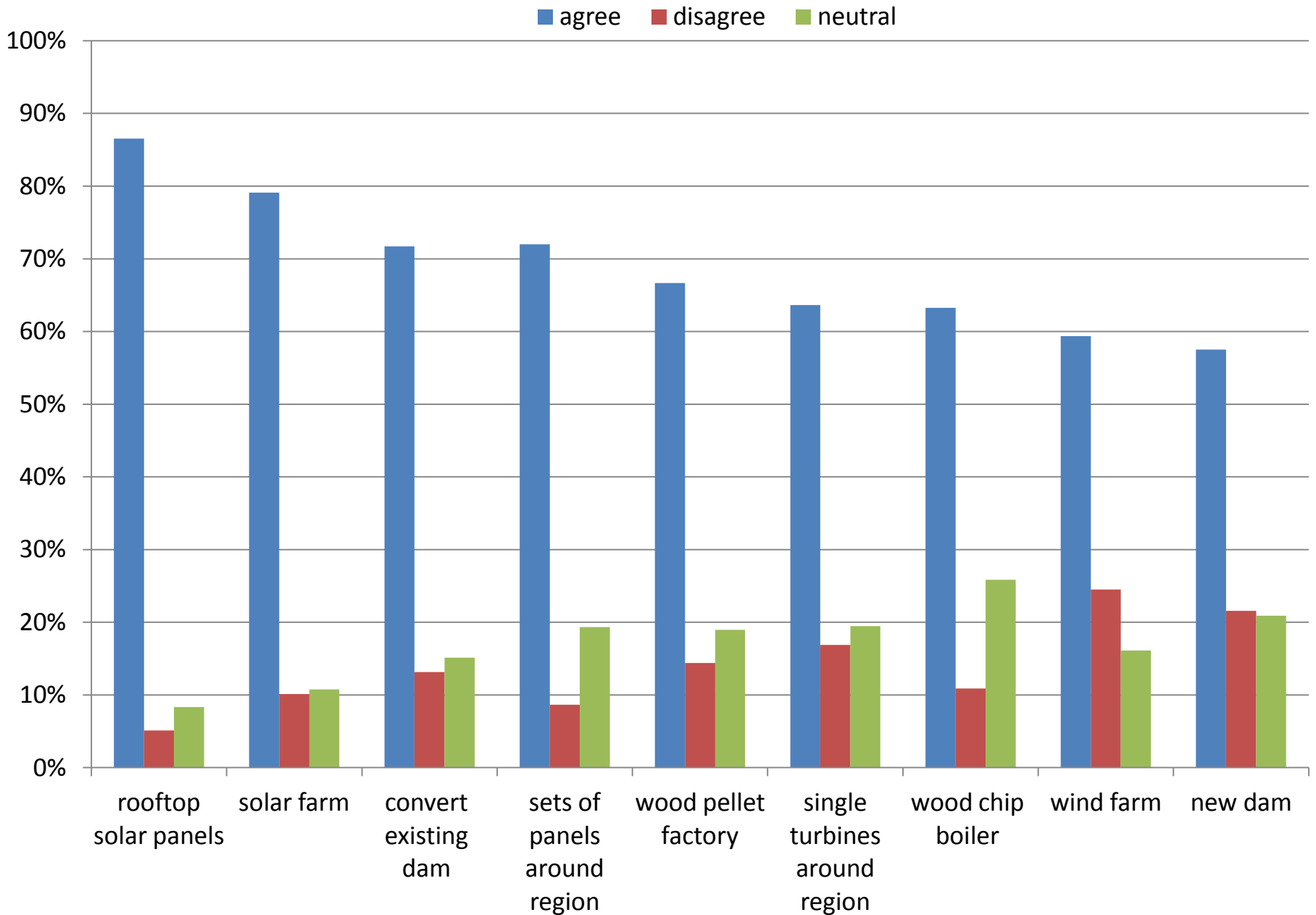
Opportunities for adaptation

- Fantastic natural resource base
- Strong social networks
- People are resilient
- Retirees bring useful skills/experience not produced locally
- Service clubs, church groups, outdoors clubs can help government



Alternative energy?





Response to question “Would you support the following hypothetical projects?”

Win-win land use?

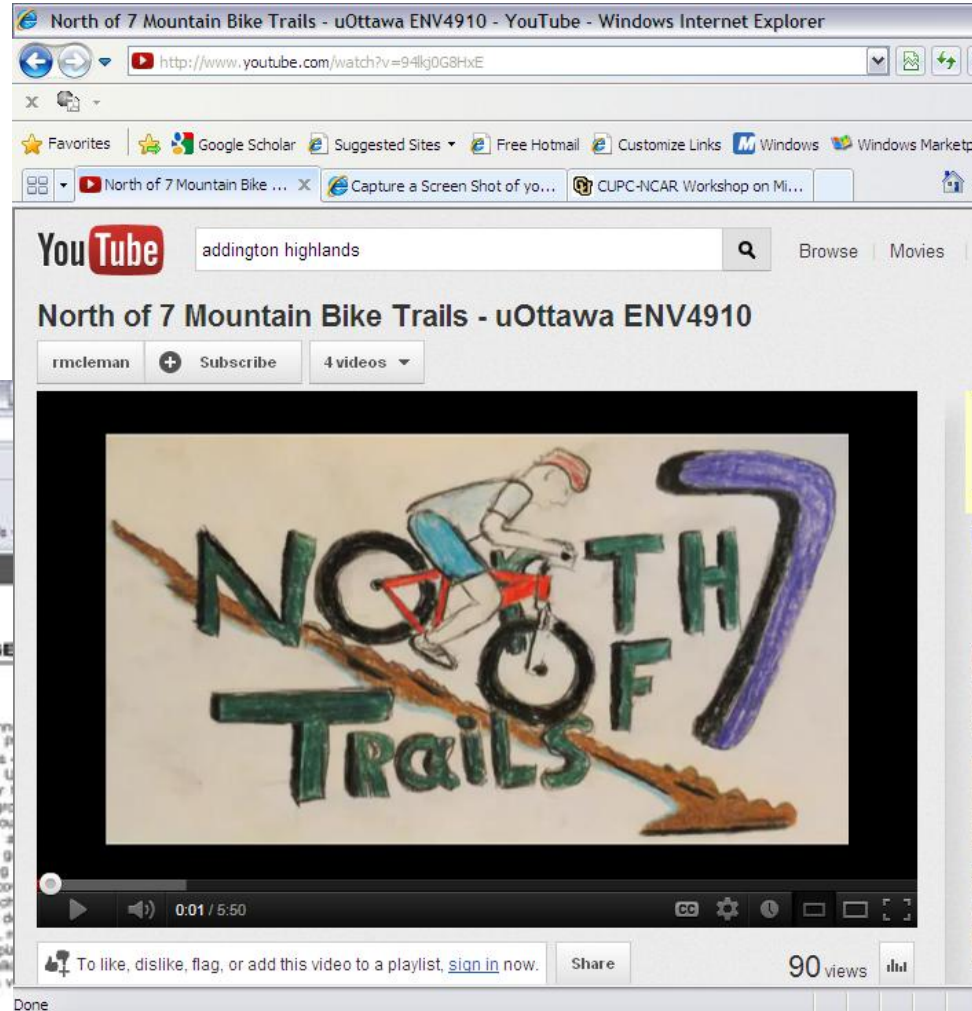
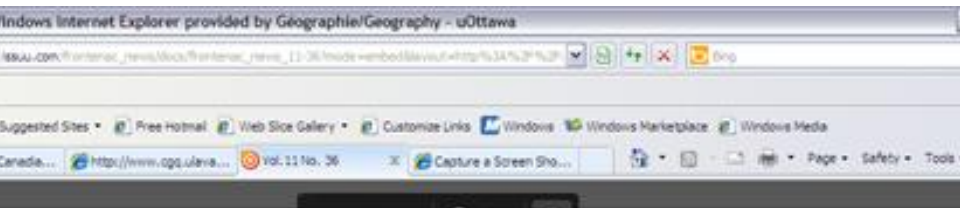
- Most operators' practices promote good biodiversity



- Public health has good expertise for coping with climate change, so long as resources are maintained
- Also relies heavily on social capital

Students as innovators

- Student projects to brainstorm sustainable development ideas



Harnessing smartphones

- Better cell service is slowly penetrating the countryside
- Will allow rural business, industry to catch up; make area more attractive for visitors
- E.g. pilot project on using smartphones to manage forests more efficiently

Bell service



Ongoing discussion, dialogue is important



Keys to successful adaptation

- Maintain strong social networks
- Strengthening collaborations/partnerships between government and residents organizations
- Create our own opportunities
- Getting residents more actively engaged with nature, citizen science

Thanks! Merci!

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