

TRIECA | 2016 CONFERENCE

Thank you to all of our 2016 sponsors:



Credit Valley
Conservation



ECHELON
ENVIRONMENTAL



Lake Simcoe Region
conservation authority



Ontario
Professional
Planners
Institute



MEDIA SPONSOR



HOSTS



Toronto and Region
Conservation
for The Living City



IECA
Great
Lakes
CHAPTER

Using Wood in Natural Channel Design

Heather Amirault, P.Eng
Stantec Consulting Ltd.

TRIECA 2016
Pearson Convention Centre
Brampton, ON

March 23, 2016

Agenda

1 Why?

2 What?

3 Where?

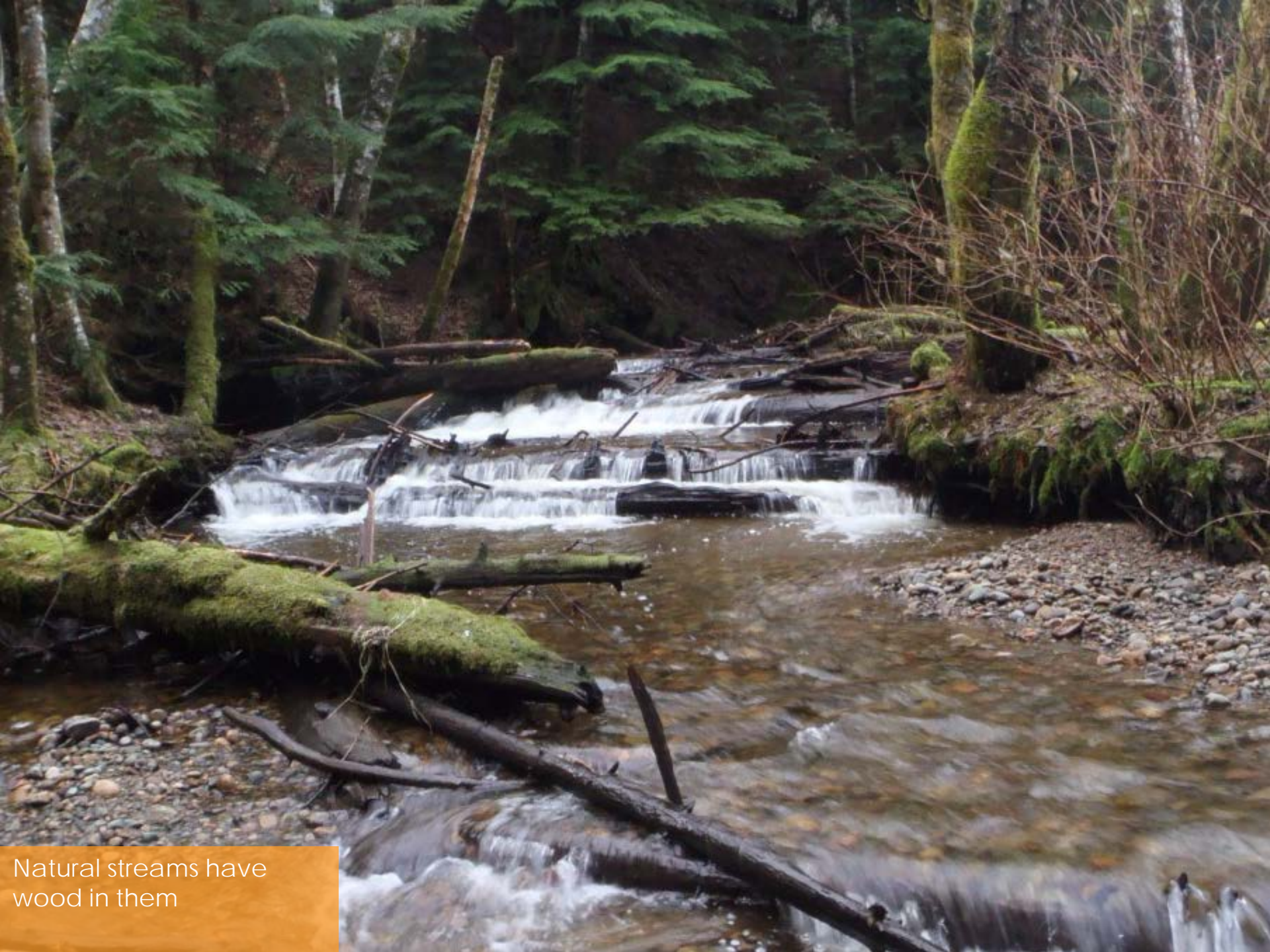
4 When?

5 How?

1 Why?

Why should we include wood in a natural channel design?





Natural streams have
wood in them



Natural streams have
wood in them

Why Wood?

Carbon

- Base of food web

Food

- Provides foraging opportunities for benthic invertebrates and small fish



Why Wood?

Shelter

- Refuge from high flows
- Refuge from predators



Why Wood?

Habitat

- Rearing and spawning



Photo credit: Mark Pomeroy

Why Wood?

Grade Control

- Can provide as much stability to the profile of a watercourse as rock



Why Wood?

Grade Control

- Can be used in steep step-pool systems



Why Wood?

Bank Stabilization

- Scour/ Erosion protection



Why Wood?

Bank Stabilization

- Scour/ Erosion protection



2 What?

What wood should we include in a natural channel design?



What Wood?

Types

- Logs
- Brush / Branches
- Root wads



What Wood?

Types

- Fresh cut
- Older wood
- No soft or rotten wood
- Hard wood or soft wood
- No invasive species



What Wood?

Sources

- On-site clearing and grubbing
- Ice storms



What Wood?

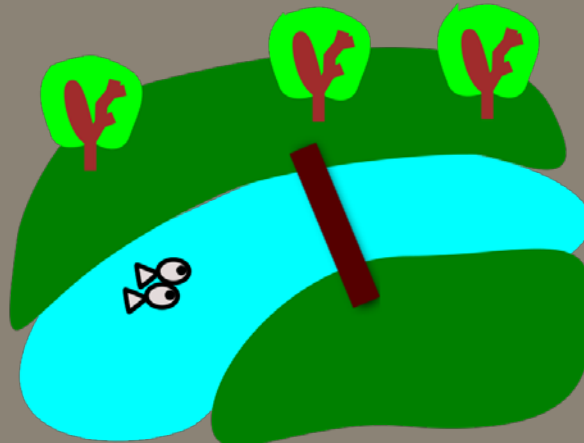
Sources

- Offsite



3 Where?

Where should we include wood in a natural channel design?



Wood Where?

Creek Bed

- Log riffles
- Log steps
- Cross-logs



Wood Where?

Creek Banks

- Wood debris toe
- J-hook / Log vane





Wood Debris Toe
Protection



Wood Debris Toe
Protection

Wood Where?

Overbank Area

- Plantings and Transplants



4 When?

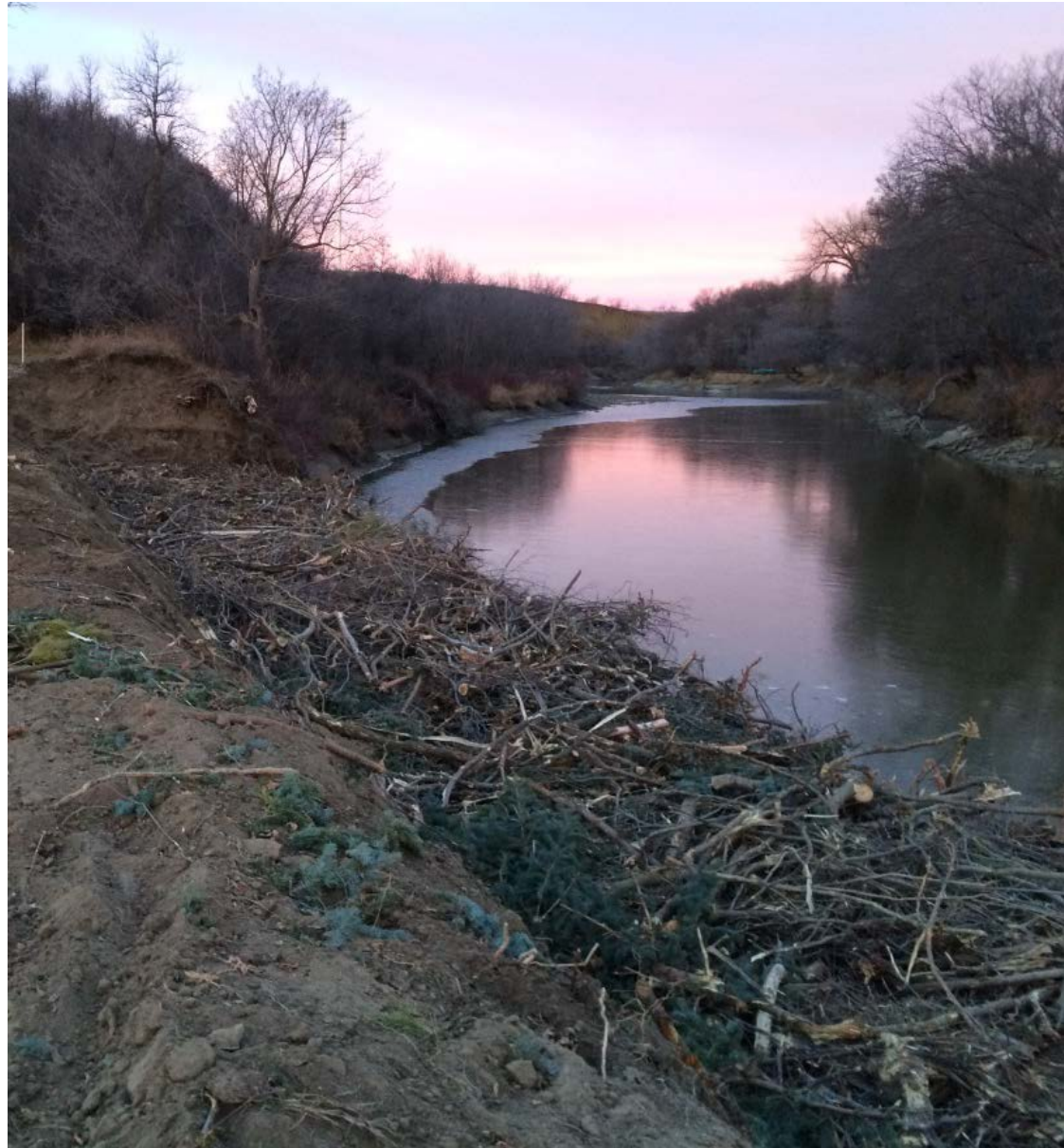
When should we include wood in a natural channel design?



When Wood?

Projects

- When rock is not an option



When Wood?

Projects

- In areas where wood occurs naturally



When Wood?

Projects

- When habitat is important



When Wood?

Projects

- When deep pools are needed



4 How?

How should we include wood in a natural channel design?



Wood How?

Construction

- Experienced contractor
- Experienced inspector
- Collaboration



Questions?



Heather Amirault P. Eng.
Stantec Consulting Ltd.
heather.amirault@stantec.com
519-585-7453



Fish live in streams with wood

Wood Debris Toe Protection



Wood Debris Toe Protection



Log Vane



Log Vane





Log vane



Toe Wood

Root Wad/Log Vane Combo

