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This presentation describes studies
in progress with preliminary draft
information.



Jasper monitoring



- 10 year study
- Final report to the Forest documented in 2 masters
- By Ben Wudtke & Mandi Hirsch
- Photo comparison book



2000

Jewel Cave



2010

Jasper Fire

Jewel Cave



Silviculture studies in motion

- 1 > Black Hills Experimental Forest
- Focus on uneven-aged management
- Squid Timber Sale - completed
- *By R. Graham, T. Jain, M. Battaglia*



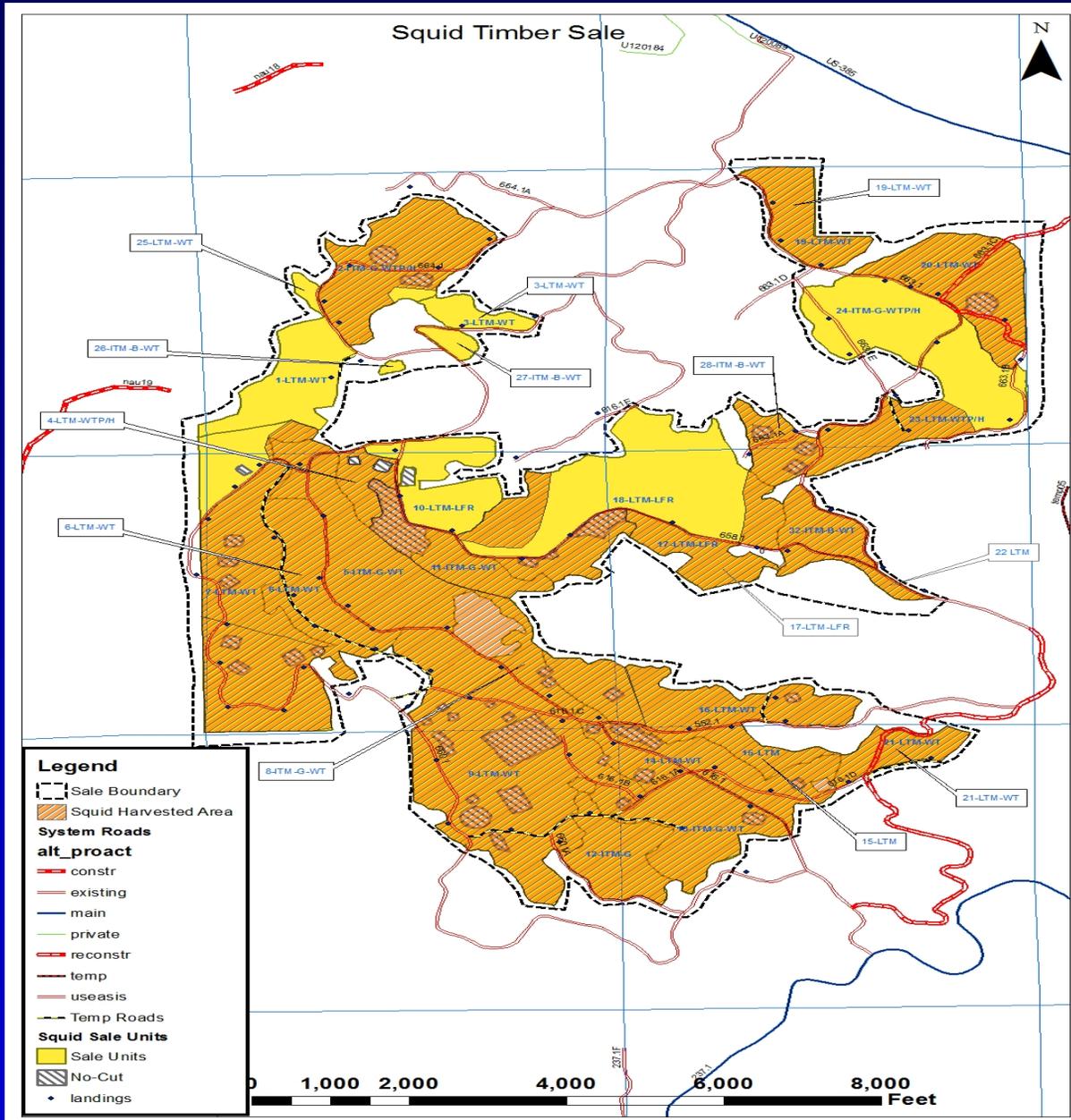
Squid Timber Sale before harvest





Squid Timber Sale before harvest







Squid Timber Sale timber harvesting





Squid Timber Sale





Uneven-aged management irregular shelterwood





Silviculture studies in motion

- 2 > Growing stock level study
R. Graham, M. Battaglia, L. Asherin
- 3 > Mountain pine beetle study
R. Graham, M. Battaglia, L. Asherin



Silviculture studies in motion

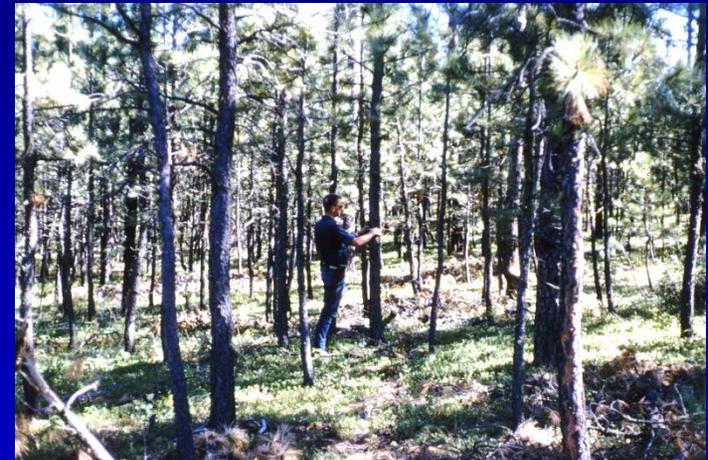
- 4 > Goshawk assessment study
R. Graham, R. Reynolds
- 5 > Uneven-aged mgt. study – CSU
Skip Smith, Seth Ex



Growing Stock Levels for Black Hills Ponderosa Pine



- Study established on the Black Hills Experimental Forest in 1963-Site Index 55
 - 65-year-old pole stands
 - 6.3-6.8" DBH
 - 0.5 ac plots
 - 55-year-old sapling stands
 - 3.6-3.8" DBH
 - 0.25 ac plots
- Growing Stock Level (GSL) equals BA when average diameter is ≥ 10 inches. GSL and BA are equal when average diameter is ≥ 10 inches



Saplings 1964



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GSL plot





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Experimental Forest





Growing Stock Levels for Black Hills Ponderosa Pine



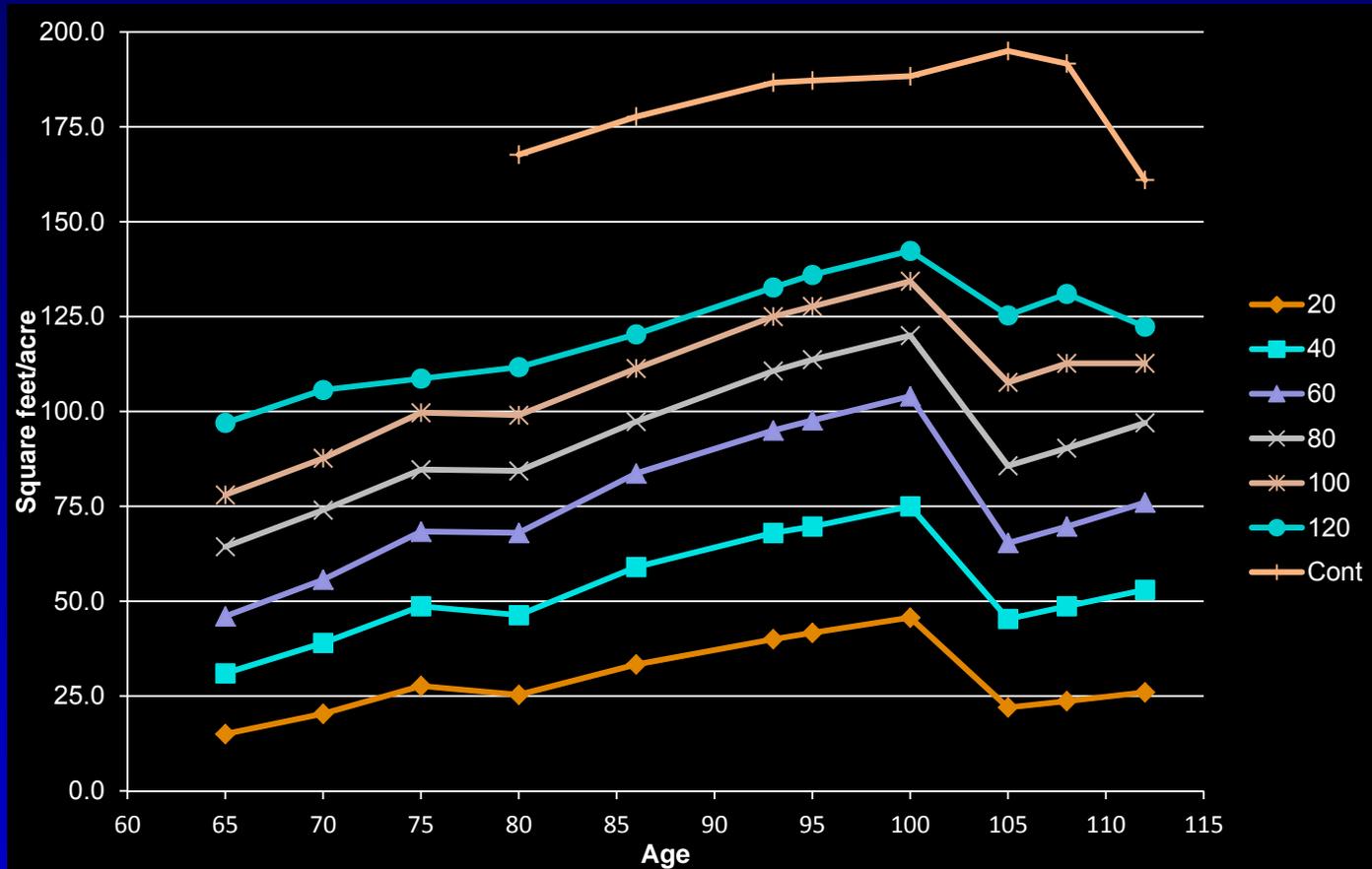
- Targeted Basal Areas
 - 20, 40, 80, 100, 120 and a control
- Three plots of each BA for both saplings and poles
- Measured – 1963, 68, 73, 78, 84, 91, 93, 98, 2003, 06, 10
- Pole harvest
 - 1973: Age 75
 - 1998: Age 100
- Sapling harvest
 - 1973: Age 65
 - 1998: Age 90

Pole 100 1964





Basal Area For Plots Starting as Poles

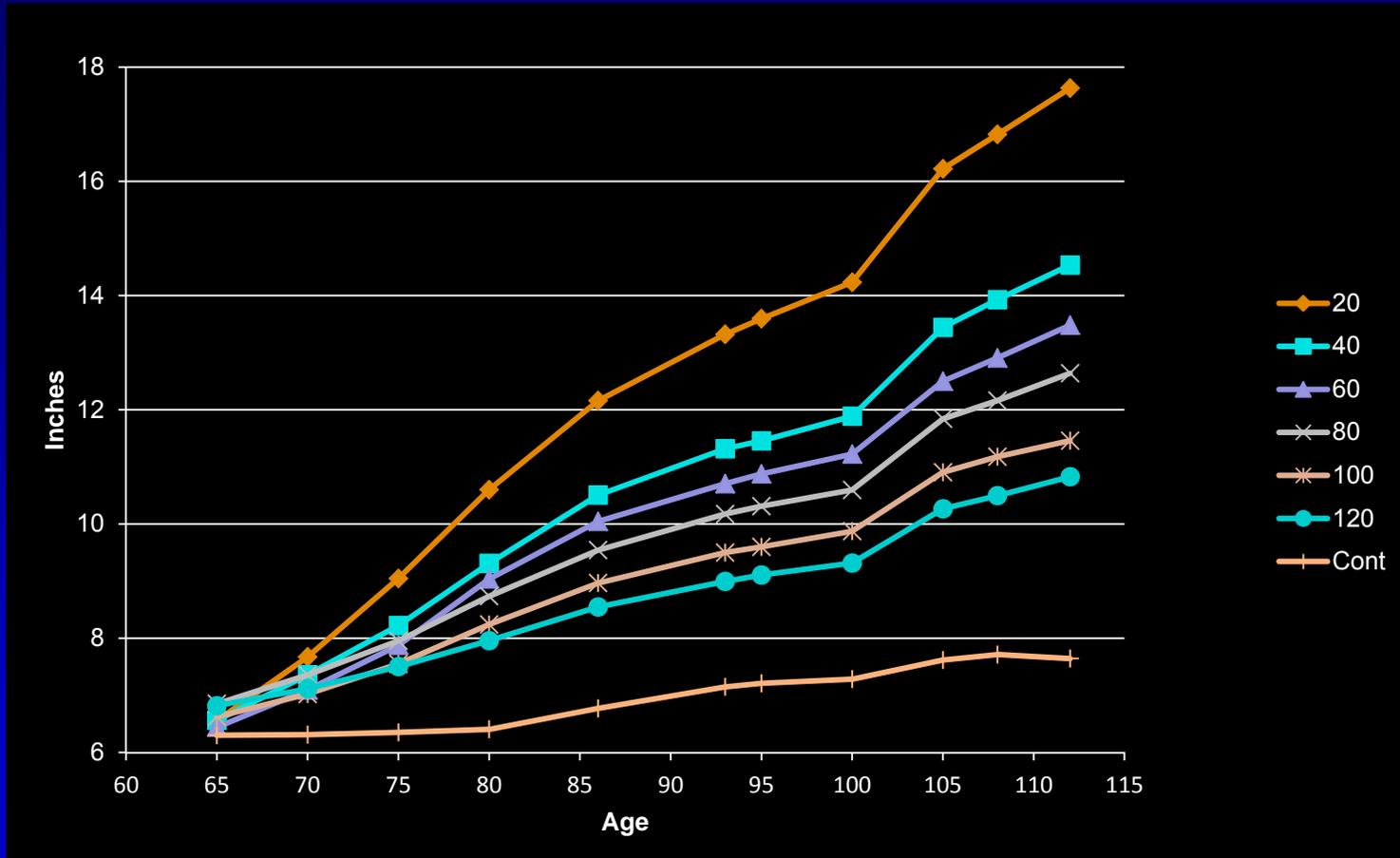


Harvest





Diameters For Plots Starting as Poles



Harvest

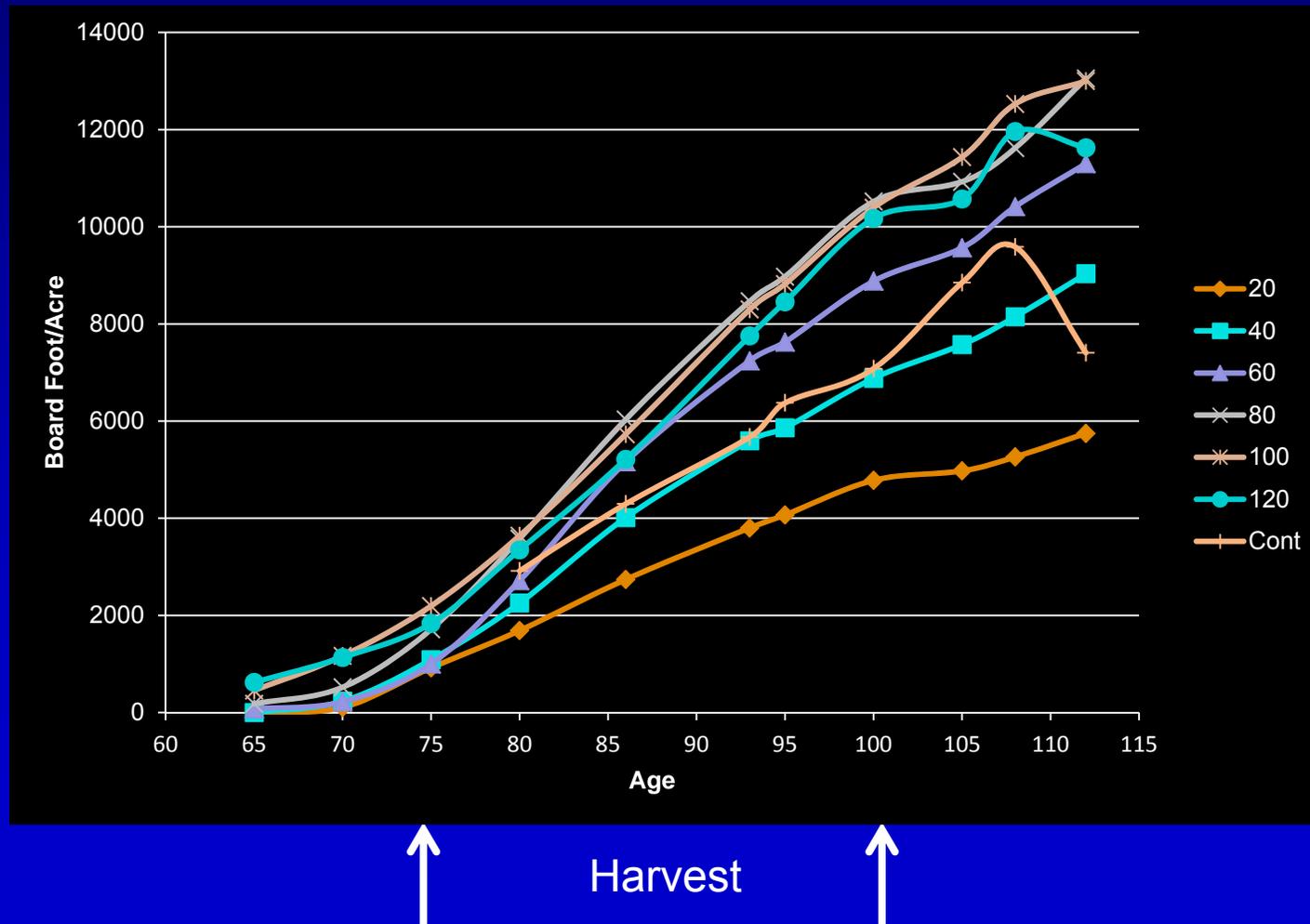




Total Board Foot Yield

Standing Plus harvest

For Plots Starting as Poles





Results

- For both poles and saplings
 - Diameters
 - Basal area/TPA
 - Cubic/Bd Ft volumes
 - Culmination MAI
 - Volume harvested
 - Tree characteristics
- Comparison of results for the saplings vs poles
- Much more!



GSL 60 2004



GSL 80 2004



GSL Study Process



- Study closed
 - Bark beetles compromised plots
 - Time to summarize/publish
- General Technical Report
 - Peer reviewed/citable
 - Colorful
 - Comprehensive
 - Integrative
 - October 1, 2012





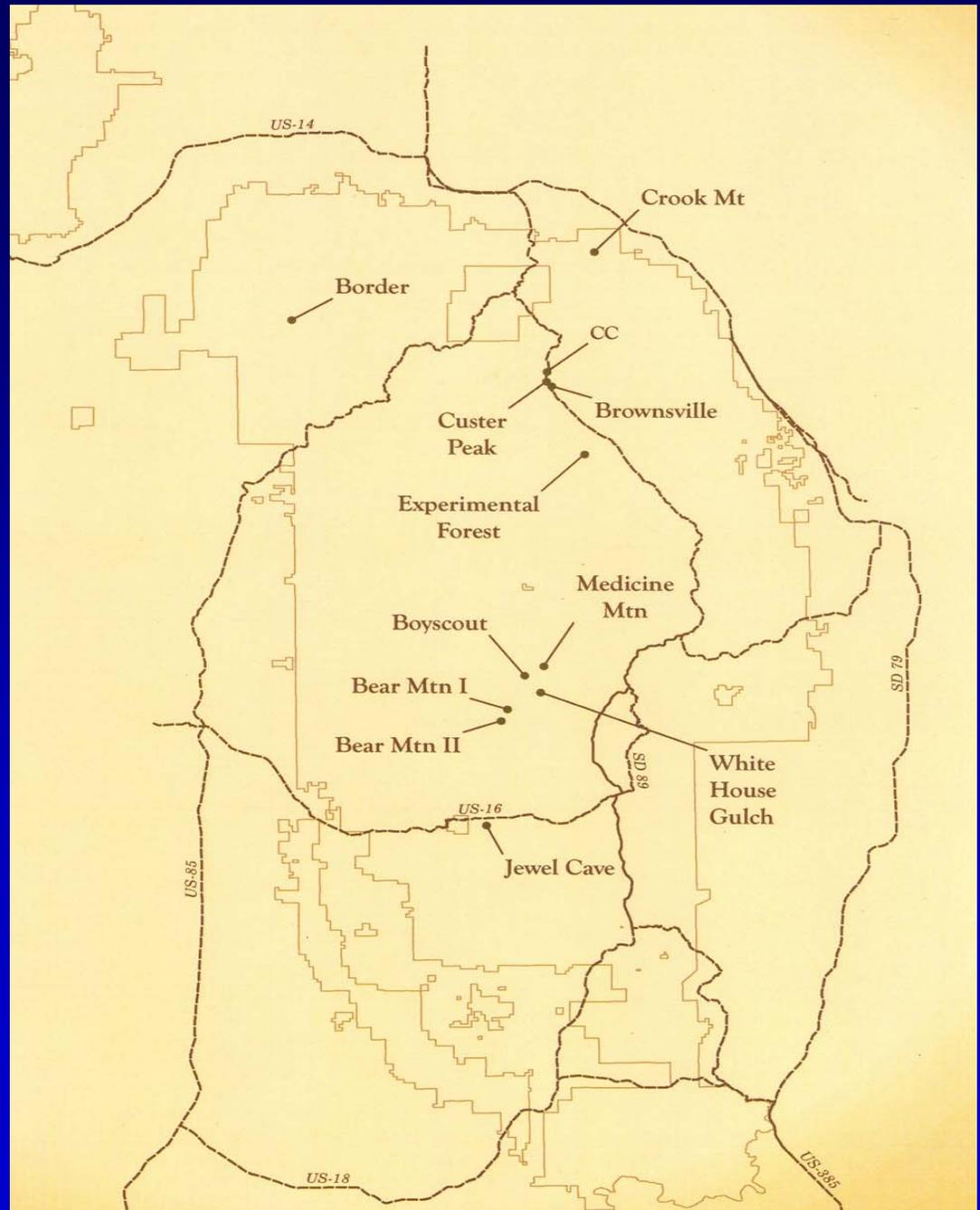
Mountain Pine Beetle Impacts in the Black Hills



- Initiated by John Schmid
- Study established 1984
- Twelve 10 ac study areas
 - Four 2.5 ac plots in each area
 - Control ≥ 145 Ft² BA
 - Three GSL plots from 40-110 BA
 - Thus each area could have different BAs



Study Areas





Brownsville MPB plot area





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Brownsville MPB plot





Beetle Study Process



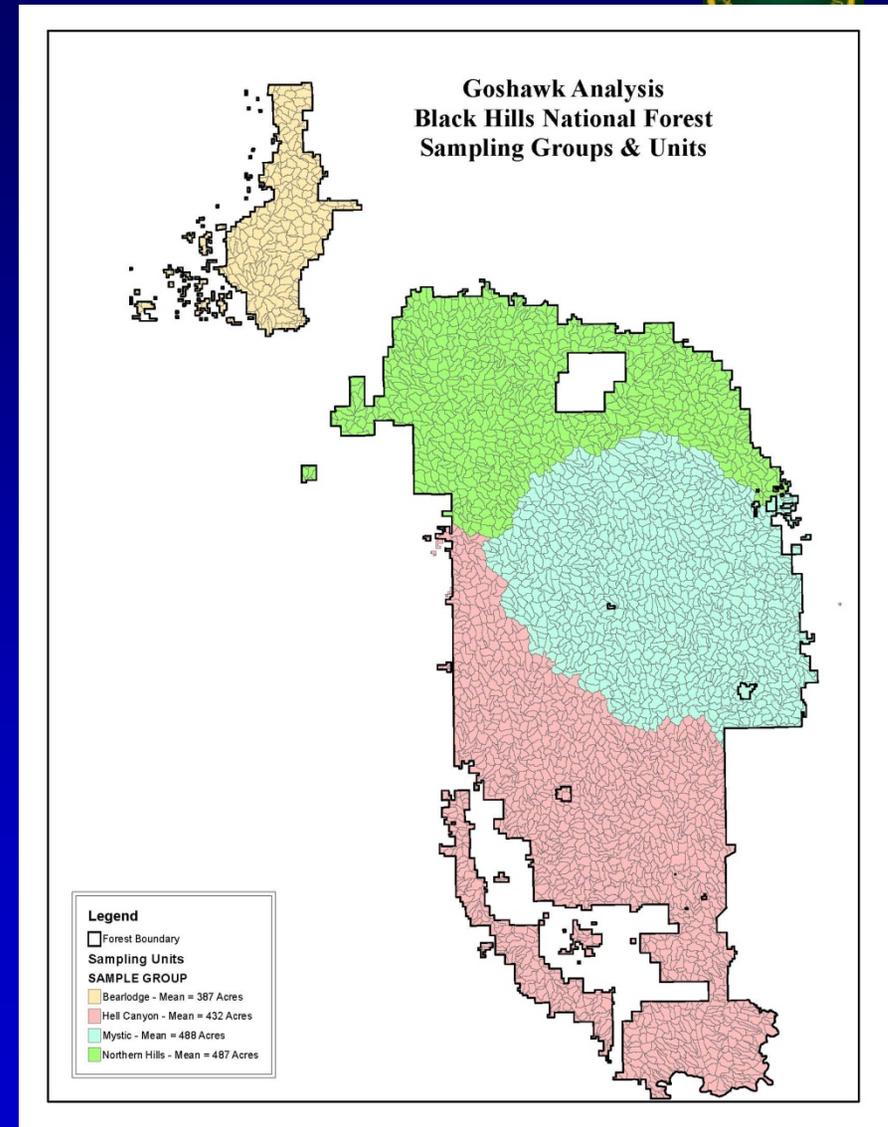
- Study closed
- Analysis following GSL
- Beetle dynamics
 - Mortality
 - Volume
 - Tree description
 - Stand density
 - Weather
 - Etc.
- General Technical Report
 - October 1, 2012



Black Hills Goshawk Assessment



- Patterned after the Utah assessment
- Expert panel “Delphi” process
- Four Black Hills subdivisions
 - Bear Lodge, northern, central, southern
- 3,400 + sub-watersheds

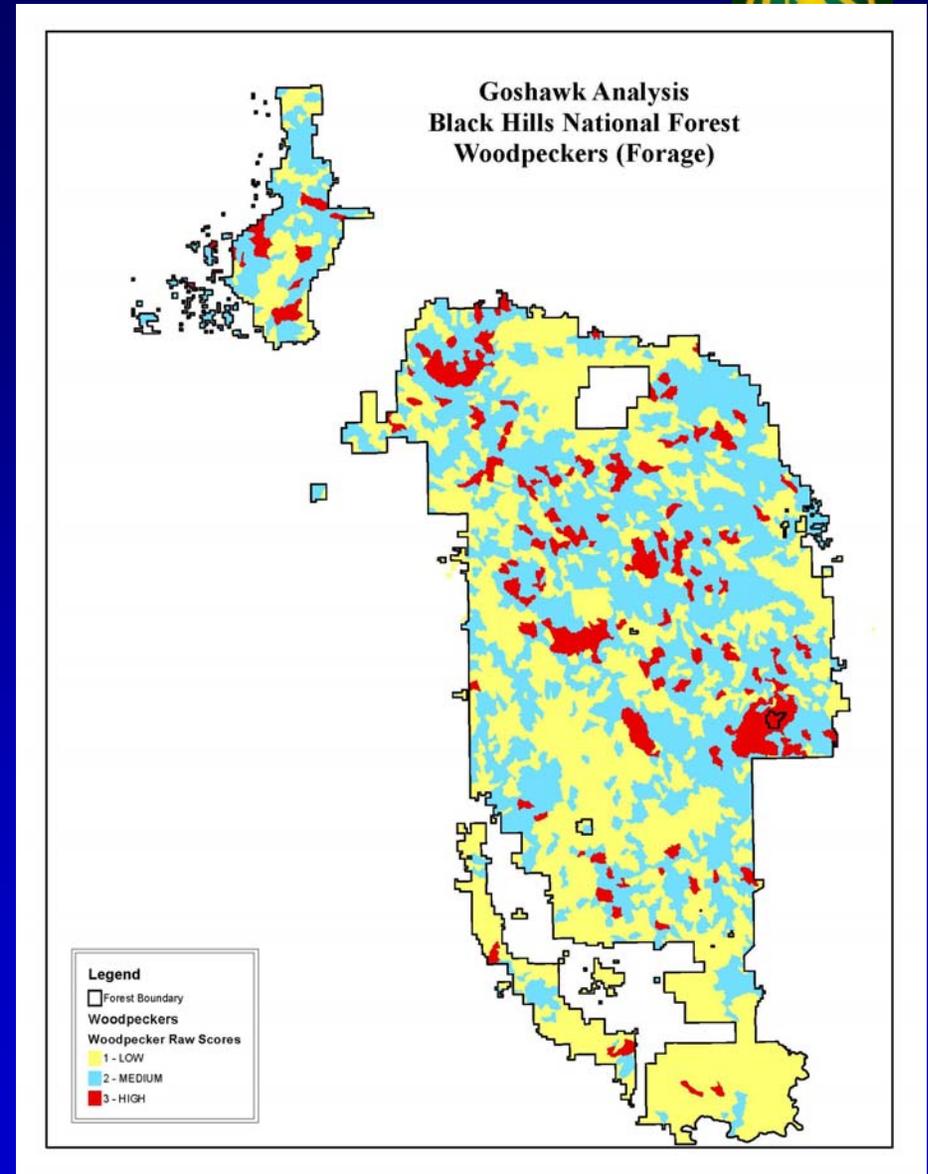




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Prey Habitat Rated for each watershed

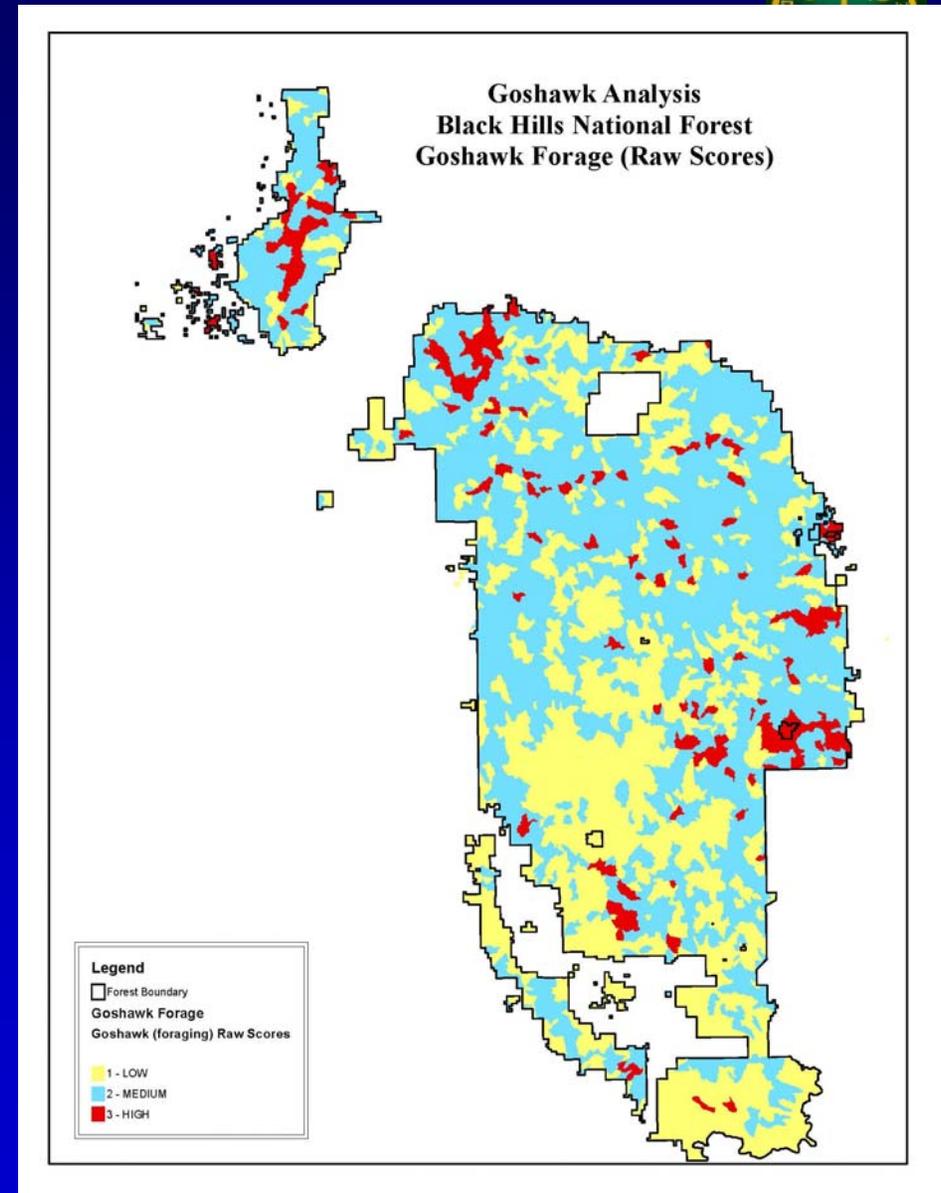
- Tree squirrels
- Ground squirrels
- Turkeys/grouse
- Rabbits
- Pack rats
- Woodpeckers
- Other birds





Goshawk Habitat

- Nesting
- Foraging
- Each watershed
 - Rated by biologists as good, fair, or poor for nesting and foraging

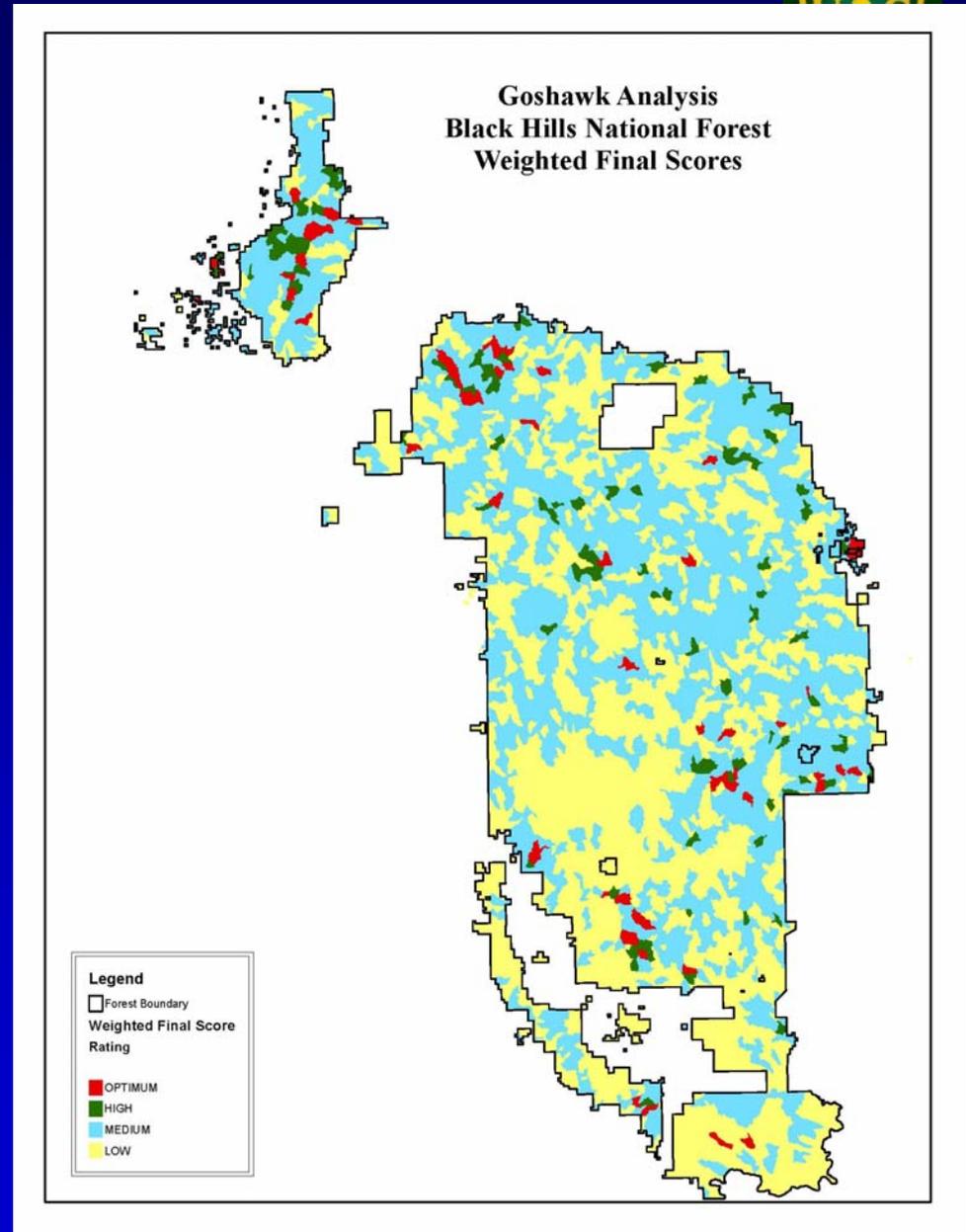




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Goshawk/Prey Ratings Combined

- Goshawk and prey habitat ratings combined to provide an estimate of the quality of the goshawk habitat in the black Hills





Goshawk Assessment Process



- General Technical Report
 - Risks: fire bugs, urbanization etc.
- Habitat descriptions
 - Tree and forest conditions
- Peer reviewed/citable paper
 - October 1, 2012





Uneven-aged mgt. study – CSU

Dr. Skip Smith & Seth Ex

- 3 locations across the Forest
- Skippy Timber Sale – MYRD
- Section 33 Timber Sale – NHRD
- Schoolmarm Timber Sale - BLRD



Uneven-aged Mgt. study - design

- Design for uneven-aged harvest
- Followed by prescribed fire on portion of harvest area
- All 3 areas – timber harvest done
- All 3 areas – prescribed fire window ?
- Large slash piles burned on Schoolmarm TS but not others



Skippy TS – post harvest





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Section 33 TS – post harvest





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Schoolmarm TS – post harvest

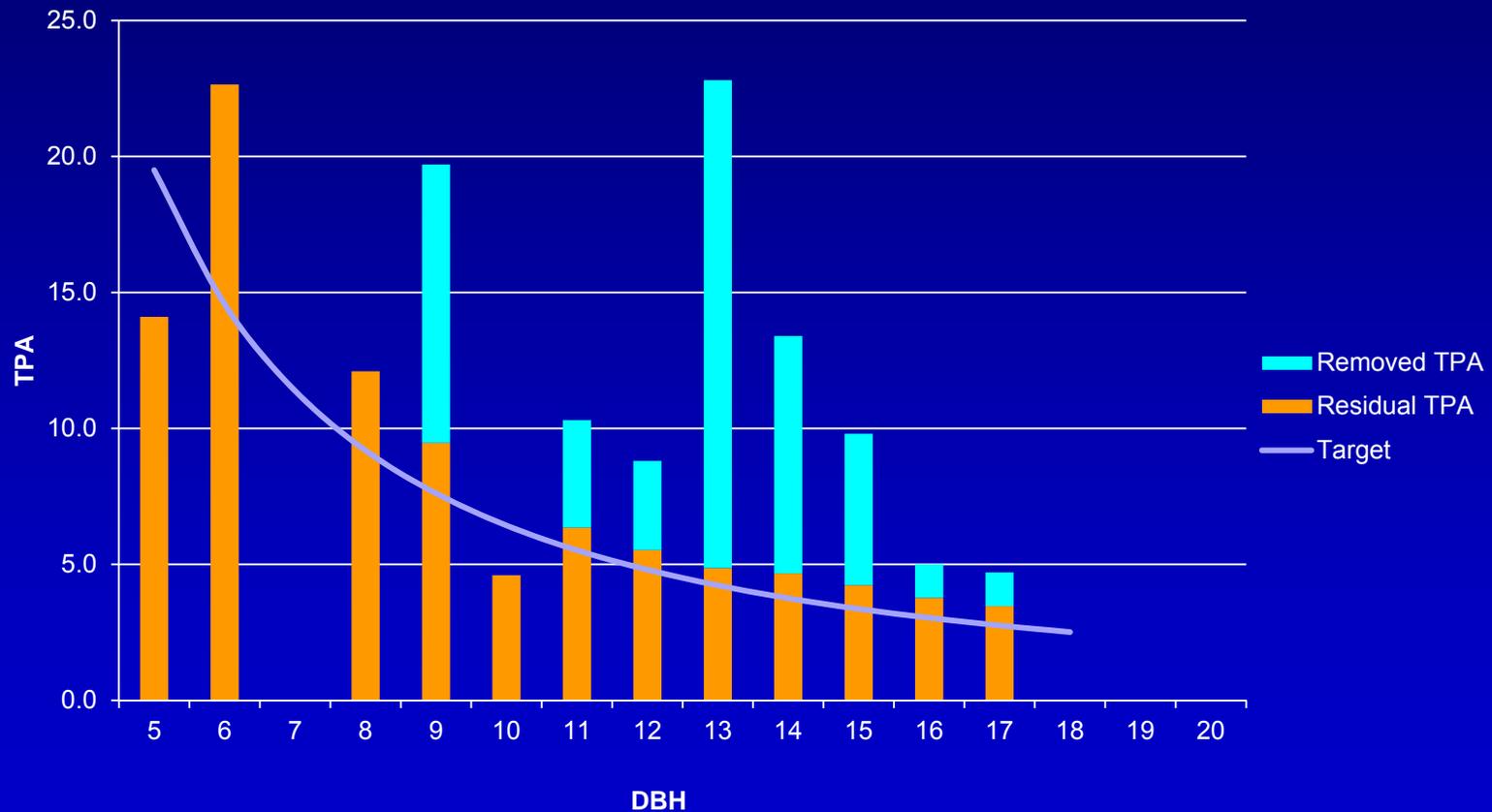




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Skippy Timber Sale – J curve





Marking rules

- Leave all trees 8" DBH (POL) and less.
- Leave about 60% of trees between 9 and 12" DBH (small sawlog).
- Leave about 40% of trees 13" and larger DBH



- Wood production efficiency and growth dominance in multi-aged ponderosa pine stands Ex, S.A., and F.W. Smith 25 Jan 2012
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- Field note: SDI estimates LAI in uneven-aged ponderosa pine stands Ex, S.A. and F.W. Smith 25 January 2012