

ECOLOGICAL FORESTRY WORKSHOP/FIELD TOUR

Tuesday, November 17, 2009

Site One (A) Visit a Pitch Pine/Scrub Oak Stand

Project: 17 acre dispersed retention harvest November 1995. The surrounding stand is a ±60 year old even-aged, fire excluded stand many thousands of acres in size. This project site had no fire history in its life time.

The treatment was a whole tree chip pulpwood harvest with each retained tree specifically marked for retention.

The stand had a small tree oak component of black jack and post oak along with the native understory of scrub oak and associated plants. This stand is supported by well drained, very sandy soils.

At the time of treatment, 100% of the above ground woody plant growth was scarified by tree bundle skidding. This emulated the top kill effect of a fire.

Post treatment prescribe fire was attempted several times however, fire would not carry across the site - the area was burned in a patch configuration in winter of 1997.

After 10-12 years it appears ground level fuel continuity will allow an effective return of fire and Rxb is planned for the 2009-2010 season.

This treatment restored and enhanced native habitat for several threatened and endangered species and continues to sustain wildfire safe conditions.

The native forest plant communities have regenerated. Pitch pine can now be found in 3 separate age classes. Fire will determine trajectory of regeneration.

Future management will require the use of fire and some modest removal of trees for forest products. It depends on landowner objectives!

Adaptive management is dependent upon future desired conditions. This project has sustained native forest cover within the range of natural variability for this pitch pine/scrub oak forest type.

Site One (B)

Pitch Pine/Pre-commercial Thinning

This project is immediately adjacent to 1A, however, this stand has a dramatically different history. This 400 acre stand experienced a tree killing, stand replacement fire in the early 1970's. The entire stand was immediately salvaged, harvested for pulpwood by the Rusnak Brothers.

The stand has vigorously naturally regenerated with pitch pine. This stand quickly became an overstocked dog haired pine stand and has been going through a slow, natural stem-exclusion process. Fire has not played any part of this young stand's development. Stocking levels started out at over 3000 stems per acre and are now down to \pm 1200 stem per acre. This stand presents a high risk to catastrophic wildfire and stand loss.

1999 Project: A 10-acre plot was hand thinned to evaluate if this type of treatment could:

1. Reduce competition and improve tree growth and quality.
2. Return stand to a condition that would allow the safe return of fire.
3. Enhance overall forest health, as well as improve plant and wildlife habitat.

Results:

1. The pine was thinned down 50% in tree numbers.
2. All hardwood trees and brush were slashed.
3. All material was left to decay into the soil.
4. Residual trees have responded well with improved growth rates and vigor.
5. All hardwood and understory plants have regenerated well.
6. Area will be burnt in the 2009-2010 season, 10 years post thinning.

All three questions can be answered with a "yes".

Future: In the next 10 years, a commercial thinning to reach target of \pm 60 foot basal area. Then return fire on a 5 - 10 year return interval. Grow low grade saw timber and pulpwood on long rotation. Sustain a maturing pitch pine/scrub oak stand within the natural range of variability for this native forest type. Landowner's long-term goals and adaptive management will determine objectives. Regeneration objectives will depend on fire frequency planning.

Site Two Pitch Pine/Oak Project Variable Density: Thinning & Return of Fire

This 110 acre commercial variable density thinning is a treatment within several thousand acres of fire excluded forest. The stand is 80% pitch pine with a component of tree oaks of black oak, white oak and a few chestnut oak. The understory is a mix of huckleberry and scrub oak with some sassafras, black jack oak and post oak in the midstory. The stand is supported by more productive, Evesboro soils. The stand is in the \pm 50-60 year age class and has not experienced any fire in its lifetime. Crown closure is 100%, most trees have stagnated and fire hazard is extreme. Fuel loads, and lack of fire breaks, have prohibited the use of prescribed fire.

In January of 2007, a 110 acre area was commercially thinned by rubber tired mechanical whole tree harvesting equipment. Stocking was reduced by 40-50% retaining the best quality pitch pine and dispersed retention of the oak component. Tree spacing is extremely variable. Production was 8- 10 tons of pulpwood per acre. At the time of tree harvest, all woody brush was cut or sheared off at sound level. In March of 2009, the (rxb) burn was backed across this treatment area and the untreated area to the west, with excellent results.

Results:

1. Growth and vigor of the residual tree and stand have been improved.
2. Habitat diversity has been restored or enhanced for a wide range of species of plants and animals.
3. Fire safe conditions now exist and the landowner has options as to what direction to go forward. Can return fire to the system and grow wood.
4. Conditions now exist to sustain this stand for a very long time if desired.
5. Future timber removal opportunities will present themselves per adaptive management and owner's objectives.
6. Recreational opportunities for hunting, walking and bird watching have been enhanced.
7. Native pine/oak stand has been sustained within the natural range of variability for this forest type.
8. Return of fire frequency will determine future regeneration objectives, as well as oak's role in the stand structure. This has yet to be decided.

Site Three

Pitch Pine/Shortleaf Pine Tree Oak Stand

This stand is a 150 acre stand of mature pine. Some trees are 100 years plus. Pitch pine is dominant with a mix of shortleaf pine present. Tree oak such as post oak and black jack oak can be found in the understory. The stand had a long history (+/- 50 years) of prescribed fire periodically. The area is surrounded by cranberry bogs and located adjacent to a few farm homes and a major county road.

Owner's goals: Family has owned this land for over 100 years. The forest now includes 15,000 acres. On this stand, the owner's objectives are to sustain fire-safe conditions while allowing trees to grow to old age yet sustain the aesthetics of the forest.

The stand was overstocked with an overstory of pitch pine. To improve aesthetics and reduce concerns for crowning wildfire, a thinning prescription based on the **Stoddard-Neel Approach** was prepared. This approach allows for the retention of the oldest trees, as well as a diversity of size classes while using fire as a management tool.

January 2006: A mechanized commercial thinning with rubber tired equipment removed 40 feet of basal area taking the stand from +/-110 feet down to 60-70 feet of basal area on average. Immediately after harvest, March 2006, a prescribed fire was backed across the stand.

March 2007: rxb - with wind - hot

March 2009: rxb - with wind - hot

Results: Excellent. Aesthetics - growth/vigor and fire-safe stand now is sustained. This stand will be sustained into perpetuity with fire and a modest removal of timber every 15 to 30 years — removing only growth achieved between harvests.

Regeneration: Will occur over time in pulses — NOT ALL AT ONCE. Short leaf pine will be allowed to increase in percentage of stand composition over time. The oak midstory component is being retained. It's planned to use frequent fire to sustain the trajectory of this stand.

Site Four (Lunch Site)

Atlantic White Cedar Restoration - Wetland

Ruggeri Stewardship Forest: 2006 N.J. Forest Steward of the Year. A 188 acre, private forest land, bisected by the wild and scenic Great Egg Harbor River corridor. A forested wetland that historically was dominated by Atlantic White Cedar. Now, only a few small remnant patches of cedar remain.

Project: Restore Atlantic White Cedar back to an area dominated by red maple area on an 8 acre and 10 acre patch. Protect and retain remaining mature patches of Atlantic White Cedar.

October 2003:

- Clear cut 10 acre restoration area
- Pitch pine and maple were clear cut for pulpwood product. All brush was cut at the time of harvest. All harvesting was done by low-ground, pressure tracked machines
- No cedar was cut — only a few scattered seed trees existed
- No cedar was in the project area — no seedlings or saplings could be found
- Install deer fence

March 2004:

- Plant area with 1,000 cedar seedlings (bare root) per acre

Fall 2005:

- Late September spot sprayed hardwood sprouts with herbicide —1 treatment

2004 - 2009:

- Maintained fence
- Allowed trees to grow

Results:

- Excellent growth of cedar
- Pitch pine has also become a component of the stand.
- Note: Excellent natural regeneration of cedar in vicinity of mature natural patches on either end of management unit.
- Restored globally-threatened native Atlantic white cedar forest type
- Open wetland areas naturally sustained open

Future: Allow cedar to mature and consider thinning and restoration of additional acreage. Future timber harvests are planned with a net cedar acreage gain objective.

Site Five

Pine/Oak Stand (High Forest)

Project: 630 acres, private forest land (Opper Forest). 18 year harvest and prescribed fire history.

Selection harvest and precommercial thinning to produce sawtimber, pulpwood and firewood cedar sawtimber product.

Harvest systems:

1. Mechanized rubber tired whole tree chip harvest.
2. Ground base cable skidding.
3. Tracked grapple skidding in cedar project.
4. Precommercial work done by hand using brush saws.

Products produced:

- ▶ 150 cord firewood
- ▶ 110,000 bd. ft. Cedar
- ▶ 50,000 bd. ft. Shortleaf saw timber
- ▶ 2,880 tons pulpwood

Fire Management: Entire upland pine/oak had been fire excluded in excess of 80 years. Gypsy moth outbreaks in the early 1980's killed many areas of oak overstory. A dense mix of shortleaf/pitch pine have regenerated in the oak openings, as well as under some of the 100 year old plus shortleaf overstory. Fire has been successfully returned to 3/4 of the upland stands.

Results: After 18 years of active management, a healthy, productive (both ecologically and economically) native forest has been sustained.

- Improved cedar regeneration
- Improved timber quality
- Return of fire component
- Eliminate any concern for wildfire
- Old age class —100 year plus trees now retained
- Several stands now have 3 age classes
- Productivity and growth excellent
- Wildlife habitat diversified and improved for many species

This landowner's project clearly demonstrates that ecological integrity and economic viability in the management of the forests are not mutually exclusive; THEY ARE DEPENDENT UPON ONE ANOTHER.