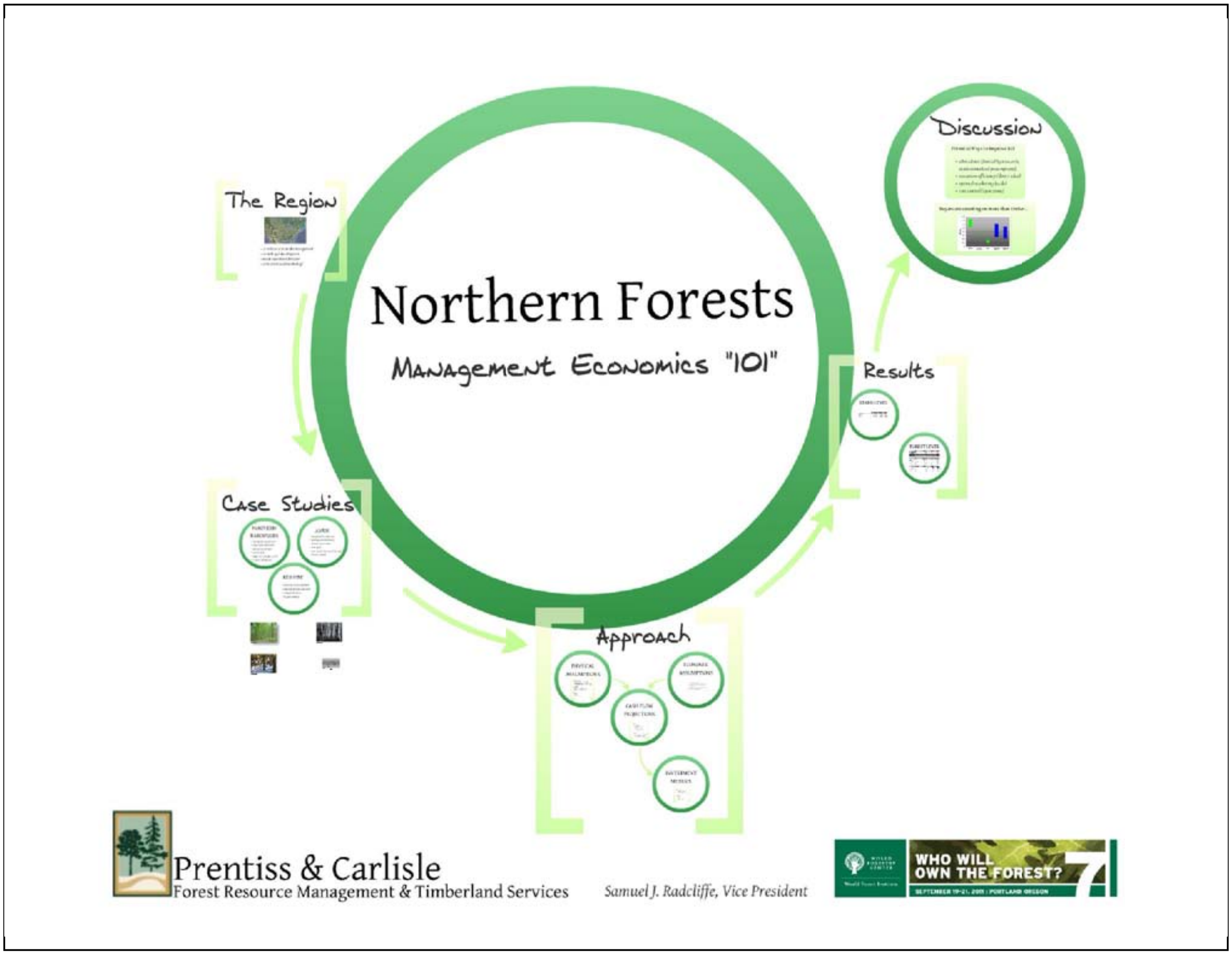
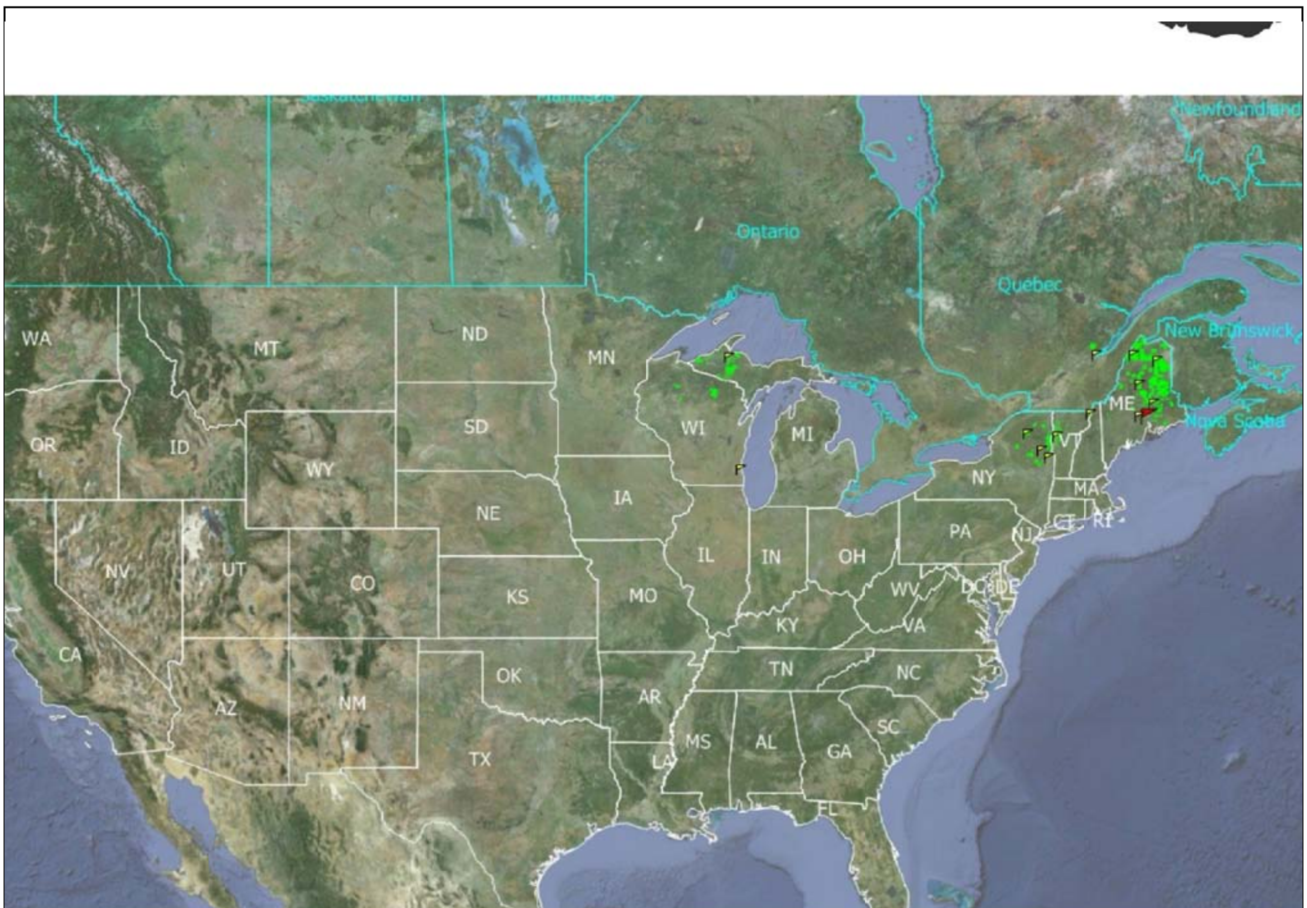

Northern Forests
Management Economics "101"
The Region
Case Studies
Approach
Results
Discussion
Prentiss & Carlisle
Forest Resource Management & Timberland Services
Samuel J. Radcliffe, Vice President
WHO WILL OWN THE FOREST? 7
SEPTEMBER 19-21, 2011 | PORTLAND OREGON


Newfoundland
Ontario
Quebec
New Brunswick
Nova Scotia
WA
OR
CA
ID
NV
MT
WY
UT
AZ
CO
NM
ND
SD
NE
KS
OK
TX
MN
IA
MO
AR
LA
WI
IL
MI
IN
KY
TN
MS
AL
OH
WV
VA
NC
SC
GA
FL
PA
NY
NJ
DC
DE
VT
ME
MA
CT
RI

- 1.5 million acres under management
- consulting / due diligence
- woods operations division*
- centralized wood marketing*

Case Studies

NORTHERN HARDWOODS

- *high quality log objective*
- *sugar maple dominant*
- *natural regeneration*
- *uneven aged*
- *single-tree selection system*
- *15-year cutting cycle*

ASPEN

- *maximum fiber objective*
- *quaking aspen dominant*
- *natural regeneration*
- *even aged*
- *clearcut and "get out of the way"*
- *50-year rotation*

RED PINE

- *economic sawlog objective*
- *relatively unimproved stock*
- *multiple thinnings*
- *70-year rotation*

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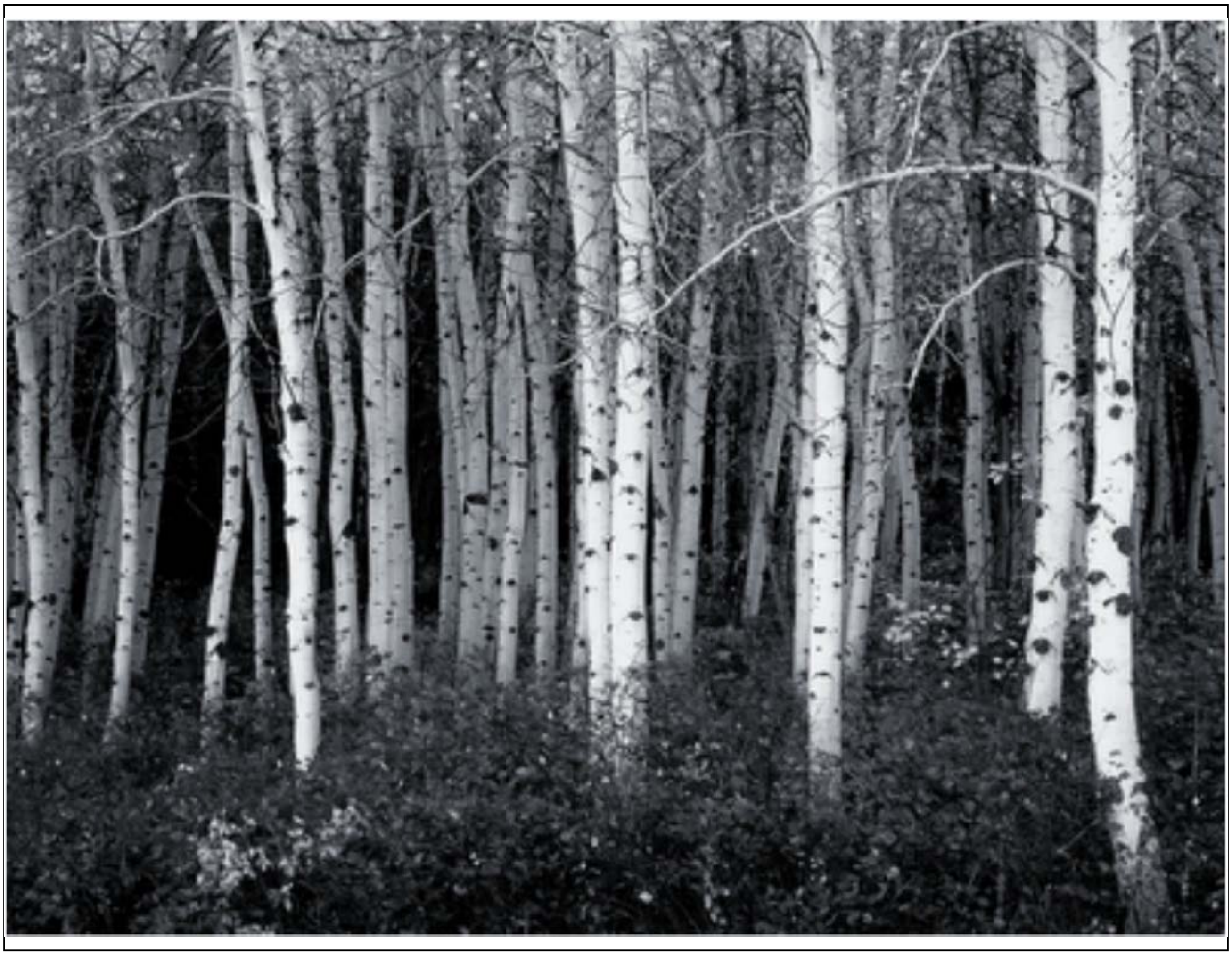

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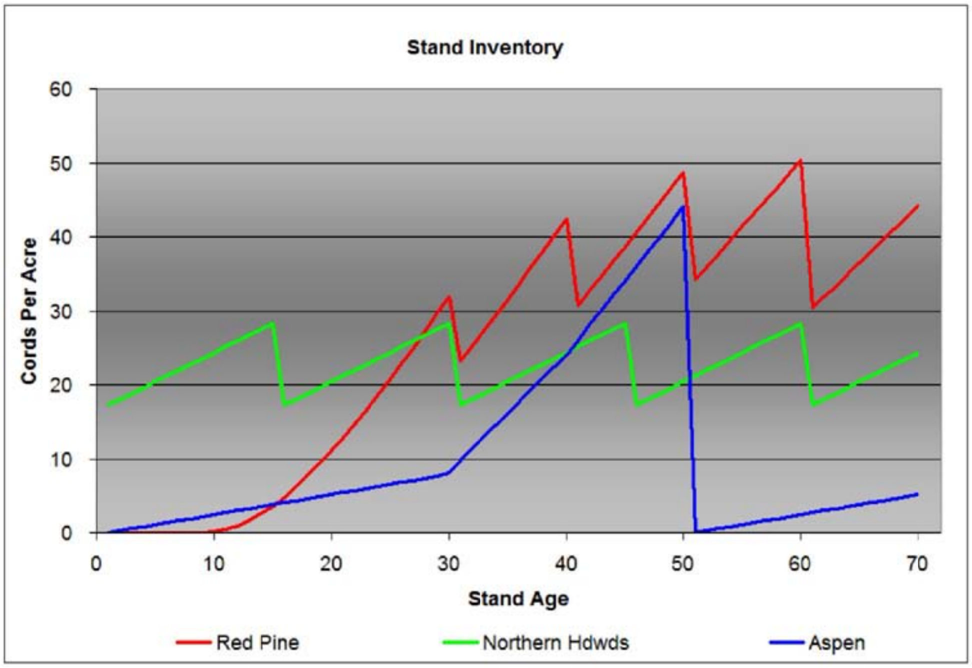
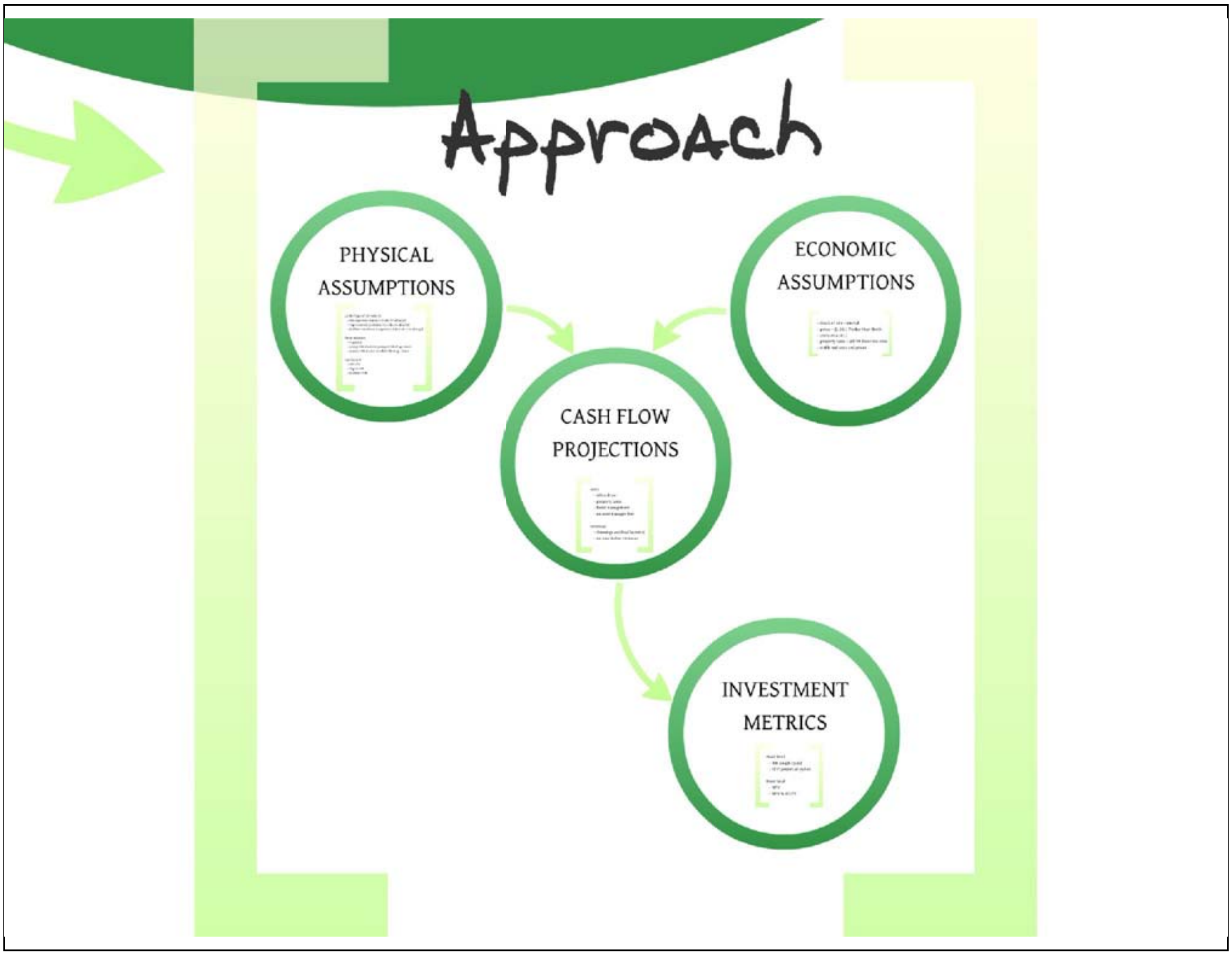

Stand Inventory
Cords Per Acre
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
Stand Age
Red Pine
Northern Hdwds
Aspen

Approach


PHYSICAL ASSUMPTIONS
ECONOMIC ASSUMPTIONS
CASH FLOW PROJECTIONS
INVESTMENT METRICS

CASH FLOW PROJECTIONS

costs
- silviculture
- property taxes
- forest management
- no asset manager fees

revenues
- thinnings and final harvests
- no non-timber revenues

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PHYSICAL ASSUMPTIONS

yields ("typical" site indices)
- NH: experience-based (14.5 cds; .97 cd/ac/yr)
- Aspen: normal yield table (44.1 cds; .88 cd/ac/yr)
- Red Pine: simulation & experience (100.0 cds; 1.43 cd/ac/yr)

forest structures
- regulated
- young: 40% of acres in youngest 20% of age classes
- mature: 40% of acres in oldest 20% of age classes

non-forest %
- NH: 15%
- Aspen: 15%
- Red Pine: 7.5%

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ECONOMIC ASSUMPTIONS

- discount rate = 6% real
- prices = Q1 2011 Timber Mart North
- costs circa 2011
- property taxes ~ WI/MI forest tax rates
- stable real costs and prices

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INVESTMENT METRICS

stand level
- IRR (single cycle)
- SEV (perpetual cycles)

forest level
- NPV
- NPV % of GTV

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Results

STAND LEVEL

	Red Pine	No Hdwds	Aspen
NPV/Ac	($87)	($40)	($26)
IRR	5.32%	5.45%	4.93%
SEV/Ac	($89)	($67)	($27)

FOREST LEVEL

NPV	Red Pine	No Hdwds	Aspen
Young Forest	$1,031	$592	$185
Regulated Forest	$1,270	$641	$247
Mature Forest	$1,463	$670	$343

GTV	Red Pine	No Hdwds	Aspen
Young Forest	$1,124	$1,473	$266
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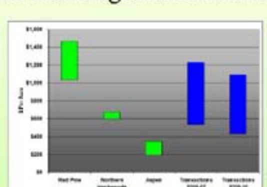
- *silviculture (limited by research, institutionalized prescriptions)*
- *execution efficiency (direct sales)*
- *optimal marketing (scale)*
- *cost control (operations)*

Buyers are counting on more than timber…



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