Incorporation of Research Results into Forest Management

Research to Empower the Manager

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Outline

- Introduction
  - The current Context
  - Why the need for Research
- A history of JDI FRAC
- How do we Integrate Findings from Research
- New Questions

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Today's Context

- **The Forest Industry is critical to N.B. (>8% GDP)**
- **New Brunswick is still a net importer of timber**
- **We should be Increasing Forest Productivity**
- **Can intensive Forest Management exist while maintaining the integrity of ecosystems?**

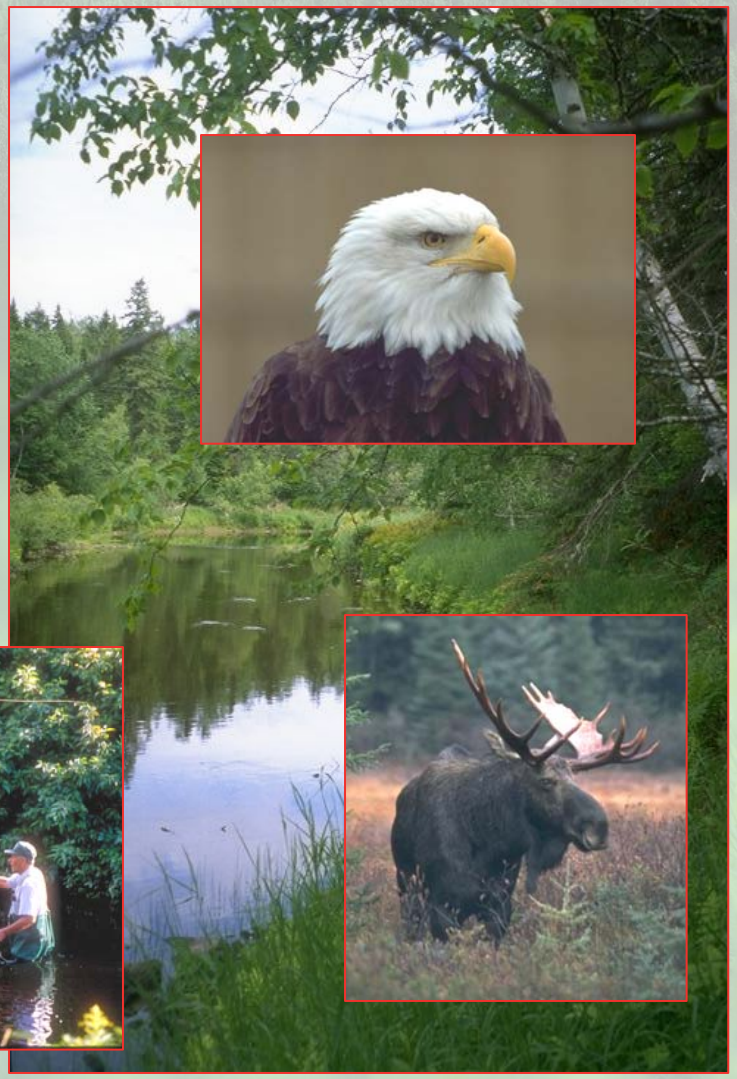
Why the need for Research

- **We need to grow more wood**
- **We change forests both at the stand and landscape scales**
- **There are significant knowledge gaps on potential impacts of forest management on different taxa and key ecosystem processes**
- **We are interested at doing the right thing**
- **We want our decisions to be based on science**

More than wood products…

Many Values

- Economic
- Wildlife Habitats
- Recreation
- Conservation /biodiversity
- Water Quality

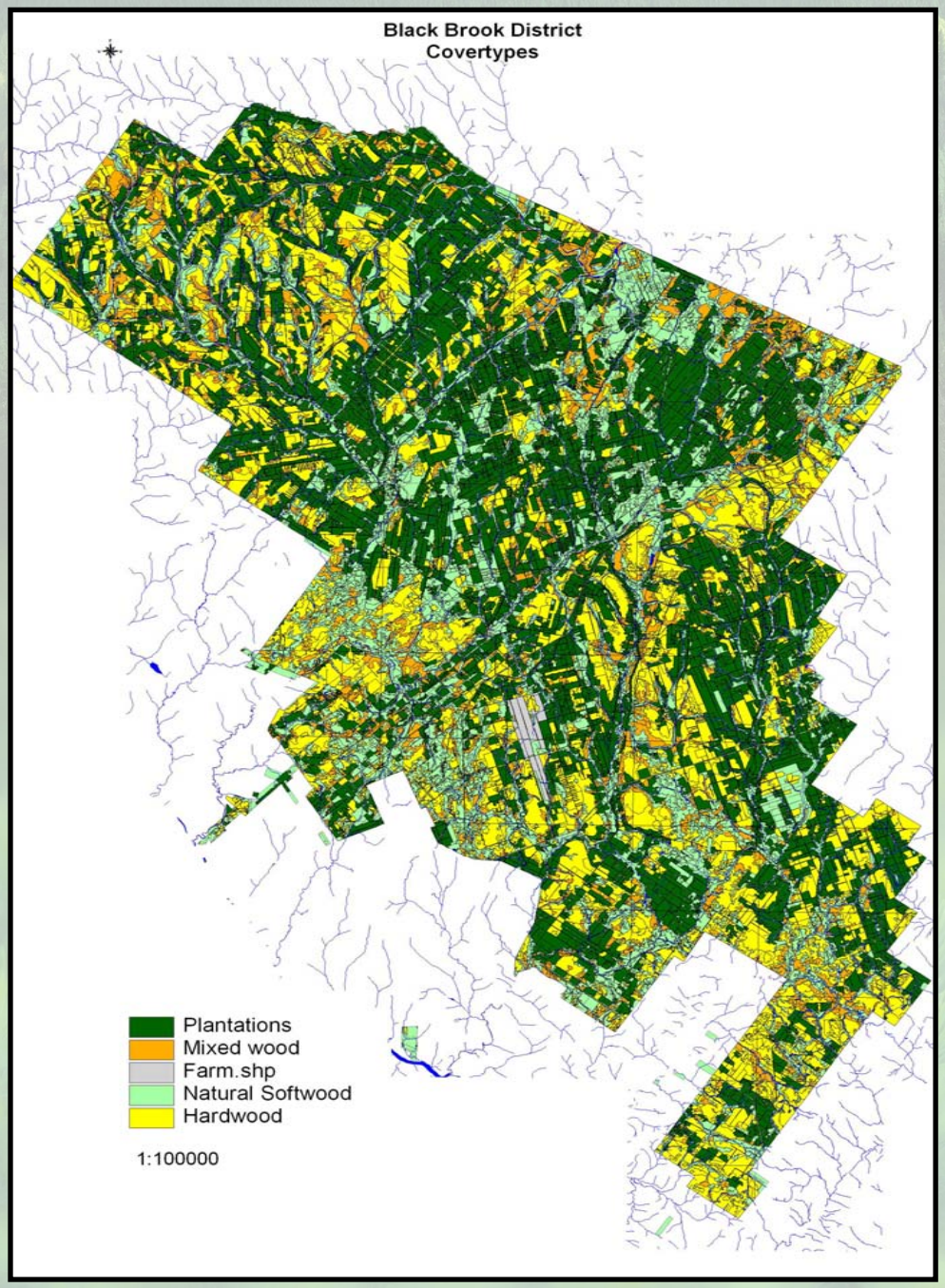


An example of a very productive forest

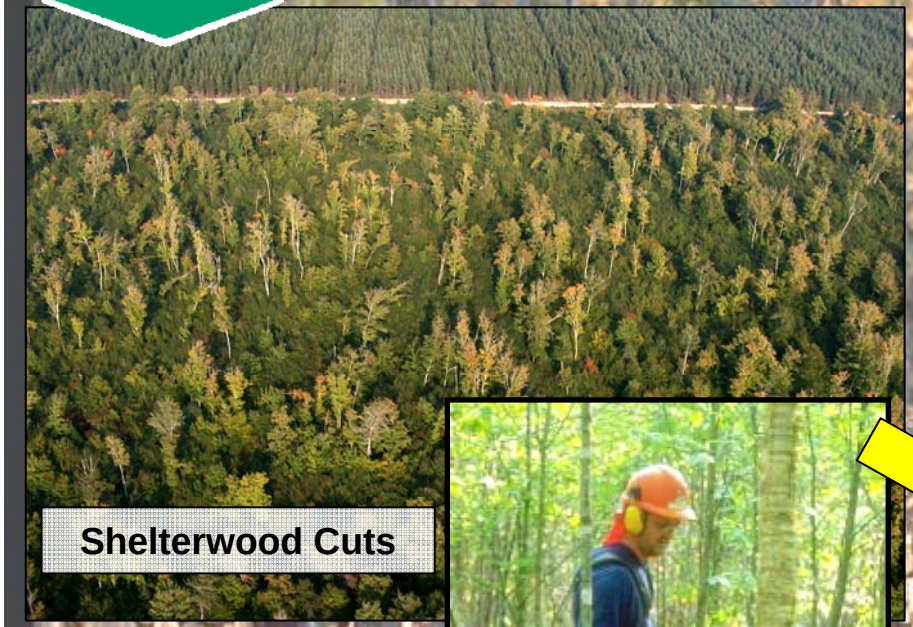
The Black Brook District…

Private tract of 2100 km²

- 38% planted
- 28% hardwoods
- 17% mixed
- 17% fir
- >20% special management zones



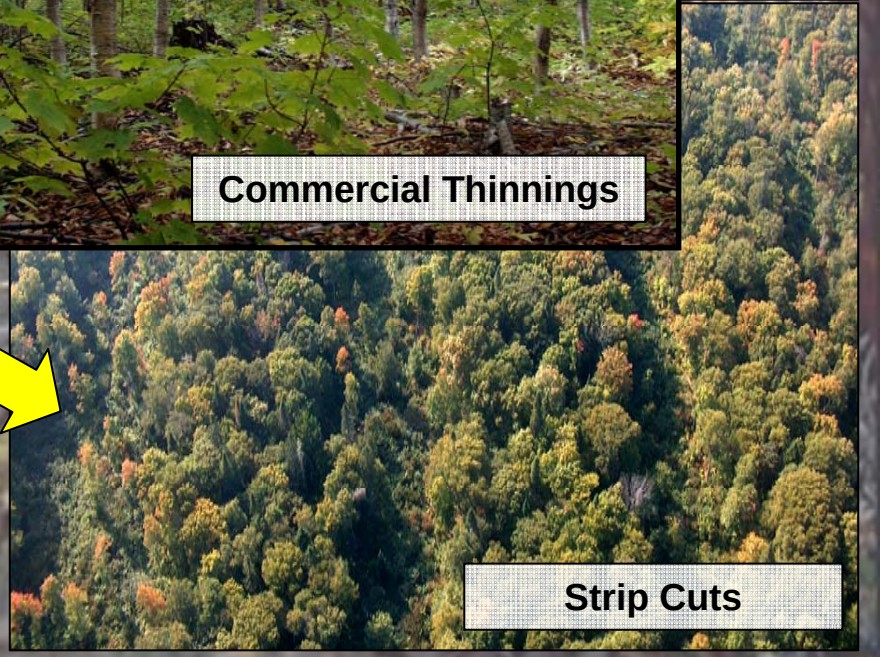
Example: Management of Hardwood Stands



Shelterwood Cuts

Commercial Thinnings

Patch Cuts



Strip Cuts

Can Managed Forests meet habitat Objectives?

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History of the JDI Forest Research Advisory Committee

- Founded in 1998 as a product of FSC Certification audits
- Made up of renowned experts in ecological fields
- Originally lead by Gordon Baskerville
- First two years were to establish the foundation
- First projects in 2000-01
- Set aside some benchmark reserves for research

The membership…

- **Dr. Dave MacLean, forest ecology (Chairman)**
- **Dr. Marc André Villard, bird ecology**
- **Dan Beaudette, habitat & biology**
- **Dr. Robert Wagner, forest productivity**
- **Dr. Jeremy Wilson, landscape ecology**
- **Dr. John Hagan, wildlife & landscape ecology**
- **Dr. Andy Whitman, wildlife & landscape ecology**
- **Company staff**
- **Other Researchers specific to individual projects**

Research to empower the forest manager

- **Formed in 1998, JDI FRAC mandate was to identify or advocate research to help company managers solve problems in their forests**
- **Focused on research to address knowledge gaps w.r.t. non-timber biodiversity values & natural disturbance:**
  - **1) establish objective measures for each target non-timber value**
  - **2) determine functional cause-effect basis for mgmt. of availability of conditions needed for each non-timber value**
- **FRAC develops and recommends research projects:**
  - **1. assess state of a forest quantitatively with respect to non-timber values, especially biodiversity**
  - **2. role of natural disturbances as the historical cause of temporal/spatial patterns of stand types & stages of development**
  - **3. Issue with intensive forest management**
- **must empower, not supplant, managers as decision makers**
- **active partnership of researchers & forest managers**
- **regular 2-way communication & 2-way education**

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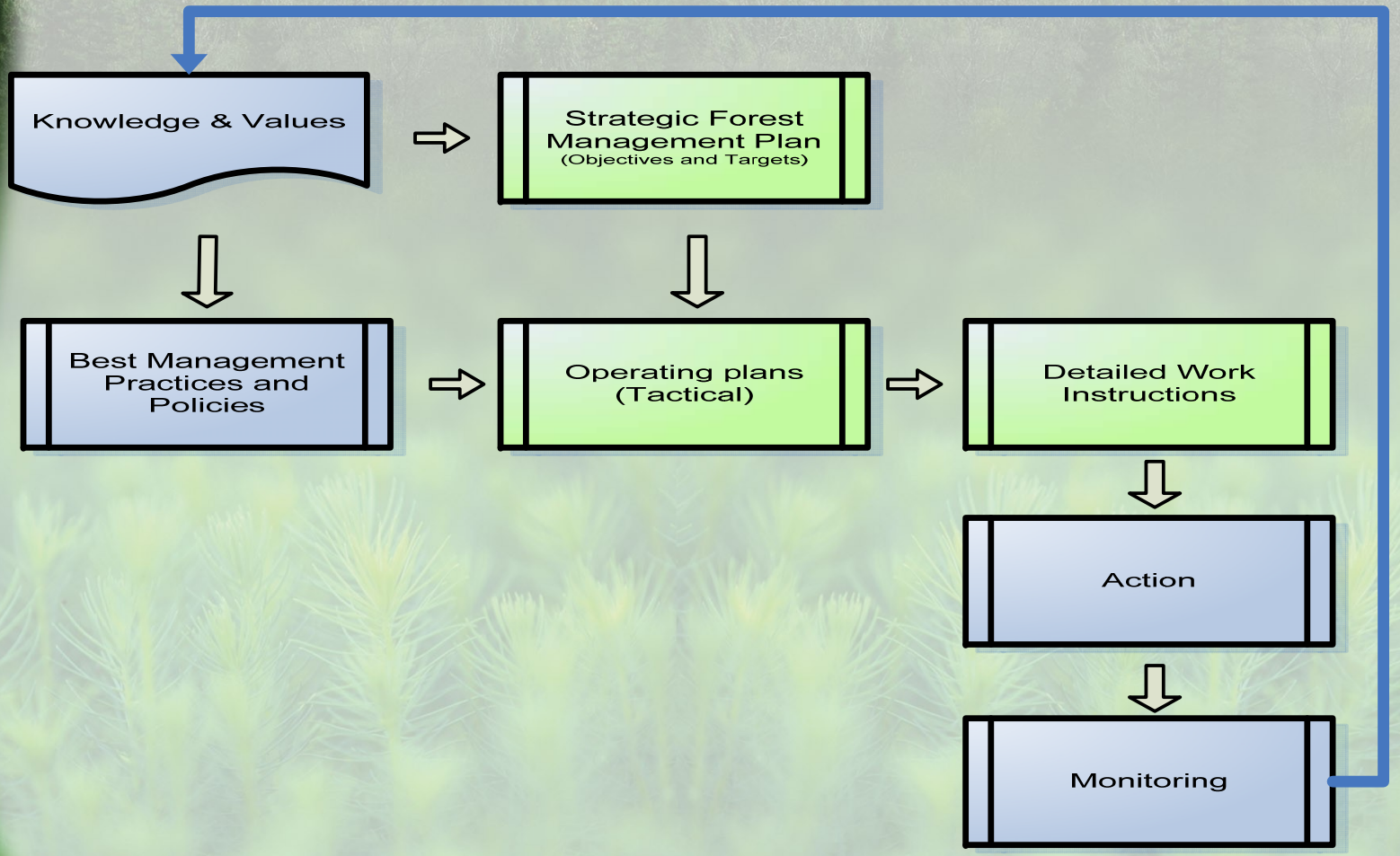
Our Forest Management Process



How we use new Knowledge

Knowledge gained from cooperative research is used to :

- **trigger analyses to quantify our baseline situation and/or prepare forecasts of future forest conditions to compare to proposed targets.**
- **initiate a review of how we inventory certain habitat features and stratify our forest inventory.**
- **formulate new management strategies, objectives, targets and measures.**
- **formulate Best Management Practices for implementation in the field**
- **come up with new research questions.**
- **include an issue as a new significant environmental impact in our EMS**

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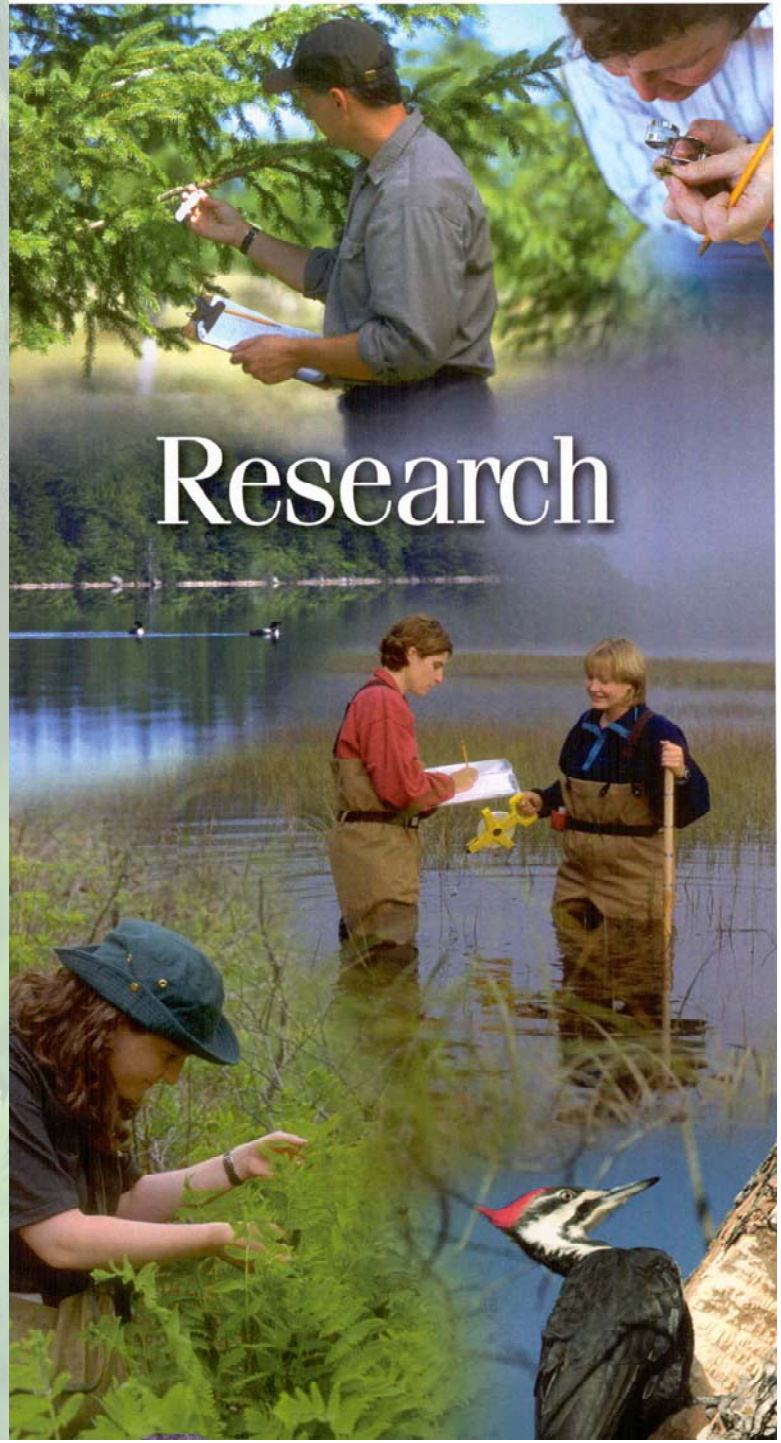
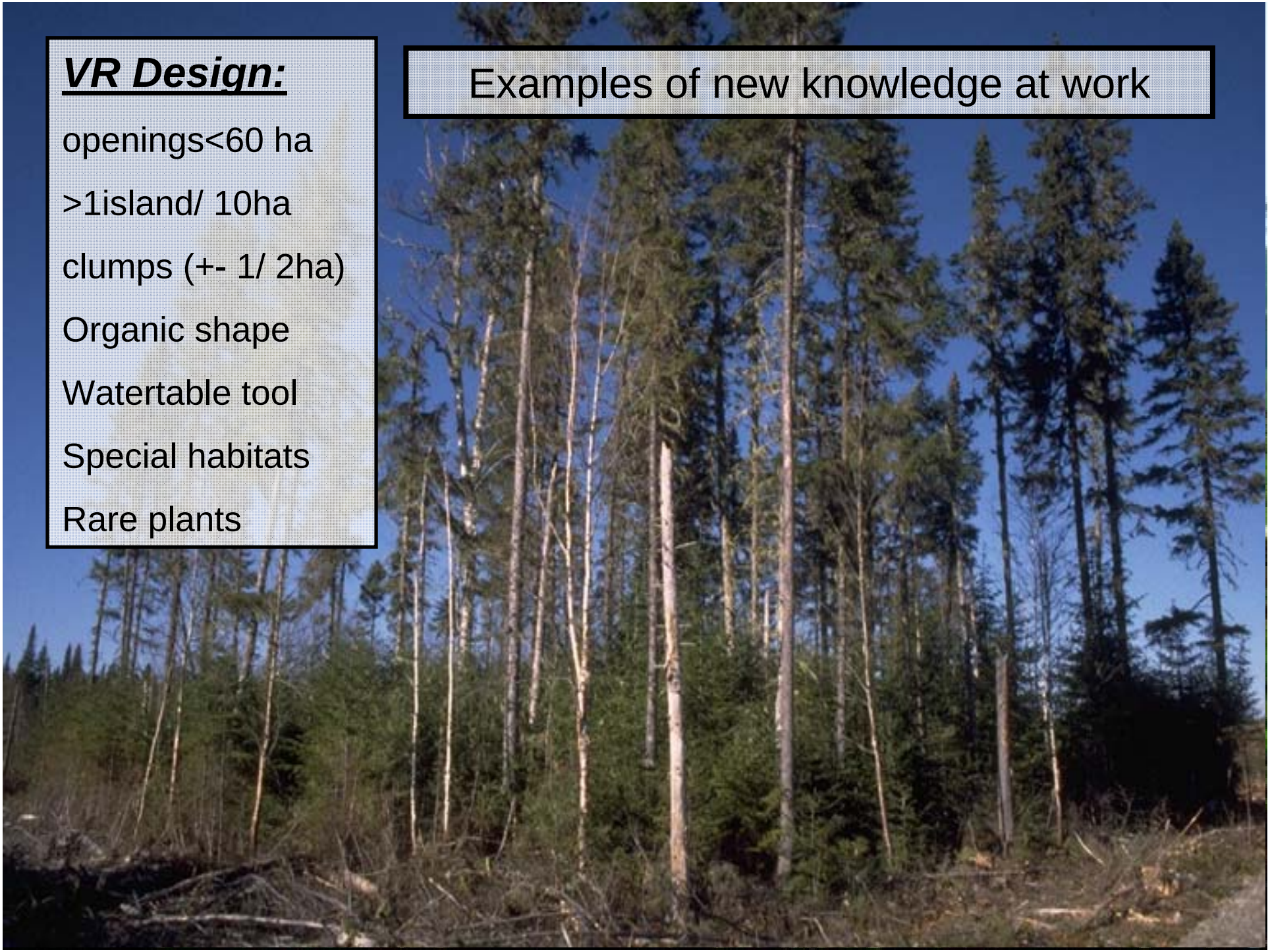
- ✓Almost $2M/year on Research
- ✓ Over 100 projects



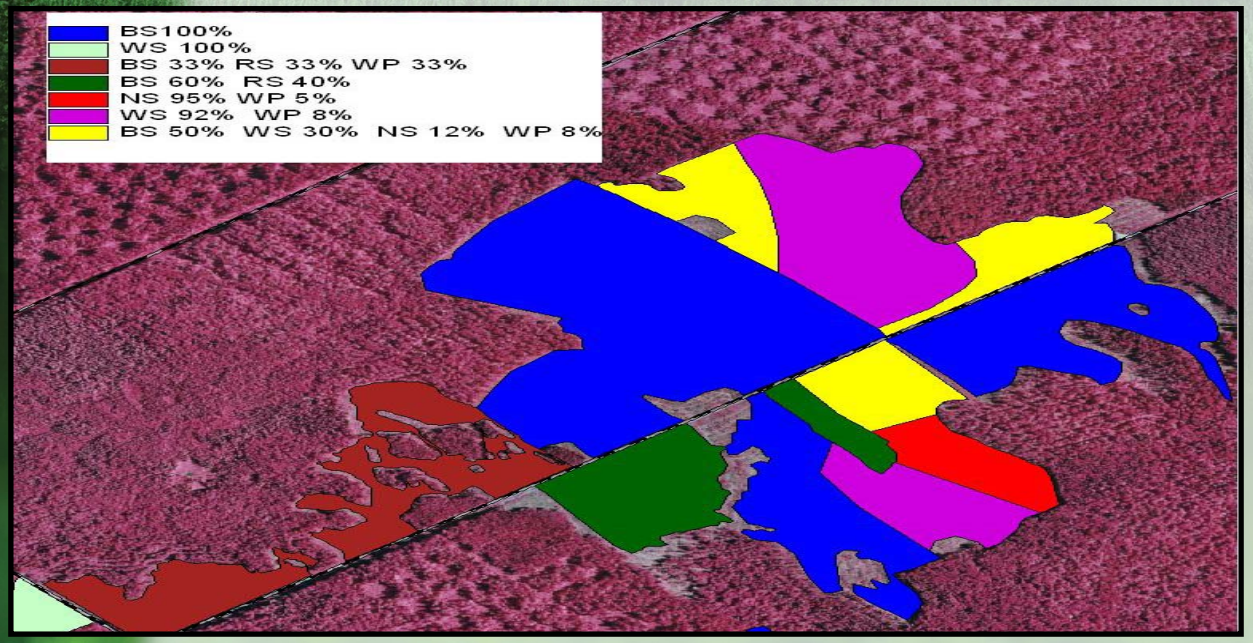


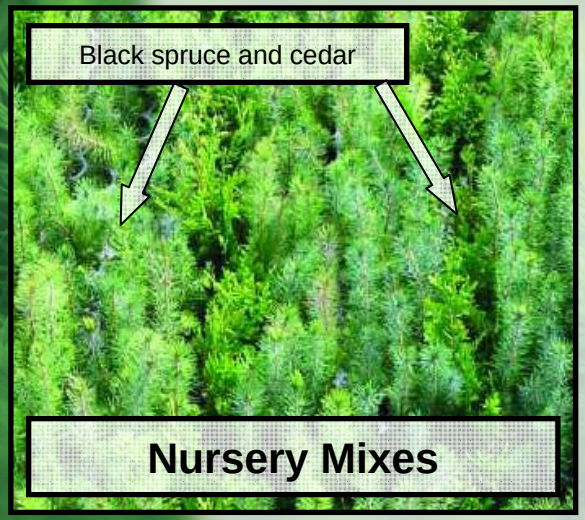



Examples of new knowledge at work
VR Design:
openings<60 ha
>1island/ 10ha
clumps (+- 1/ 2ha)
Organic shape
Watertable tool
Special habitats
Rare plants

We have changed the way planted stands look…





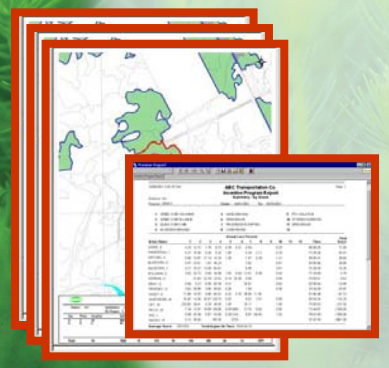
Nursery Mixes

Variable Plantations

>40yrs mixed plantations

Technology enables communication of Objectives all the way down to operators

Operating Plans



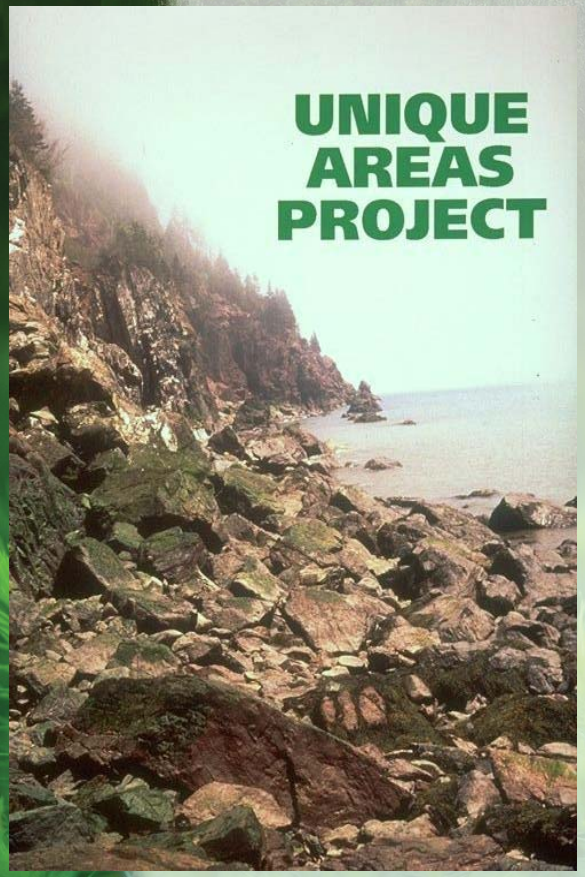
Reconnaissance / Validation

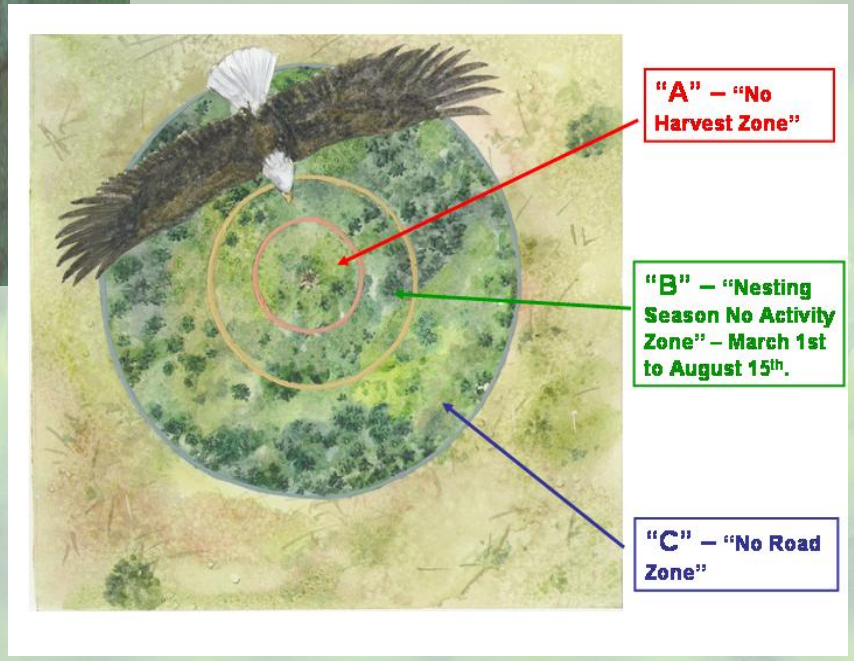
Ribbonless GPS Navigation

The results from past research are being used at Black Brook

- Now in a position to evaluate changes made at landscape level for several indicators plus compare with future conditions
- Elaborate on the ground BMP's for critical habitat structures
- New Inventory standards were developped to measure habitat and structure
- Prepare more sophisticated objectives, targets, & measures for next forest mgmt. plan:
  1. Cover type distribution - Min. area key veg. communs. (HW, Ce, MW)
  2. Define max. area in plantations
  3. Patch size distribution – more sophisticated than 60ha max.
  4. Mixedwood Objectives
  5. Old Forest Types - target levels for various old habitat types
  6. Looking at modeling tree size distributions across the landscape

Some of the findings help in the design of specific Company Programs





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Current JDI questions

- **How do intensively managed stands contribute to habitat and biodiversity?**
- **What role do mixedwood stands play in terms of diversity and habitat?**
- **What do we know about the stand dynamics under a natural disturbance regime?**
- **What is the importance of the context within which stands occur throughout the landscape?**


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