Capital Region Water DeHart Property

Forest Management Plan

Briefing 9-28-16

CRW's Forest Management Goals:

1. **Water:** Preserve and/or enhance the high quality drinking water by improving the capacity of the system to produce the resource. Watershed security must also be maintained to insure the safety of the supply. Critical riparian buffer zones must be maintained and established as necessary. All water resources on the property must be recognized, including any springs, tributaries, and wetlands. In addition, the plan must complement existing operations and source water protection efforts that provide drinking water to over 60,000 people.
2. **Revenue:** Improve the capacity of the watershed and downstream properties to produce carbon-friendly revenue options. Revenue streams will allow CRW to enhance and protect the asset. This includes sustainable timber harvesting and monetizing of ecosystem services.

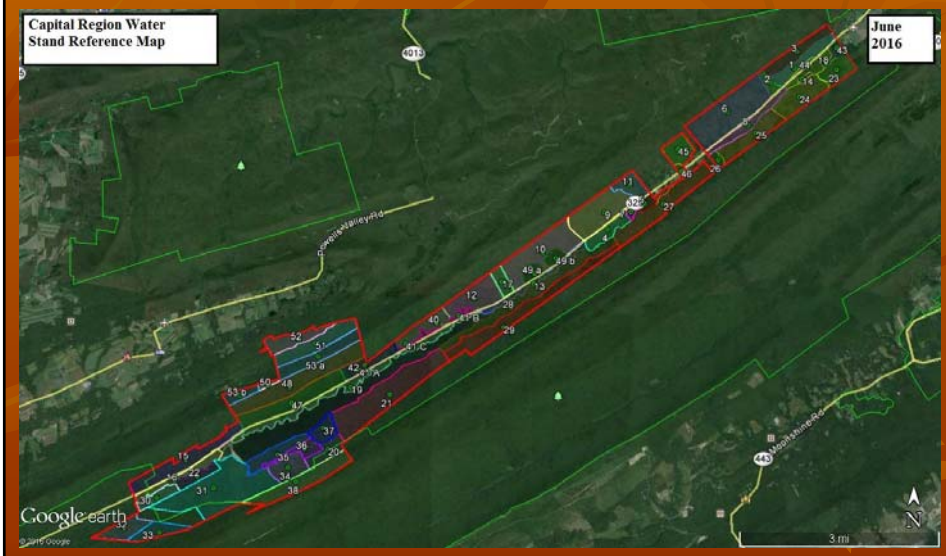
CRW's Forest Management Goals:

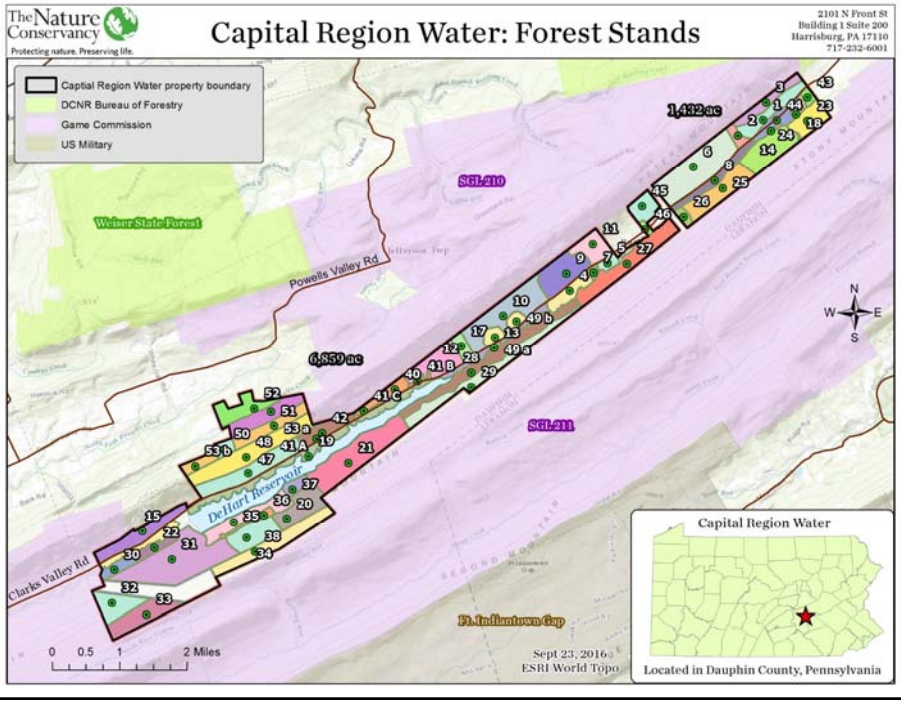
3. **Ecosystem health:** Maintain and enhance long-term ecosystem health and viability. Identify and conserve high priority conservation areas, contribute to the conservation of biological diversity and habitat, and actively manage the property for resiliency to withstand threats (invasive species, particularly Hemlock woolly adelgid and gypsy moth, storms, insect invasions, changing climate).
4. **Compliance and recordkeeping:** Ensure any active management of the property exceeds any federal, state and local requirements and best practices. Implementation of the plan must be monitored and documented with incremental benchmarks.

6 Forest Sections

- Northeast
- Northwest
- Powell's Creek
- Southwest
- Southcentral
- Southeast

53 “stands” or Management Units





Northeast Stand #6

- Description: This stand is a large shelterwood. The lower part is flat to gently sloping. Slope increases to moderately steep at the upper limit of the cutting. Numerous permanent and intermittent streams cross the stand perpendicular to Rt. 325. These streams were well buffered during the first stage shelterwood harvest. This stand had a first cut shelterwood harvest in 2011and 2012. Residual timber is dominated by small and medium size white, scarlet and chestnut oak. Quality is fair to good. Average basal area is 32 sq. ft/acre. Though the average residual is low, it is greater on the lower, better part of the stand. Significant mortality has impacted the chestnut oak on the upper slope. Net estimated timber volume is 2,375 bd. ft/a.

Northeast Stand #6

Overstory basal area:

Species	sapling	pole	sm. saw	med. Saw	large saw	Total
White oak		2.5	13	3	.5	19
Chestnut oak			5	1		6
Scarlet oak		1	.5	.5		2
Red oak		.5				.5
Yellow poplar				1	.5	1.5
Red maple	.5					.5
Pitch pine			1.5	.5		2
Total	**.5**	**3.5**	**21**	**6**	**1**	**31.5**

Northeast Stand #6

- Regeneration: Regeneration is dominated by tulip poplar and oak. Regeneration is present on all plots. 50% of the plots are adequately stocked with poplar or oak. Vigorous aspen was found on several plots and one plot had a large pitch pine seedling. Laurel was found on most plots but averaged less than 10% coverage. Fern and grass were both sparse. One plot next to an old log landing was about 80% covered with sedge. This plot also had large poplar and aspen regeneration to 10 ft. tall.

Northeast Stand #6

Species	Regeneration: % stocked plots	seedlings/a.
Black cherry	0	39
Yellow poplar	40	4718
Conifers	0	77
New oak	0	19
Established oak	5	1175
Competitive oak	10	116
Total oak		1310

Northeast Stand #6

- Prescription: Regeneration is plentiful and is being inhibited by the residual overstory, especially on the better lower part of the stand. About two-thirds of the stand has sufficient volume to warrant an overstory removal. A removal should be conducted leaving appropriate residuals for diversity and wildlife. Existing log landings and skid trails are suitable for reuse.
- **Action:** Remove overstory on the lower 2/3rds of the stand. About 5 to 10 sq. ft/a. should be retained. Priority would be to retain conifers, den trees and other mast producing trees. Schedule harvest in 3 to 5 years. Schedule for 2020.

Northwest Stand #16

- Description: This stand occupies a series of small flats bisected by shallow hollows. This is a well stocked white oak stand. Small and medium size white and scarlet oak sawtimber dominate the stand. Basal area is 109 sq. ft./a. with a relative density of 97%. White oak comprises 73% of the total. Scarlet oak with 5% and red maple with 7% of the basal area are the only other species of significance. Serviceberry and blackgum are present in the understory. Mountain laurel is present throughout, but not dense. Estimated net volume is 6,700 bf/a.

Northwest Stand #16

Overstory basal area:

Species	sapling	pole	sm. saw	med. saw	lg. saw	Cull	Total
White oak		11	42	22	1		76
Chestnut oak		1					1
Scarlet oak				3	2		5
Black birch		2					2
Red maple	4	3	2				9
Hemlock		2	1				3
White pine		1					1
Yellow poplar					1		1
Hickory	1	1					2
Blackgum	3						3
Serviceberry	4	1	1				6
Total live BA	**12**	**22**	**46**	**25**	**4**	**0**	109

Northwest Stand #16

- Regeneration: Regeneration of oak, red maple and white pine is scattered throughout the stand, though only two plots, containing oak seedlings, had sufficient seedlings to meet stocking criteria.

Northwest Stand #16

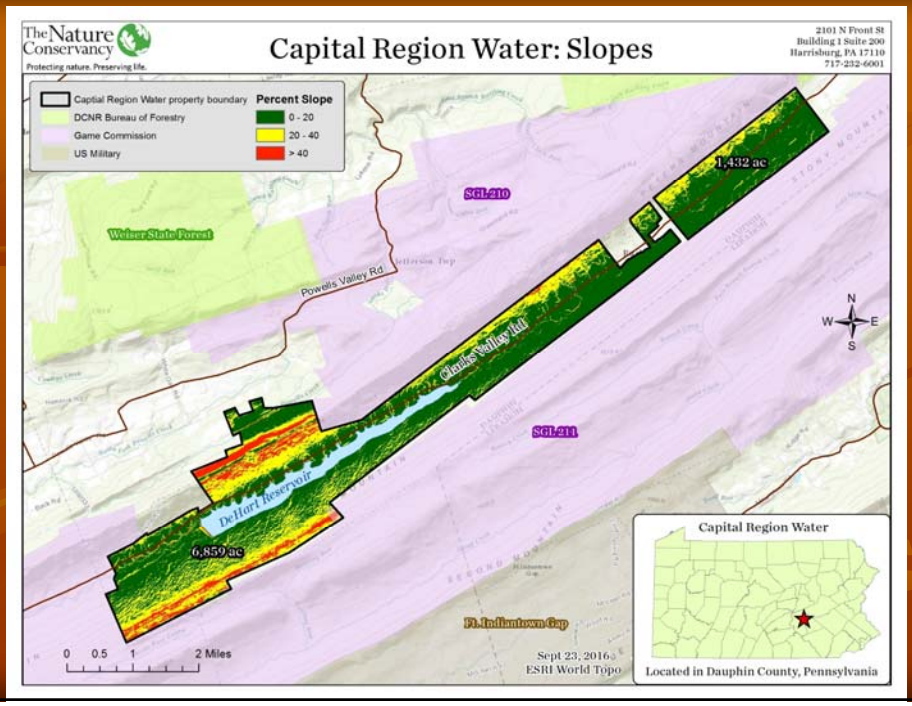
Regeneration:

Species	% stocked plots	seedlings/a.
Yellow poplar	0	77
Conifers	0	116
Established oak	20	1772
Competitive oak	0	39
Total oak		1810
Other desirables	0	1194

Serviceberry seedlings are common as well. These have no economic value, but considerable wildlife and aesthetic value and are not competitive with other seedlings. Mountain laurel was found on all plots, but was not dense and did not seriously inhibit tree seedlings.

Northwest Stand #16

- Prescription: This stand lies between the main highway and Clark's Creek, below Dehart Dam. In this setting uneven-aged management is recommended for both aesthetic and water quality reasons. The stand could benefit from a thinning to provide more growing space for the better trees. However, this is a healthy stand and other stands are in greater need of treatment.
- **Action:** Conduct an improvement/thinning from below when harvesting occurs in stand 15. Conduct thinning in 2022.


The Nature Conservancy
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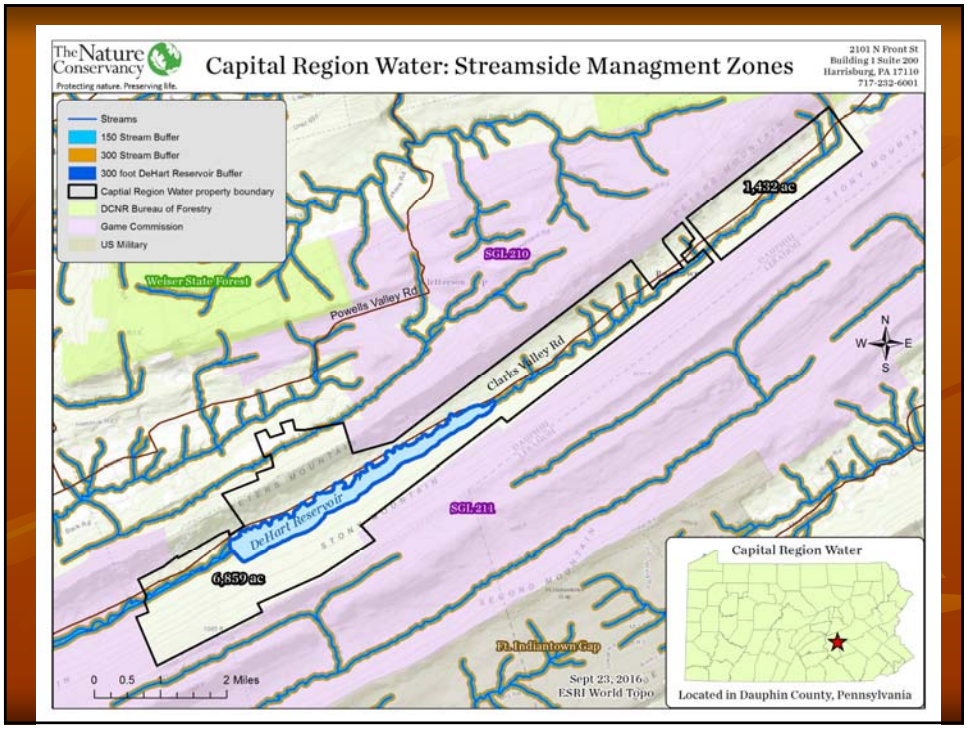
Capital Region Water: Slopes
2101 N Front St
Building 1 Suite 200
Harrisburg, PA 17110
717-232-6001
Captial Region Water property boundary
DCNR Bureau of Forestry
Game Commission
US Military
Percent Slope
0 - 20
20 - 40
> 40
Weiser State Forest
SGL-210
SGL-211
Powells Valley Rd
Clarks Valley Rd
DeHart Reservoir
1,432 ac
6,859 ac
Ft. Indiantown Gap
0 0.5 1 2 Miles
Sept 23, 2016
ESRI World Topo
Capital Region Water
Located in Dauphin County, Pennsylvania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Capital Region Water: Streamside Managment Zones
2101 N Front St
Building 1 Suite 200
Harrisburg, PA 17110
717-232-6001
Streams
150 Stream Buffer
300 Stream Buffer
300 foot DeHart Reservoir Buffer
Captial Region Water property boundary
DCNR Bureau of Forestry
Game Commission
US Military
Weiser State Forest
Powells Valley Rd
Clarks Valley Rd
SGL-210
SGL-211
1,432 ac
6,859 ac
DeHart Reservoir
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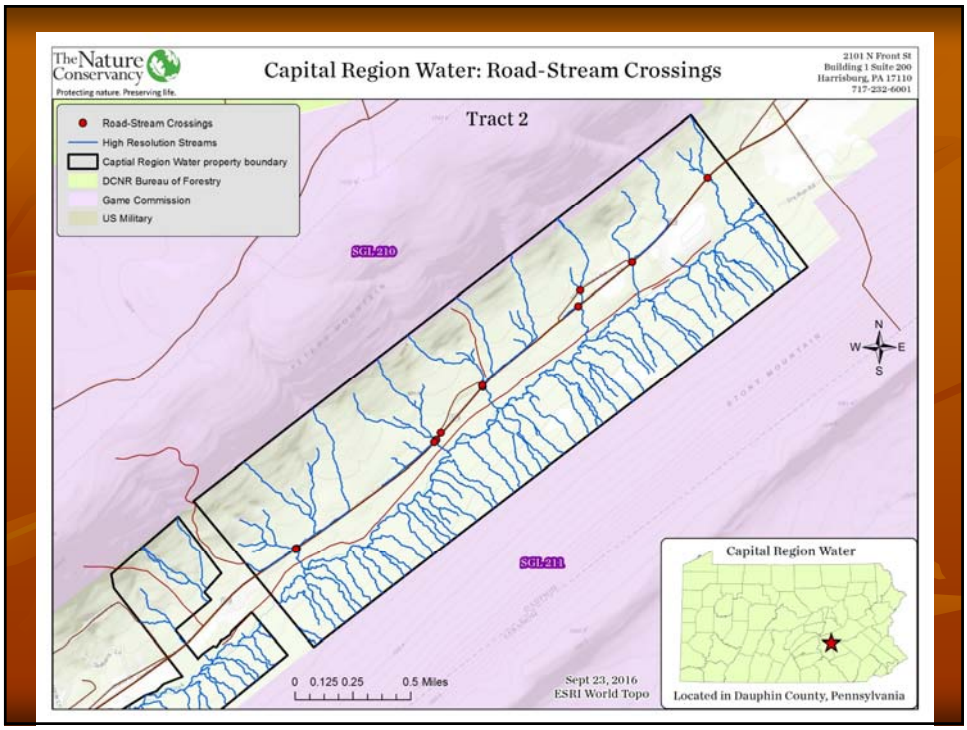
The Nature Conservancy
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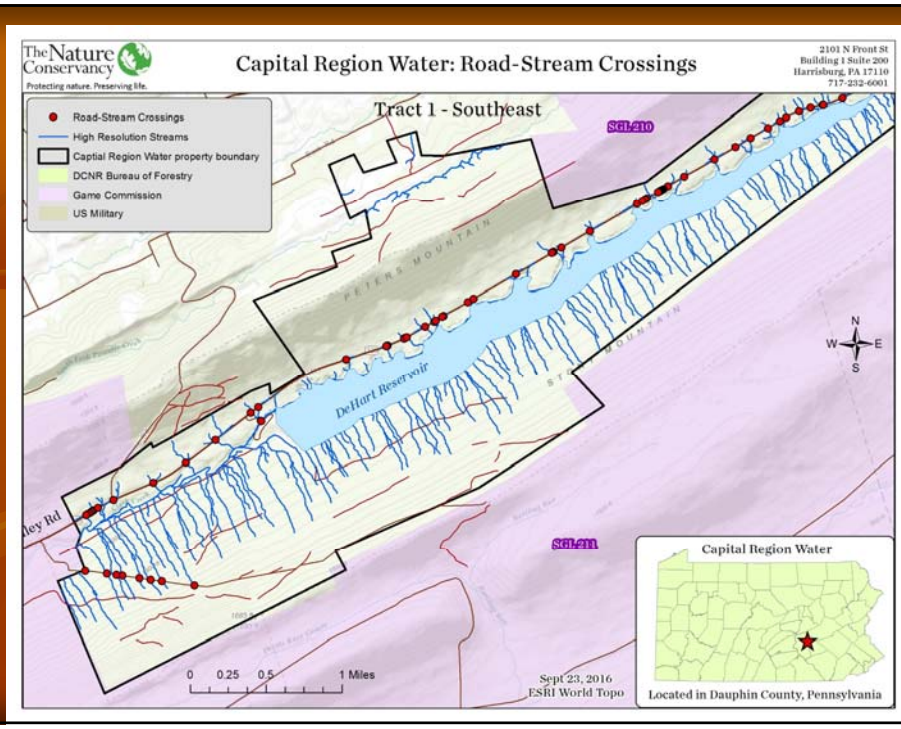
Capital Region Water: Road-Stream Crossings
2101 N Front St
Building 1 Suite 200
Harrisburg, PA 17110
717-232-6001
Tract 2
Road-Stream Crossings
High Resolution Streams
Captial Region Water property boundary
DCNR Bureau of Forestry
Game Commission
US Military
SGL-210
SGL-211
0 0.125 0.25 0.5 Miles
Sept 23, 2016
ESRI World Topo
Capital Region Water
Located in Dauphin County, Pennsylvania



Cost/Benefit Analysis

Stands 6 & 16

	Acres	Approx Cost ($) *	Approx Benefit ($)
Stand 6: shelterwood removal	300	16875	112500
Stand 16: Improvement harvest	90	6750	45000

Total Over 20 years

	Acres	Acres	Hours	Approx Cost ($)	Approx Benefit ($)
Years 1-10 TOTALS	2544	553	270	432906*	1579375
Years 10-20 TOTALS	1816			244112	1127415

109 Pages in 22 Slides – YIKES!

Questions?

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1928


1937


1947


1958

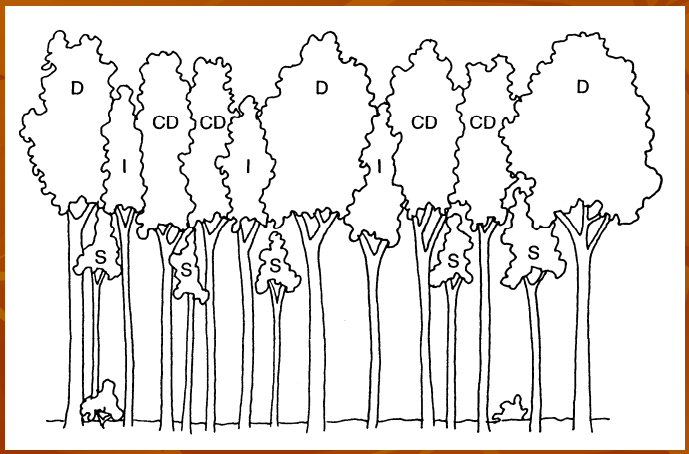

1968


1978

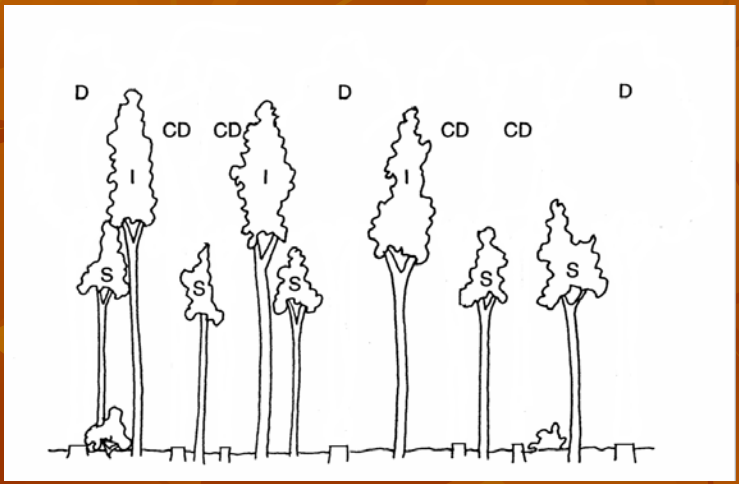

1988


1998

Even-Aged Forest Management

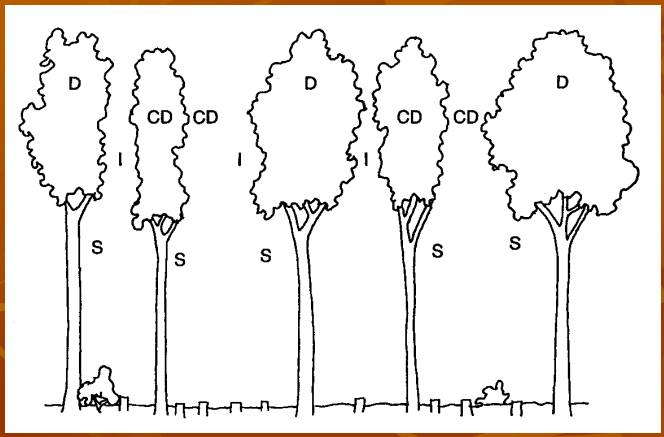


Common Malpractice



"We'll just cut your *old* trees and let your *young* ones grow up"

Even-Aged Forest Management



One Type: Shelterwood Harvest