

Climate Change Adaptation in the North American Forest Sector

Mark Johnston, Saskatchewan Research Council
Tim Williamson, Canadian Forest Service
Linda Joyce, US Forest Service

MOTIVE Final Meeting
Freiburg, 9–10 April 2013

Adaptation in the Canadian Forest Sector

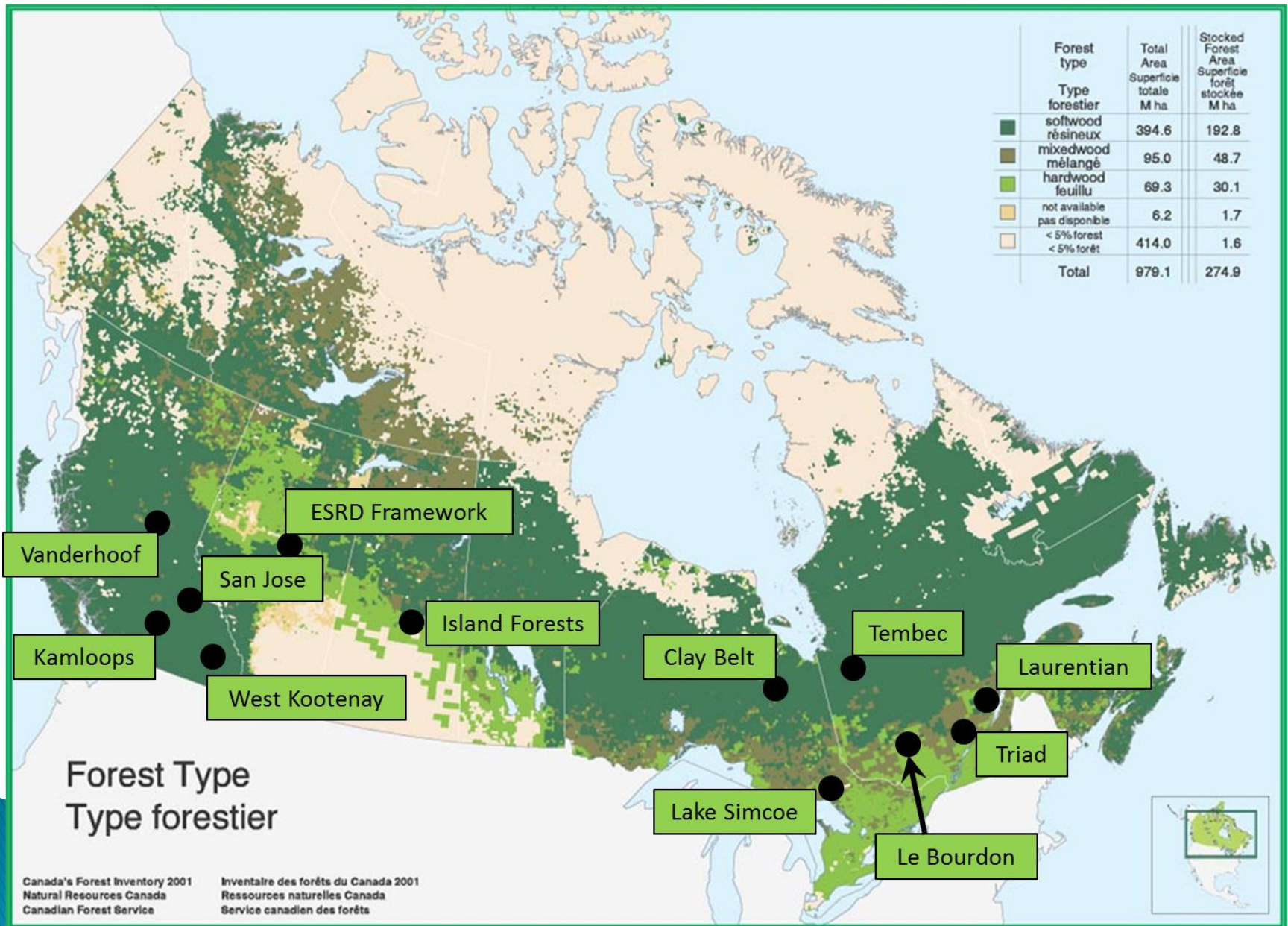
“Consideration of climate change and future climatic variability is needed in all aspects of sustainable forest management”

From “A Vision for Canada’s Forests: 2008 and Beyond”
Canadian Council of Forest Ministers, 2008

Canadian Council of Forest Ministers

- ▶ Climate Change Task Force: senior professionals in provincial and federal governments; collaborated on national assessments
- ▶ Oversaw 2 phases of climate change adaptation work:
 - National tree species vulnerability study
 - Development of tools to aid managers in incorporating climate change into sustainable forest management
- ▶ Case Studies

CCFM Case Studies

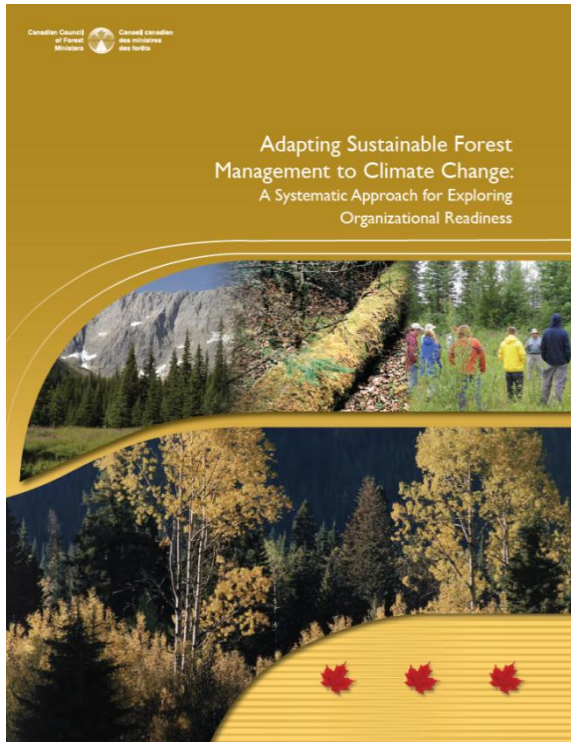


Key findings:

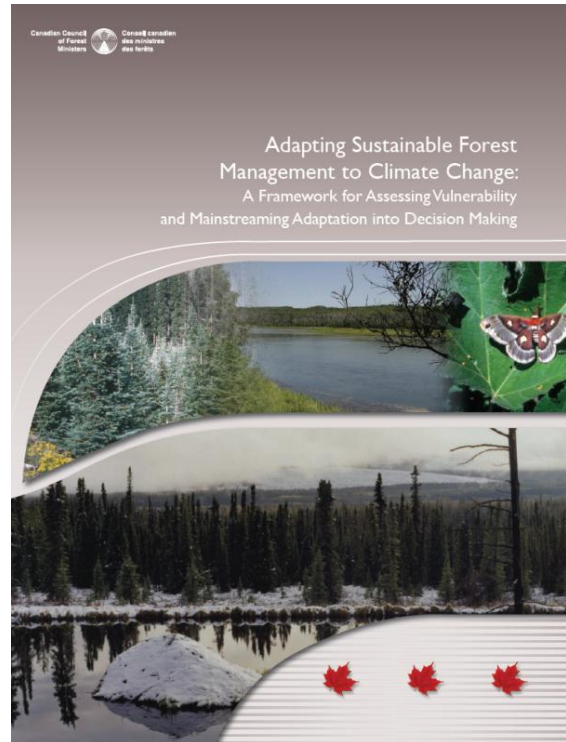
- ▶ Develop capacity to address questions related to shifts in species range; assisted migration
- ▶ Manage forest structure to reduce risk of catastrophic loss from disturbance
- ▶ Enhanced monitoring to detect impacts early and to assess the effectiveness of adaptations
- ▶ Incorporate vulnerability analysis, risk analysis and adaptive management into policy development, planning and decision making – i.e. mainstreaming
- ▶ Identify knowledge gaps, institutions and policies that pose barriers to adaptation

Climate Change Task Force Vulnerability Assessment Tools

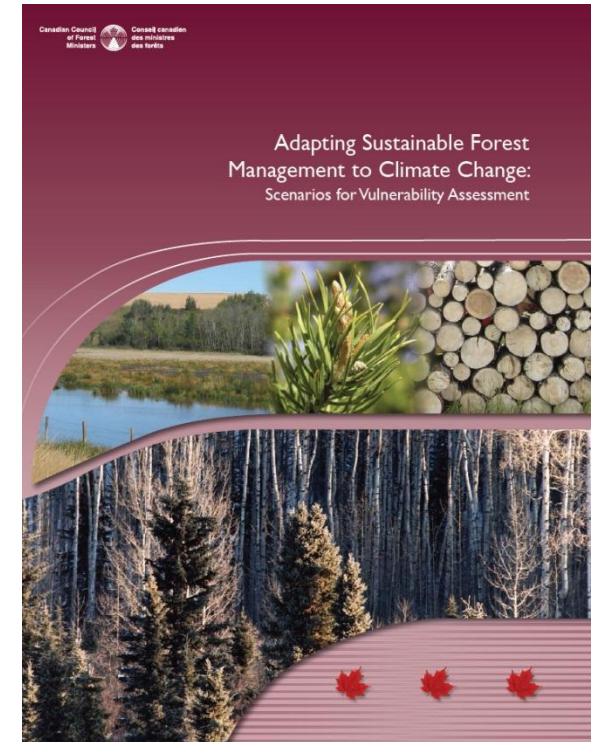
Organizational Readiness



Vulnerability Assessment



Scenarios for VA



Documents available at: <http://www.ccmf.org/english/coreproducts-cc.asp>

Provincial example: British Columbia

- ▶ Forest Stewardship Action Plan
- ▶ Adaptation knowledge and tools
- ▶ Future Forest Ecosystem Science Council

Forest Stewardship Action Plan for Climate Change Adaptation: 2012–2017

- ▶ Goal one: Foster resilient forests
- ▶ Goal two: Maintain future options and benefits
- ▶ Goal three: Build adaptive capacity

Generating knowledge and tools to support BC forest management

- ▶ Climate change adaptation workshops
- ▶ Resilient forests newsletters
- ▶ Species monitoring reports, tree species selection tool, climate-based seed transfer guidelines
- ▶ Bioclimatic envelope models
- ▶ Potential management options for adaptation
- ▶ Climate change adaptation seminar series

Future Forest Ecosystem Science Council

- ▶ Established by BC Ministry of Forests in 2008
- ▶ Guided the allocation of a \$5.5 million grant-in-aid for research that supported the objectives of adaptation of BC's forest/range management framework to climate change.
- ▶ Closing conference/workshop in June 2012.
- ▶ Synthesis of FFESC research and policy recommendations is posted on its web site

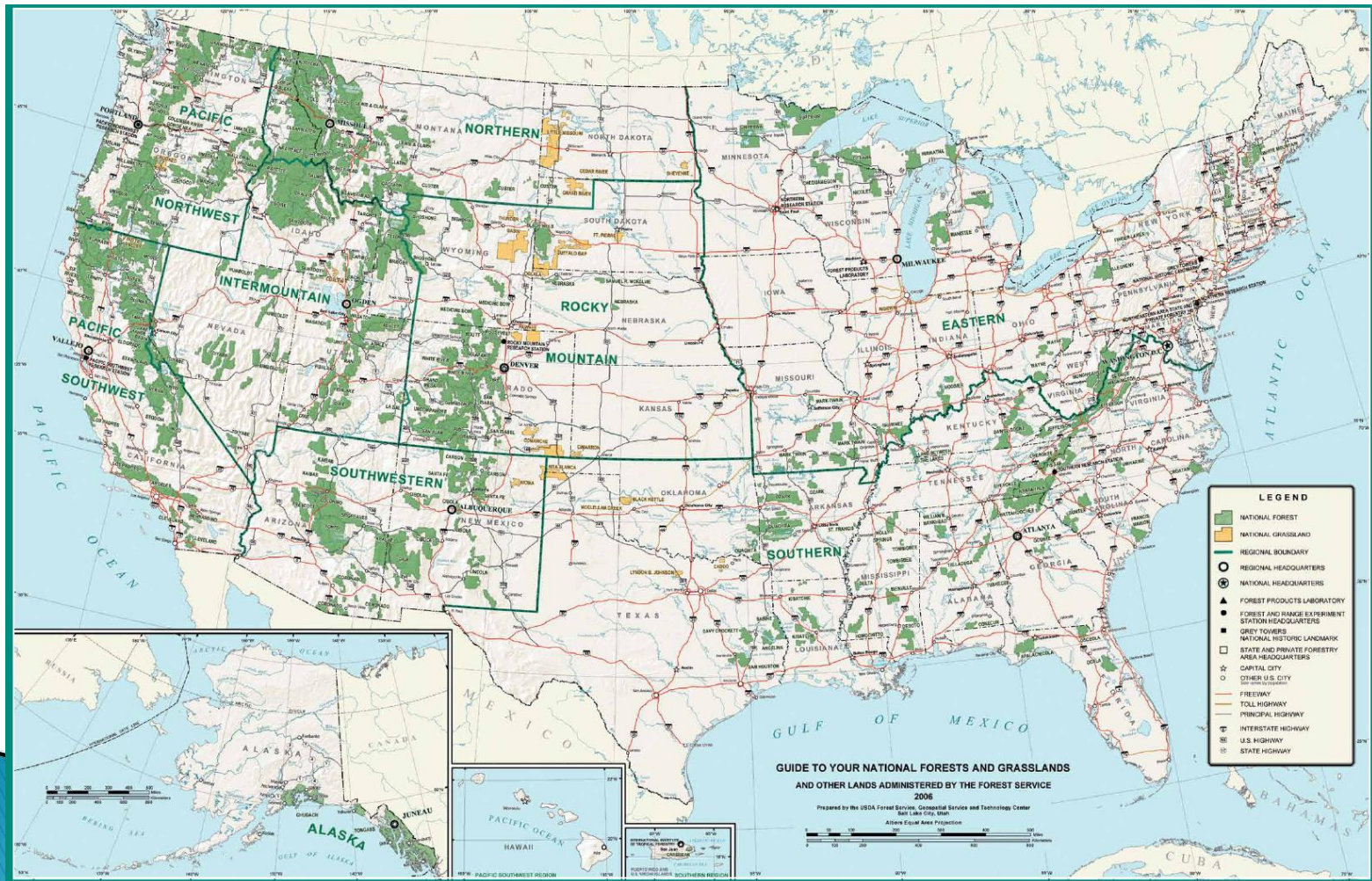
http://www.for.gov.bc.ca/hfp/future_forests/council/index.htm#completed-projects

Provincial example: Ontario

- ▶ MNR developed an inventory of local, regional and provincial-level monitoring programs to assess how they can contribute to monitoring climate change impacts.
- ▶ Internal manager-level workshops were held in March/April 2012 to discuss and identify opportunities to mainstream climate change and biodiversity into MNR decisions and actions at all levels.
- ▶ The renewed Ontario Biodiversity Strategy (2011) strengthened the focus on climate change, not only as a threat to biodiversity but also as an important area for action.
- ▶ MNR's Forest Branch is reviewing forest policy in light of climate change, including an operational policy review exercise, and providing climate change training for Forest Management Planning Teams.
- ▶ MNR is putting the final touches on a risk management guide. This document will provide guidance and tools to support the integration of risk-informed decision-making into all program areas and business functions, including climate change.

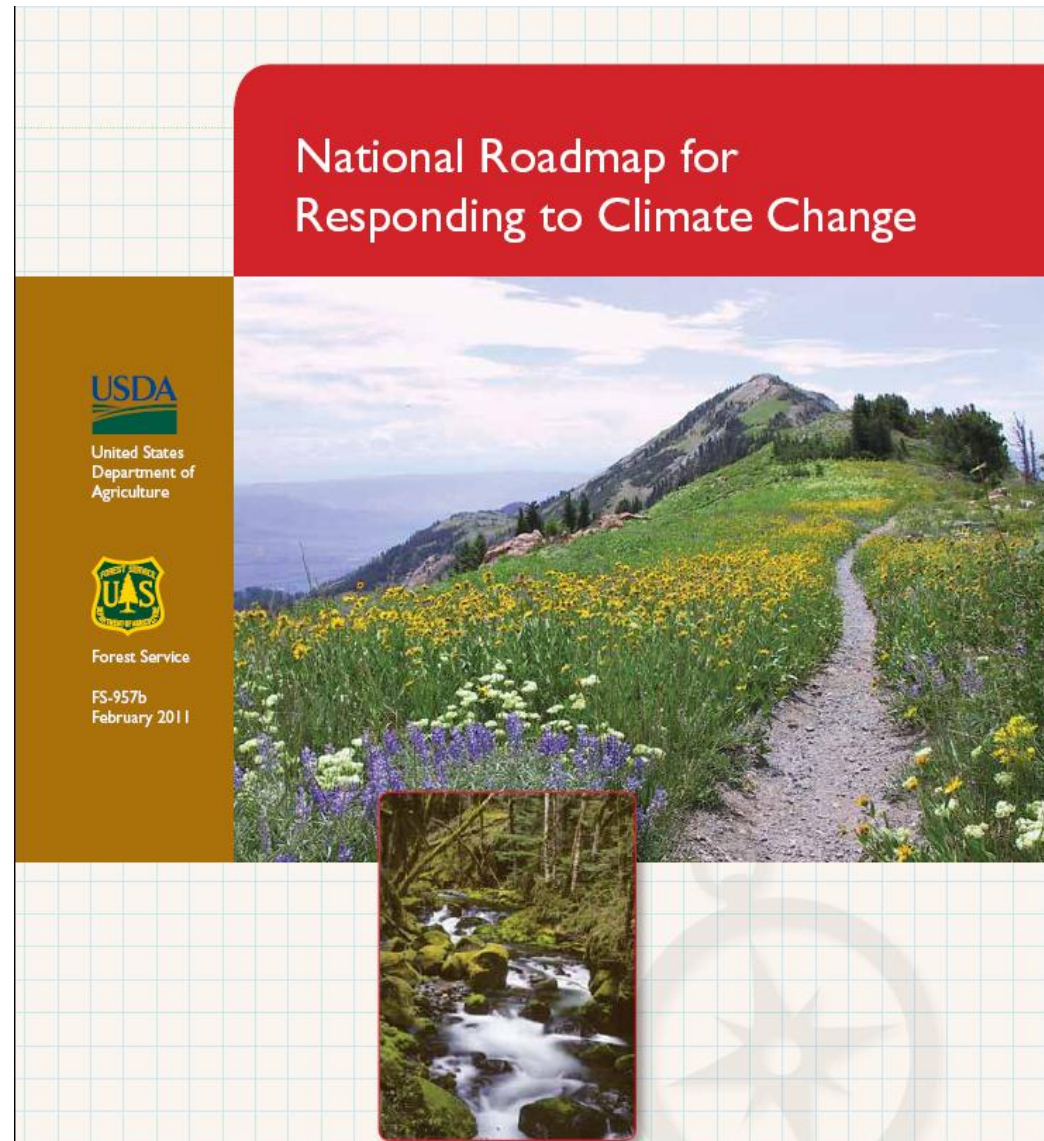
Climate Change Adaptation in the US Forest Service

Research and Development, National Forest System, State and Private Forestry



Guidance to field units on responding to climate change:

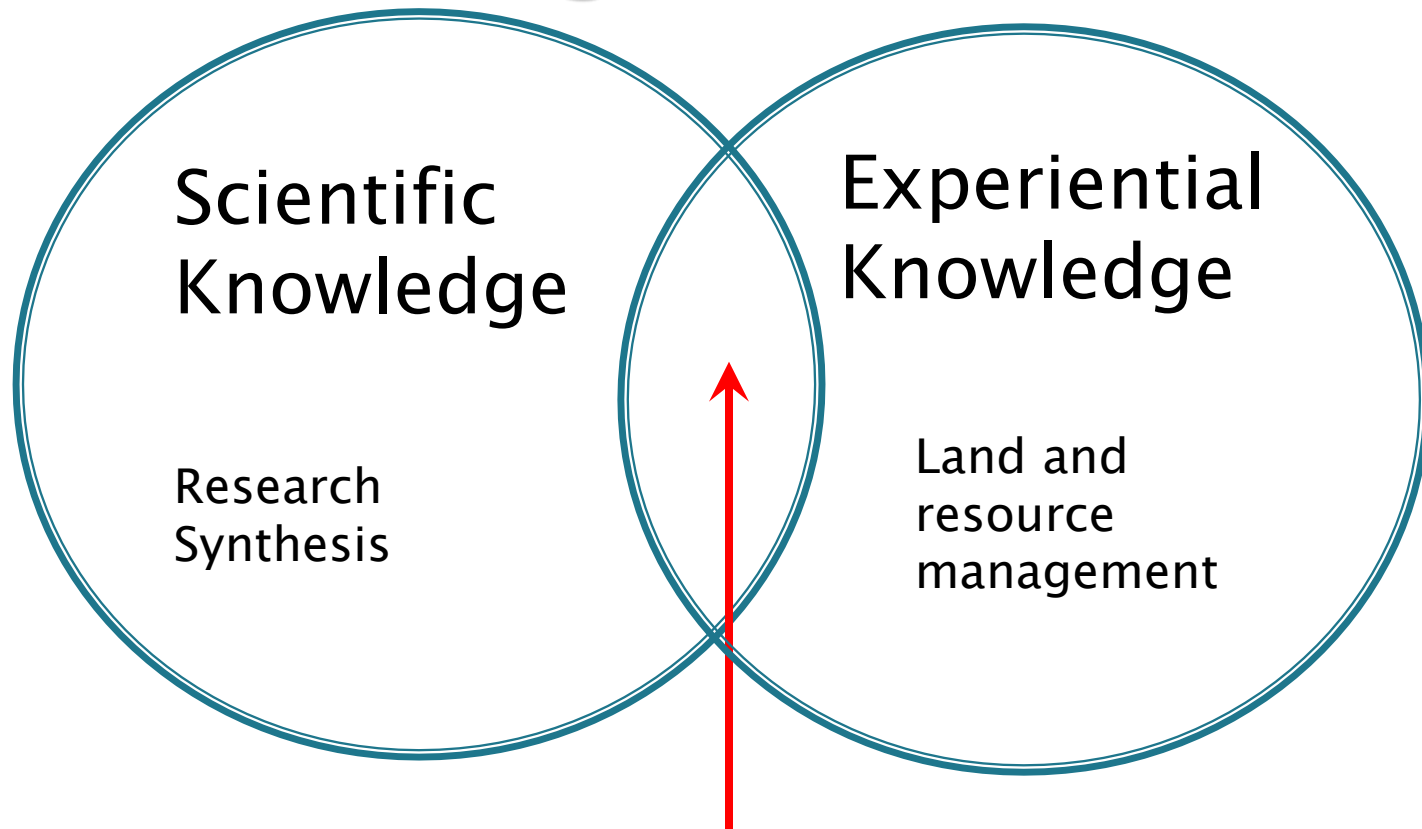
The goal is to have climate change considerations in land management within the Forest Service by 2015



Framework to Assist Managers in Developing Adaptation Options in Forest Management

- ▶ ***Resistance***: maintain values and ecosystem services in their present condition
- ▶ ***Resilience***: enhance capacity of ecosystems to withstand or absorb effects without loss of key processes or functions
- ▶ ***Response***: assist transitions to future states by mitigating or minimizing disruptive outcomes

Science–Management Partnerships

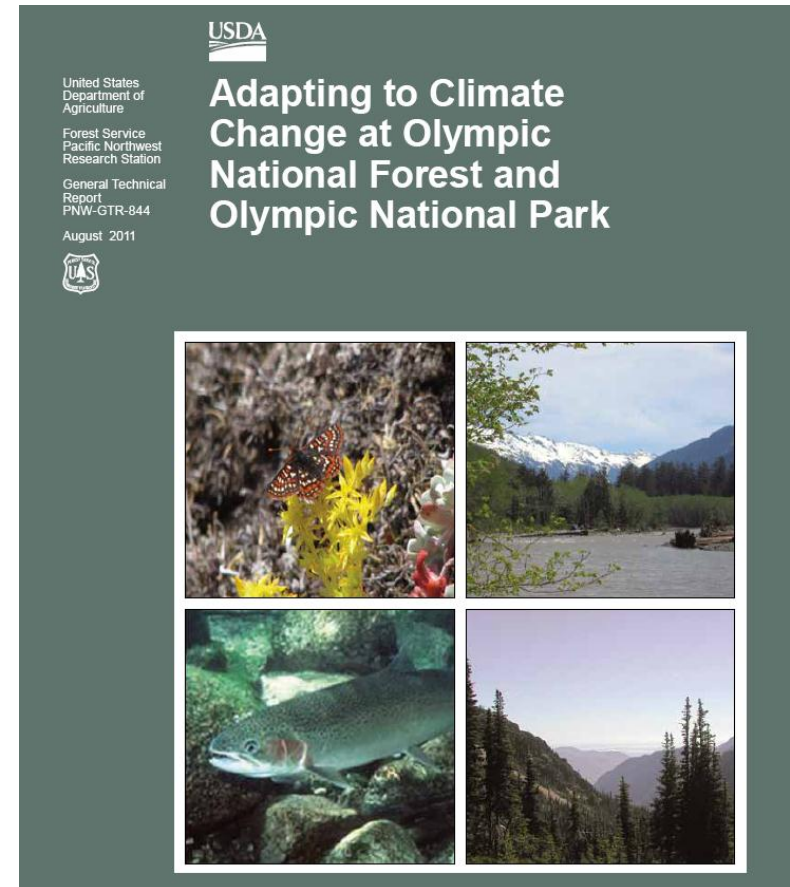


Adaptation Options Develop at the Intersection of Scientific and Experiential Knowledge

Olympic National Forest and National Park

Identified
vulnerabilities and
adaptation actions for:
Hydrology/roads
Vegetation
Wildlife and habitat
Fisheries and habitat

Management Actions:
Added risk factors
(floods, landslides) into
current road
maintenance strategies



US Forest Service

Climate Change and Human Adaptive Capacity

▶ Education

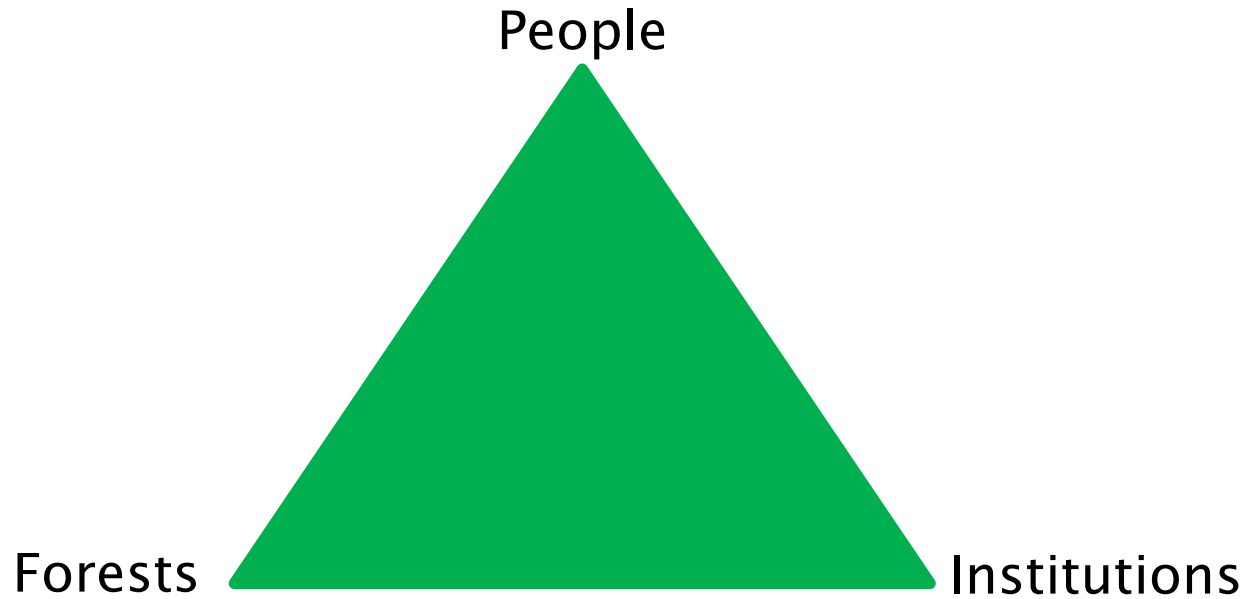
- 1-day workshops – climate to impacts to management
- 1 week course – climate

▶ Training

- Added to national training efforts, e.g., Water Resource Line Officer Training
- Added to Forest Service regional staff meetings
- Orientation for new employees on some national forests

▶ Climate Change Resource Center – 1-stop website: <http://www.fs.fed.us/climatechange/>

Climate Change Adaptation



Adaptation to climate change requires each
and together they adapt to climate change

Conclusions

- ▶ Not much adaptation implementation occurring
- ▶ Large amount of awareness-raising and thinking
- ▶ Increasing science base and first-generation decision-support tools emerging
- ▶ Some early examples of mainstreaming in planning and policy but much more needs to happen
- ▶ Have a reasonable idea of where we need to go – now it's a matter of getting there

Questions?

