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Prepared for the Washington State Conservation
Commission

Brian Cochran, July 20, 2023

OVERVIEW



- Monitoring schema
- Results
 - Growth rates
 - Canopy
 - Invasive species
 - Functional assessment
- Implications for adaptive management

MONITORING SCHEMA

FSA'S QUESTION: HOW WELL IS OUR "CROP" GROWING?

N1: the growth rates of the plant types (conifers, deciduous, shrubs) at this project site are drawn from the same population of growth rates for the plant types already in the database for this side of Washington State.

N0: the growth rates of the plant types at this project site are not drawn from the same population of growth rates for the plant types already in the database for this side of Washington State.



MONITORING SCHEMA

Randomly sample sites under contract
Randomly placed belt transects
All FSA plants within 10' of tape to species
Collapse to type (shrubs, deciduous, conifer)

transects variable
Min = 2, Max = 5



20-30 sites/yr

Also: % invasives, % bank erosion, #
slides, mid-stream canopy wade-able
streams (from planted)

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ACTUAL GROWTH RATES?

		East			West	
	Count	Average (ft/yr)	Standard Deviation (ft/yr)	Count	Average (ft/yr)	Standard Deviation (ft/yr)
Conifer	712	1.00	0.64	3228	1.46	1.09
Deciduous	139	1.59	1.87	2348	2.25	1.68
Shrub	2173	0.98	0.90	2028	1.32	1.38
Σ	3024			7604		

All data as of August 2022

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HYPOTHESIS GROWTH RATES?

<u>Growth Rate Same?</u>	<u>Conifer</u>	<u>Deciduous</u>	<u>Shrub</u>
<u>Yes</u>	109	69	96
<u>No</u>	22	27	22
<u>Sample too small</u>	9	44	22

n = 140 sites since 2015

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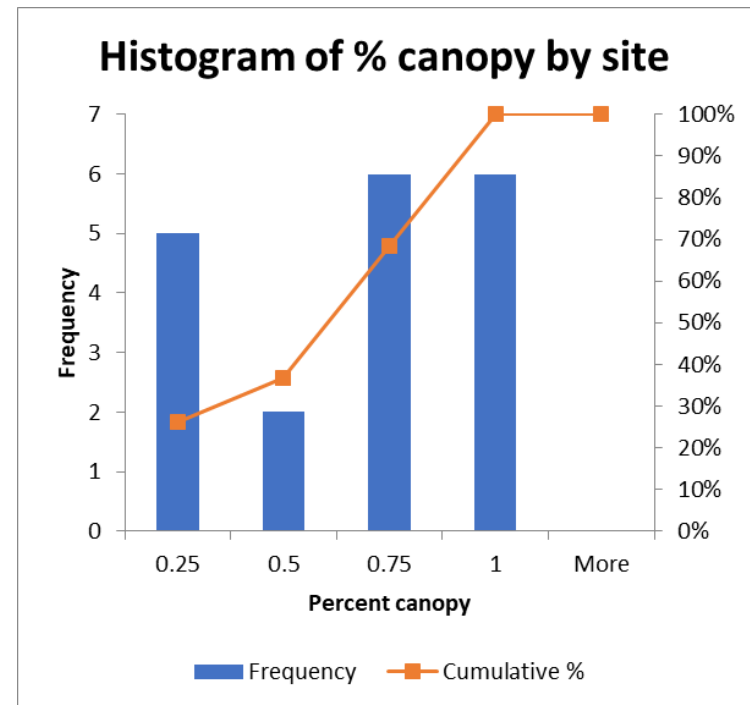
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CANOPY RESULTS



78 sites either “too deep”
OR
“no canopy from project”

19 of 97 sites
measured
(19.6%)

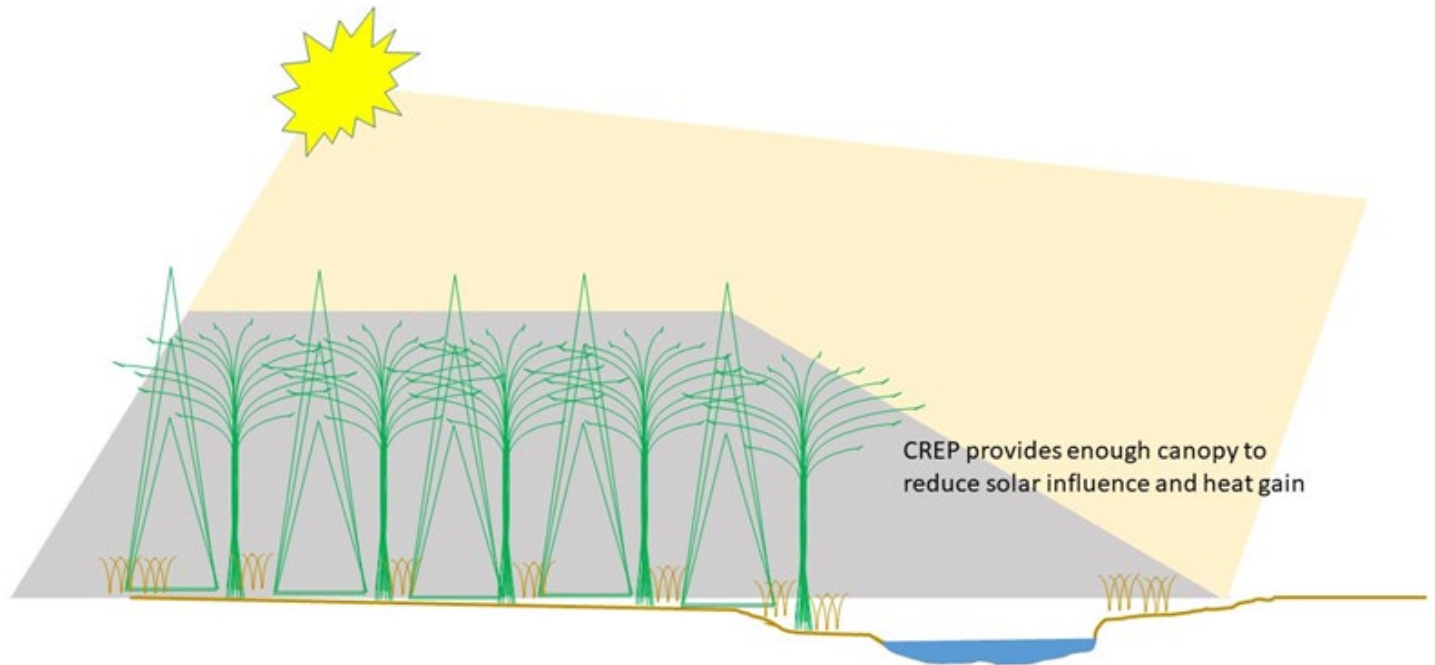


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4 REASONS CANOPY IS OVER-RATED



Idealized CREP shade model

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CANOPY IS OVER-RATED #1



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CANOPY IS OVER-RATED #2



Additional
ce

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CANOPY IS OVER-RATED #3



enough shade
el.

OHW

Summ
for bu

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CANOPY IS OVER-RATED #4



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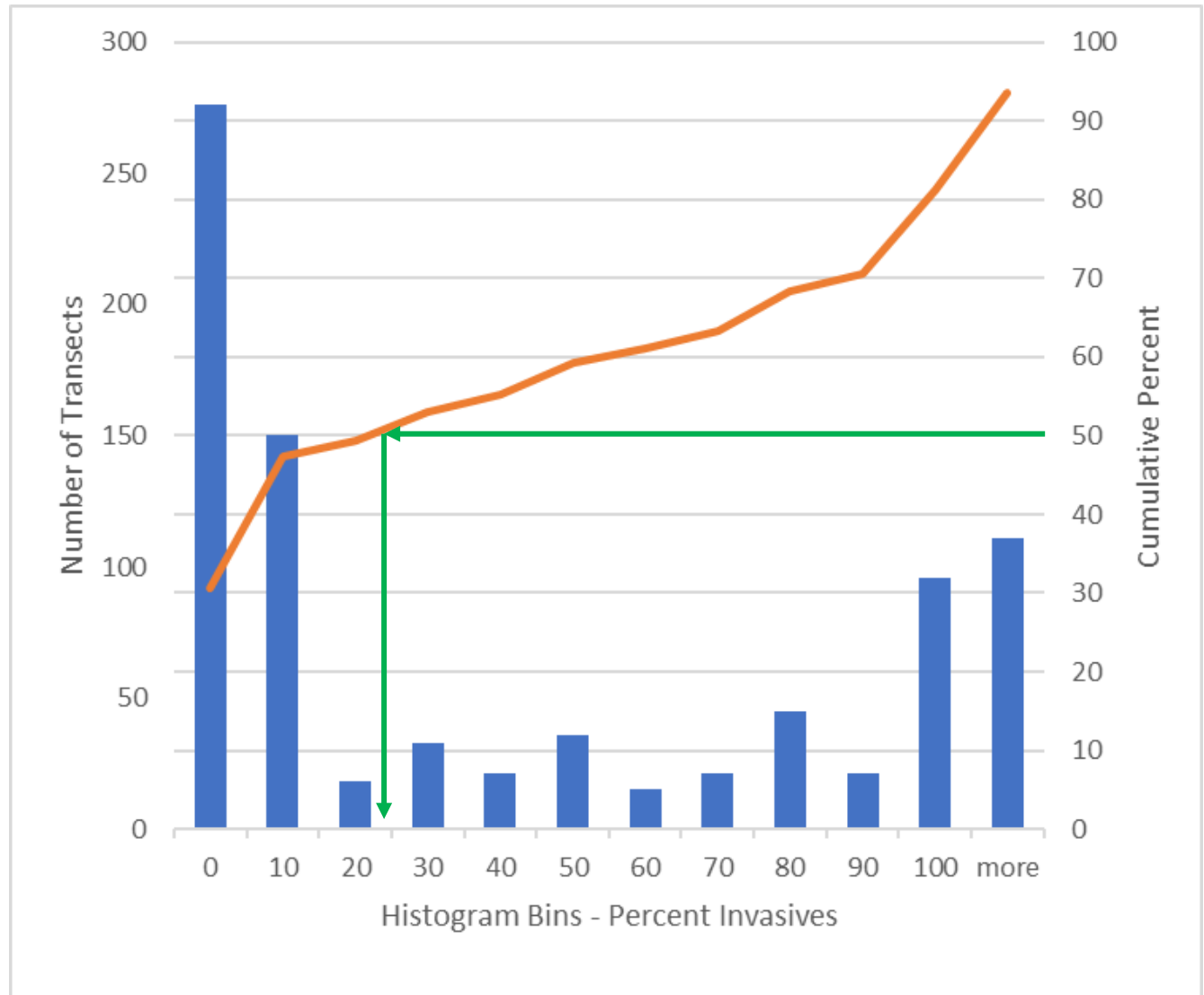
INVASIVE SPECIES



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n = 281 transects, 2015 - 2022

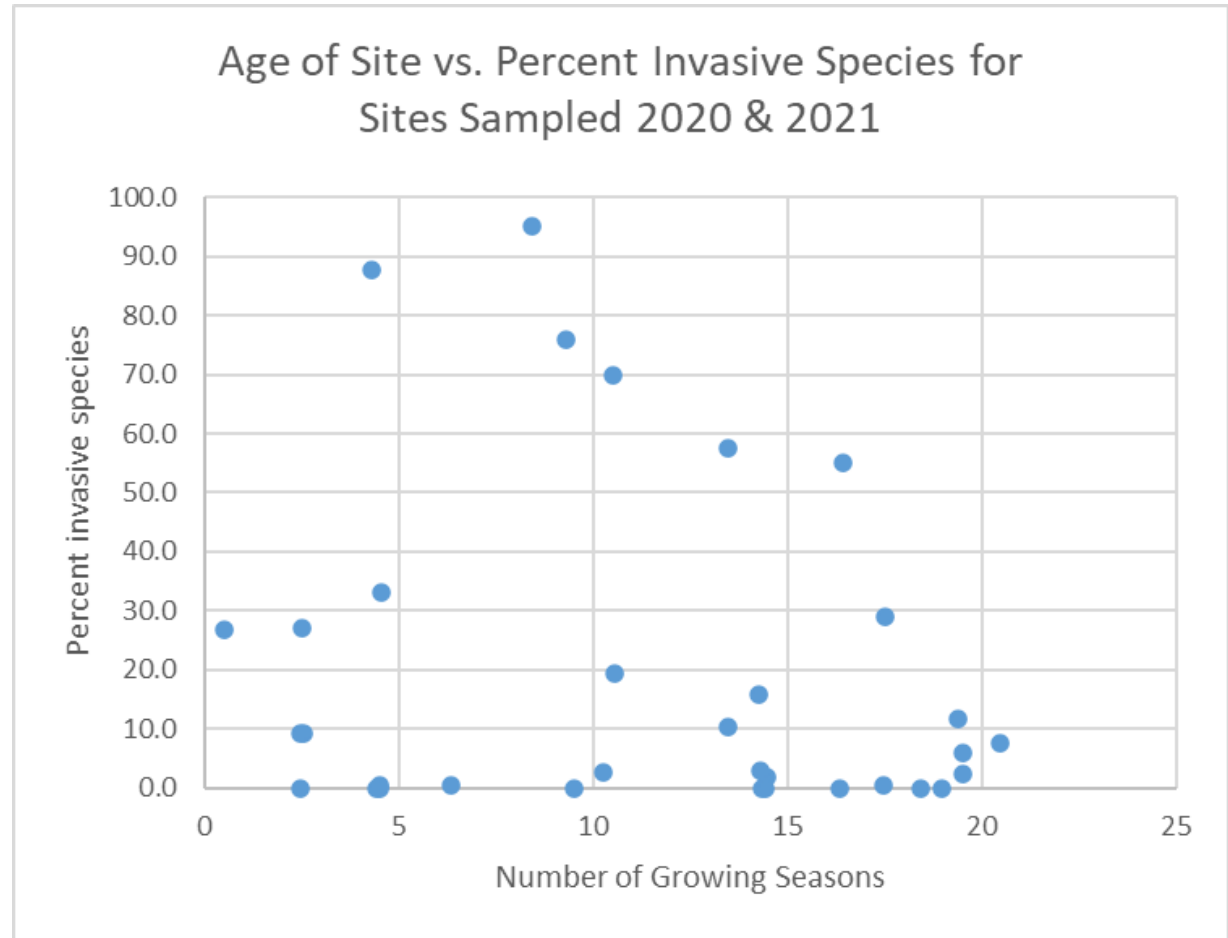
INVASIVE SPECIES



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n = 40 sites, 2020 & 2021

FUNCTIONAL ASSESSMENT

- SVAP methodology
 - Semi-quantitative visual estimates of 16 stream functions
 - Scale of 1-10, 7 is “functioning”
 - Used 11 of the 16 function questions
- 20 Sites in 2022
- Consider whole site condition, regardless of FSA inputs



FUNCTIONAL ASSESSMENT

- channel condition,
- hydrologic alteration,
- bank condition,
- riparian area quality,
- canopy cover,
- water appearance,
- nutrient enrichment,
- manure or human waste,
- pools,
- fish habitat complexity,
- aquatic invertebrate habitat

11 of 16 SVAP elements



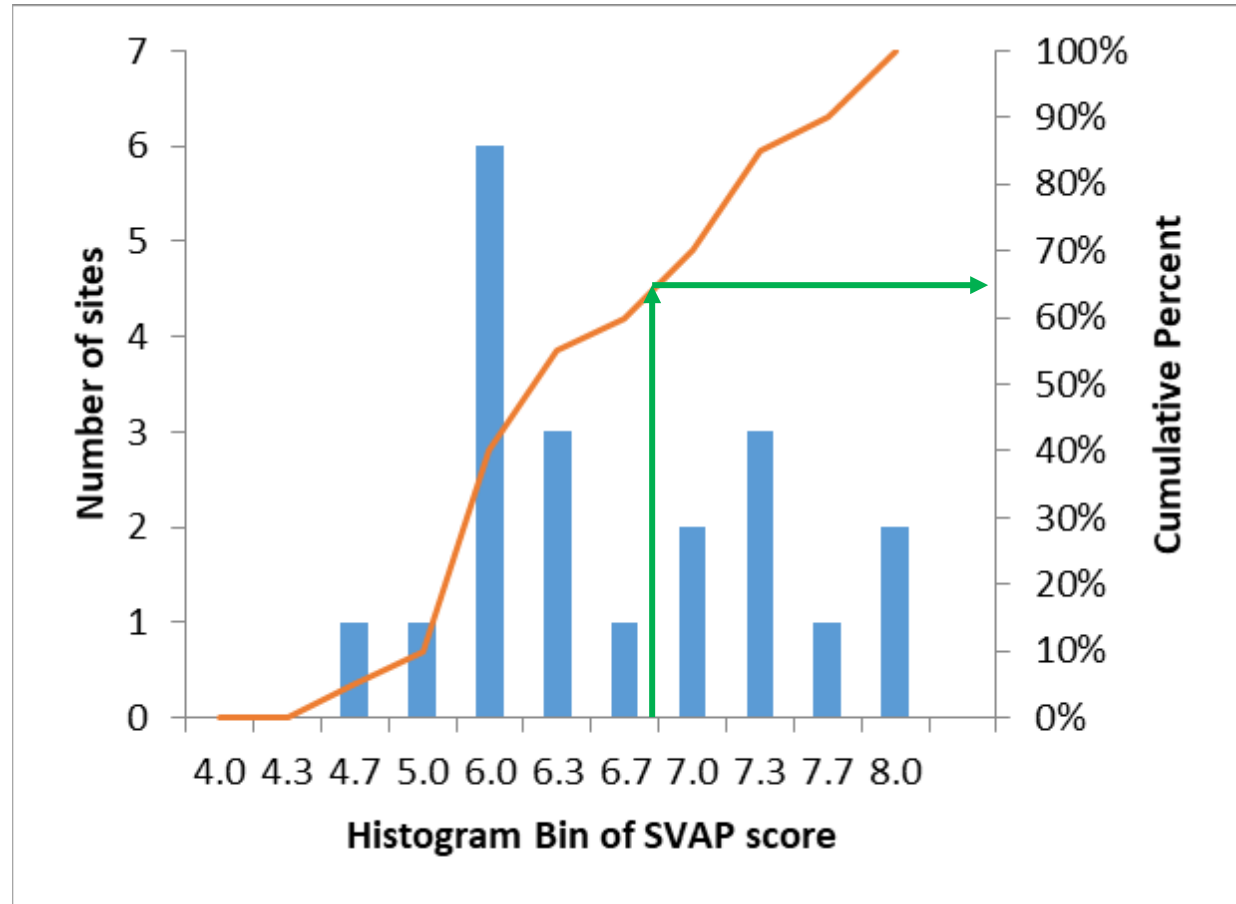


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FUNCTIONAL ASSESSMENT



n = 20 sites sampled in 2022

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ADAPTIVE MANAGEMENT

Clearly, we grow trees pretty well, but ...

Needs:

- Better connection between project and stream, especially for canopy/shade
- Better weed management (and site prep), for longer duration
- More instream functions – pools, inverts, fish



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ADAPTIVE MANAGEMENT

Goals:

- More holistic approach
 - Not just a buffer program
 - Include instream activity
- Allow/encourage changes in hydrology and plant community
 - BDAs/beavers
 - Patchiness
- Vary minimum width by bankfull width
- More aggressive weed management



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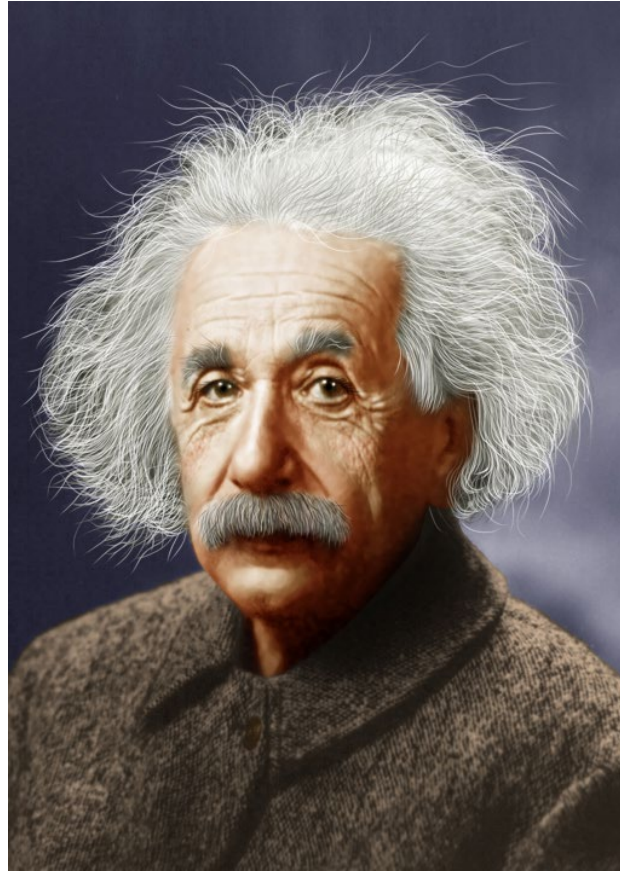
ADAPTIVE MANAGEMENT

Consequences:

- Some sites currently eligible may not be
 - Incisions
 - Very large streams
 - Hydrologically disconnected from summer low flow
- Some practices no longer eligible or at reduced rate
 - Filter strips alone
 - Tarp plantings
 - Under-plantings



ADAPTIVE MANAGEMENT



“Insanity is doing the same thing over and over and expecting different results.”

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Questions?



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