Natural Disturbance

Current and Future Directions

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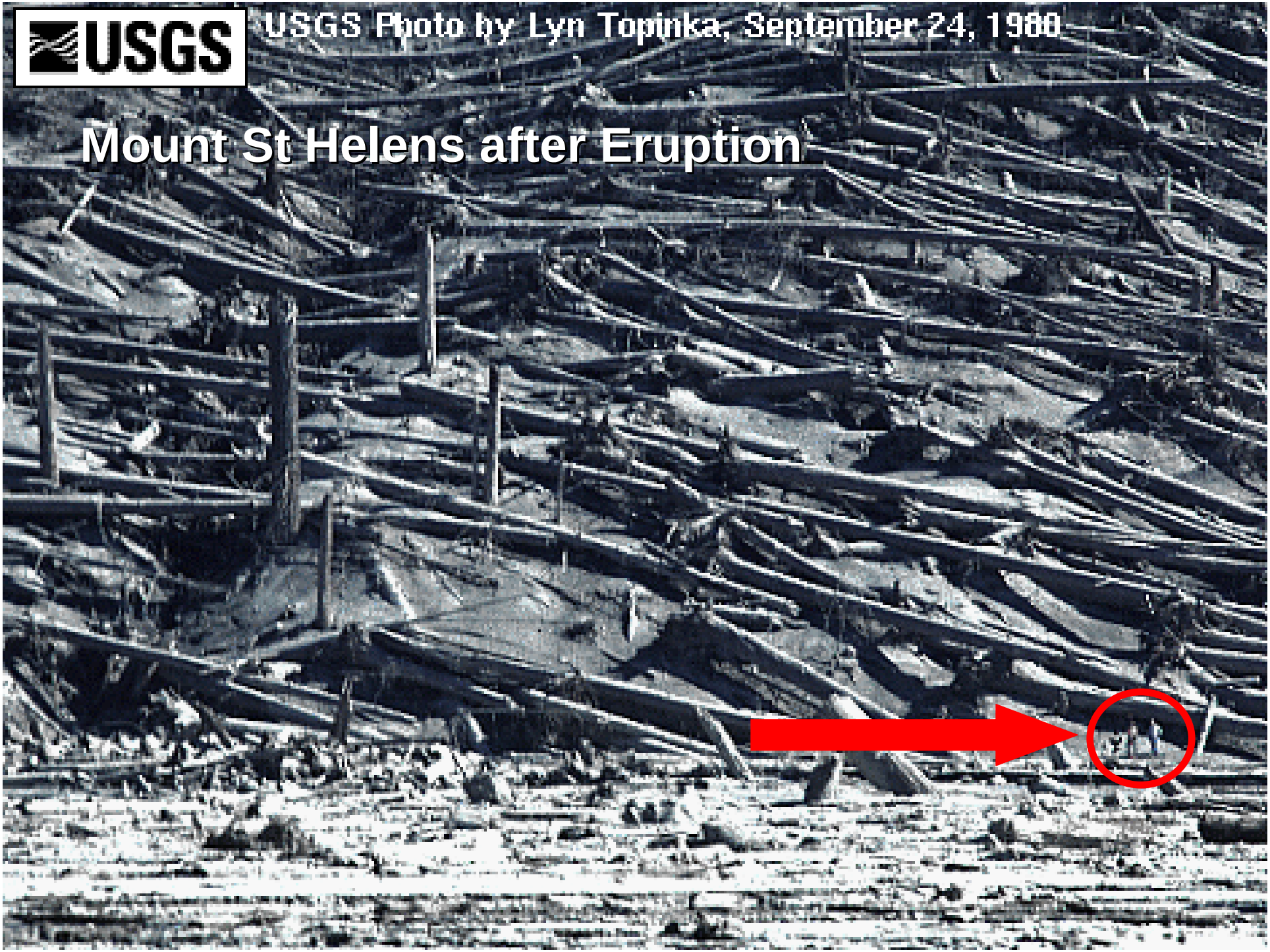
- Forest fires are the main natural disturbance
- Managers of both protected and working forests want to approximate natural forest dynamics to conserve biodiversity

ND = Coarse Filter Biodiversity

Ecological assumptions

- Redundancy (e.g. product removals)
- Replacement (e.g. mechanical versus chemical)
- Resilience (e.g. thriving in chaos)
- Recovery (e.g. convergence)


USGS
USGS Photo by Lyn Topinka, September 24, 1980
Mount St Helens after Eruption


Mount St Helens 29 years after eruption
Natural Recovery


Mount St Helens 29 years after eruption
Planted Trees

Natural Disturbance History

Athabasca River Valley
Jasper National Park
1915

Athabasca River Valley
Jasper National Park
1997

Big Ideas

- **Use ND and NRV to develop targets in a conventional forest management planning system**
- **Find better ways to make decisions and implement plans**
  - **Healthy Landscapes**
  - **Alberta Land Use Framework**

Where are we at?

- **Burgeoning activity but it's still very early in the game**

Does activity equal acceptance and support?

Research

- **Some aspects are well developed**
  - Understanding natural patterns
    - ND definitions, RNV
  - Comparing natural and cultural
    - NEPTUNE, FMP seral stage analyses
  - Evaluating policy and planning
    - Highway 40
    - Healthy Landscapes
  - Communication
    - Technical and practitioner
    - Regulator

Where to from here?

- Despite rapid changes, adoption is still in the early days
- There is still substantial risk that ND will not be successfully implemented
- Need to move from concept and trials to routine standard
- Need to continue successes and roadblock removals

Concept – Trial - Practice

- Solid research foundation
- Opinion leader support gathering
- Public awareness still poor
- Early in trial stage
- Some routine practice
- Not much evaluation

Core Business or Nice to do?

- **A messy transition is in progress**
  - Some aspects are required or will be soon
    - Retention
    - Seral stage targets (especially old forest)
  - Other aspects are not allowed or difficult
    - Riparian disturbance
    - ARIS requirements
- **Tendency to cherry pick and shoehorn new concepts into old process**
- **Reluctance to change existing approach**
- **Outcome uncertain**

Alternatives

- Return to the old days
- ND just another constraint
- ND fades away as the next great thing comes along
- ND underpins all Healthy Landscapes
- ND revolutionizes the land management system

Imitation versus Approximation

- Imitation impractical and unlikely to work
- Approximation more flexible and feasible
- Need continued discussion of alternatives and willingness to try different things
- Tremendous potential to try different things

Biggest differences are immediately after disturbance

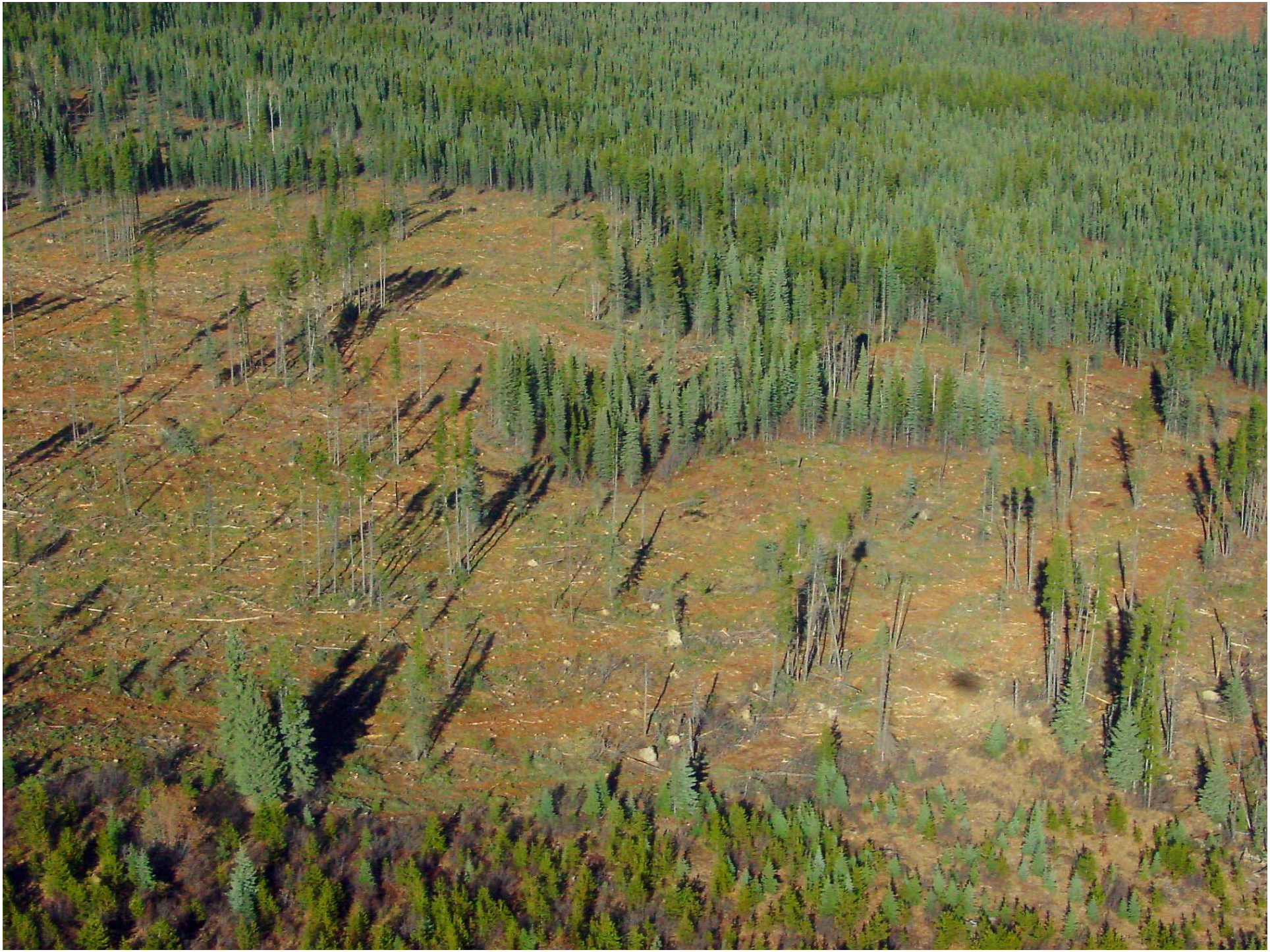
Disturbance–recovery–resilience

- Long-term visioning “future forest”
- Begin where you are – work toward keeping what you have if you are there, or recovering to what you want if you aren’t there

- What do we have to do to have these kinds of patterns again in the future?

Creative Thinking

- **There's More than One Way to Skin a Cat**
  - **Lodgepole pine regeneration**
  - **Different tool – similar result**



What about the dead trees?

- Most of the trees that would have died and remained on site in a natural disturbance go to the mill
- Leave some green / dead patches / trees / logs to partially fill role of dead trees
- If a natural disturbance occurs, don't salvage harvest all the dead trees

Redundancy

- **Dynamic systems are highly variable**
  - Variation may be necessary for system integrity
    - Removing wood, wildlife, water, etc may not compromise system integrity, but it will alter it
    - Humans are part of the system – alteration is inevitable
  - <u>We still need intelligent tinkering</u>
  - Questions:
    - How much retention to ensure long-term integrity?
    - How should retention be placed in space and time?


Way outside the box…


Coarse Woody Debris

Creative Thinking

There's More than One Way to Skin a Cat

- Wood in streams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MARK IV
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Zoning is Still Important

- **Naturalness gradient**
  - Land use decisions in time and space
  - Landscape pattern in time and space

Strip mine — Park

- **Riparian areas as an example**
  - Will probably trend toward a lower rate, soft hand approach because of other values
    - Begin cautiously and then see if more should be done

Questions

- **Need to sort out roles**
  - Forest companies
  - Government
  - Energy sector