



## Construction Notes

### Plover River State Fishery Area, Marathon County

June 22-26, 2011

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This 2011 Ice Age Trail Alliance Mobile Skills Crew project follows up three successful 2010 MSC events in mighty Marathon County. The focus of this project will be to build a native timber bridge, craft a rock crossing of the Plover River, and complete all tread and trail signage needs from the Ice Age Trail/spur trail intersection for about one mile north to Hwy 52. If resources permit we'll 'sweep' last year's investment, and a small team of trained volunteers will be asked to help with TL&D needs north of Hwy 52. Ice Age Trail University will be a concurrent event. We'll return to mighty Marathon in 2012 to build 2+ miles of new trail north of Hwy 52 to the Marathon/Langlade County line at CTH Hwy HH.

Camp HQ will be at the Dells of the Eau Claire County Park. Tenting, food preparation, food service and the camp fire will take place at the Group Camp Area. Solar showers will be available in camp and pay-as-you go showers are available at the Antigo RV Park, about 20 miles distant.

Some of the first sections of trail to be established by local Ice Age Trail volunteers, then known as the Plover River Chapter of the Ice Age Park & Trail Foundation, were in Marathon County. The Plover River is the patriarch of a primordial family that includes large moss-covered granite boulders and stands of balsam fir, northern white cedar and hemlock. A Class I trout stream at this point in its run, the Plover winds for over 50 miles from its origin nearby in southern Langlade County before emptying into the Wisconsin River south of Stevens Point in Portage County. DNR biologist and author Randy Hoffman notes that the Plover River State Fishery Area contains some of the best ground flora in northern Wisconsin.

Best wishes for a fantastic week and thank you for all you do for the Ice Age National Scenic Trail!



# Condensed Macro-Site Analysis

Ownership: DNR. User Group: Foot travel only; the property is open to hunting and fishing per DNR regulations. ROS: Rural/Roaded Natural bordering on Semi-Primitive. Climate: Typical lows from the mid forties to highs in the upper eighties. Fauna: whitetail deer, red fox, coyote, black bear, ruffed grouse, more. Flora: Mixed-hardwood upland forest, aspen stands, wetland, diverse ground flora, more. Soils: rocky, gravelly, clay & sandy loam; silty, hydric soils are the norm where the trail is near the Plover River; recently logged areas are regenerating in Aspen that are currently about 20' tall. Hydrology: Surface drainage, wetlands, Plover River. Topography: rolling to moderate relief (upland slopes); less than 10% relief along the Plover River. Historical Features: N/A. Existing Development: Parking & access on Highland Road, Hwy 52 & @ Sportsman Drive. Aesthetics: Diverse ground flora and 'primordial' contact with the Plover River. Trail Closures: N/A Road Crossing: Internal "Troads".

**The Project Team** consists of: Crew Leaders, to be determined; Dave Mix,, Chapter Representative; Randy Myren, Project Support Coordinator and Assistant Team Leader; Tim Malzhan, Team Leader, Technical Advisor, IAT-U Team Leader; Brad Crary, Crew Leader Manager; Pete Englund, Assistant Technical Advisor; Mike Wollmer, IAT-U Assistant Team Leader; Tool Manager is TBD. Tom Meronek, Agency Representative.

## Project Priorities

1. Work safe, have fun, think and play as a team, build great Trail.
2. Complete all structures, tread and trail signage work to Ice Age NST standards.
3. TL&D north of Hwy 52
4. Refresh painted blazes and posts from the blue blaze intersect south to Sportsman Drive; basic trail maintenance

## Trail Standards

1. Trail corridor is 5 feet wide X 8 feet high
2. Disperse slash and materials 30 feet from the trail centerline
3. Tread width is 24"; full bench construction



## Work Methods

1. Walk and Talk your section before starting work
2. Hand pull or stump woody species within the trail corridor; grub Aspen shoots
3. Focus on the surroundings, trail nuances and general aesthetics

## Staking and Flagging

1. Yellow ribbon is used for eye-level survey; center line is marked with yellow pin flags. Trail Signage Post (TSP) locations are marked w/red pin flags
2. Sections are ~ 100' long and marked with crossed white pin flags

## Safety Concerns

1. Footing in logged areas & along the Plover River
2. Wood & Deer Ticks are present
3. Communicate and stay in touch with your crew members! Do not allow individuals to drift ahead or behind and thus fall out of the safety net.
4. Safe tool use
5. Space workers 10 feet apart or more; thoroughly explain the practice of announcing your movements by calling out "coming through", "swinging" etc.

## Muscle Power Rating (M-1 to M-4)

1. M-1: Borders on flat trail and may include mowing
2. M-2: Basic Trail / Trail Signage Post installation
3. M-3: Higher skill and experience levels required with 4-step construction and trail nuances; 30% or greater cross slope; extensive stumping, kiosk construction (BSA)
4. M-4: Technically and physically demanding work, demanding site conditions and chainsaw applications; bridge construction



## **Plover River Crossing: Section 87 & 88 = 250 feet**

*In Section 87 the trail crosses the Plover River as a "Simple Low Water Enhanced Rock Crossing." Complete tread approaches on both sides of the river.*

*BASIC TOOL PACKAGE @ Plover River Crossing: First Aid Kit, 3 Pick Mattock, 1 McLeod, 1 Transfer Shovel, 1 Pulaski, 2 Folding Saw, Lopper, 6 buckets, 4-6 Rock/Tamping Bars, 2+ Feldman's; rubber boots from trailer (IATA has a size 10 & size 13).*

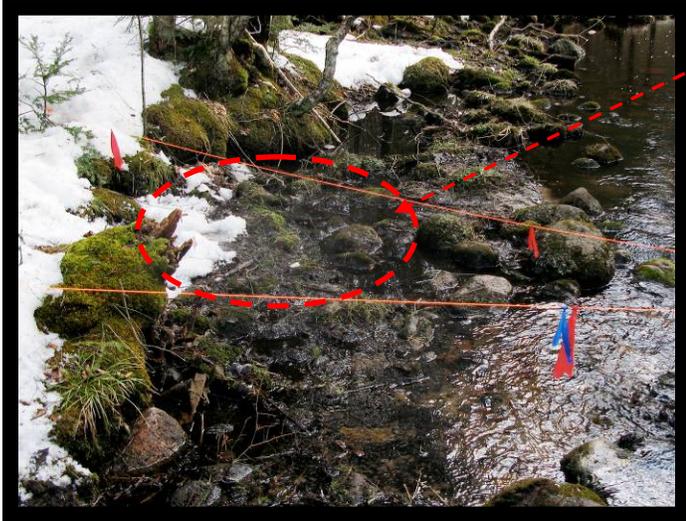
Simple Low Water Crossing Concept, Looking South:



*Direction of water flow is south/southwest. The stream is about 25' wide. Stream bed characteristics are rocky, gravelly; near the defined stream bank/to the side of the primary channel flow, soils are mucky. Stream depth at the crossing location is ~6" to 8"; deeper pockets approximately 18" deep are present up and downstream – caution people working in the river to be careful about where they step, and, to minimize stream bed disturbance.*

Four crossing options were identified; do nothing, build a 36' L clear span bridge, craft a simple low water enhanced rock crossing or construct a combination rock armor/half-log bridge. The simple low water enhanced rock crossing was chosen to maintain the existing channel function, improve user safety and to fit the setting.

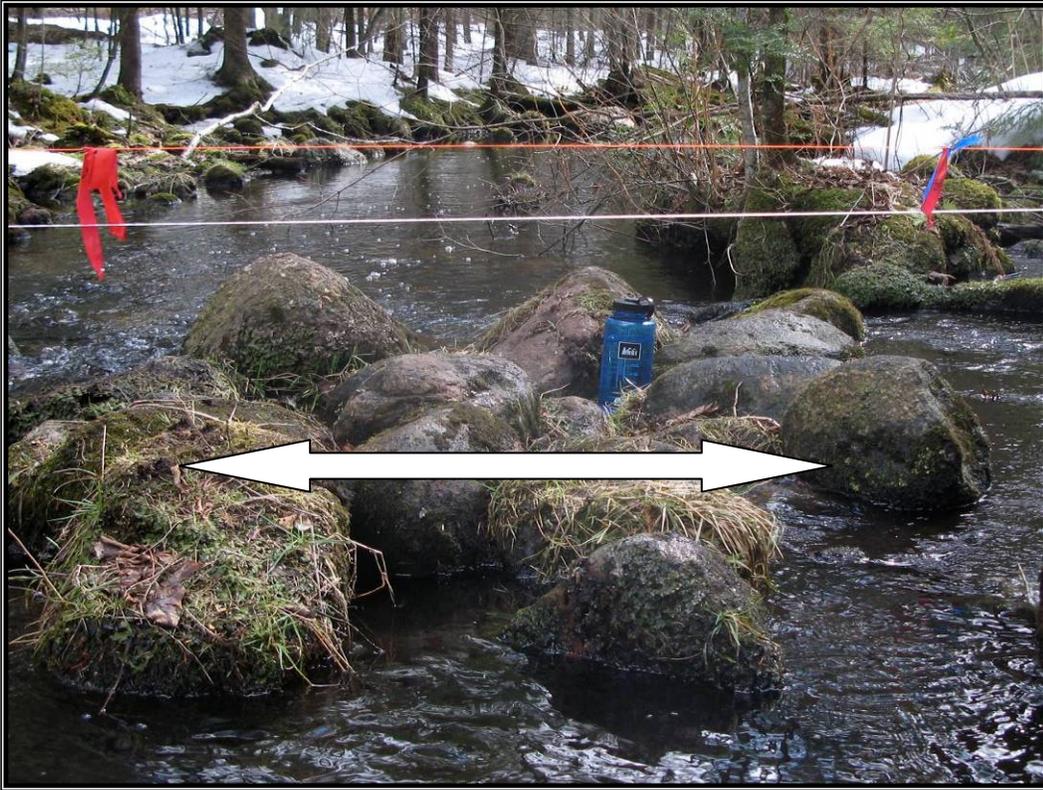
The essential construction steps are illustrated below. Use only hand tools, remove no stream bank vegetation and DO NOT create obstructions that act as a dam.



**Step One:** armor east bank w/native roc; look for material that is 6-10" in diameter. Armor the bank about 3' in a north-south direction from the flagged centerline X about 7' east to west with granite cobble; source is upland about 150' east in the vicinity of Section 85.

**Step Two:** upsize 3 existing stones 50% and orientate them N-S to maintain water flow





**Step Three:** orientate existing stones E-W to provide a safer landing; potentially, add flat stone

**Step Four:** Armor bank with ~3+ stepping stones to complete passage; complete tread to the turn north on the west side of the river.



**Sections 88 > 102 M2 CL+5**

Basic/Flat Trail. *On the west side of the river you'll enjoy a fine stands of Hemlock and Northern White Cedar. Look close and you'll see red environmental ribbon flagging running north south marking the approximate west boundary of state and privately owned lands. Corridor clearing and trail signage are the key needs; build tread were opportunities present themselves and don't forget the pole saw. Fine river sounds and intimate contact with the Plover continues northward.*

*Basic Tool Package: First Aid Kit, 2 Pick Mattock, 3 McLeod, 1 Transfer Shovel, 1 Pulaski, 2 Folding Saw, 2 Lopper, 4 buckets, Pole Saw*

Signage Needs: in addition to painted blazes, posts, regulatory use signage, etc., at Hwy 52 we'll install a metal Trail Head entrance sign on 4x6x12 posts near the driveway entrance.

Saturday a local Boy Scout in pursuit of his Eagle Merit Badge – the highest BSA honor – will lead a team of scouts and build a kiosk at the Hwy 52 parking area.

**Chainsaw needs:** 91+40' (tree top), 91+60' (12" pine), 92+60', 95+60' (7" pine), 97+100' (12"/6"), 99+15' (16" maple), 100+20' (8" diameter), 101+00' (large pine parallel to tread)



*Scenes shown above are typical of sections 88—100*

**Native Timber  
Clear Span  
Bridge: Section  
100**

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The task:  
construct a log  
bridge with hand  
rail over an  
unnamed  
tributary to the  
Plover River  
about 1000 feet  
south of HWY 52.

This unnamed  
tributary to the  
Plover River  
originates ~1mile  
north of HWY 52  
as wetland  
drainage, passes

through a culvert underneath HWY 52 and feeds into the Plover River east and south of the crossing. Direction of water flow is south/southeast. The stream is well defined and is about 12 feet wide. A native timber structure was chosen over a dimensional lumber bridge to fit the setting. Northern white cedar is the primary building material. Bridge tread will be between 12 and 20" wide. Use pressure treated stock as the first crib course. The total length of the bridge will be ~21' long; an 8 -12' long ramp may be needed on the north side. Cable-anchor the bridge on the north side.

*Native construction example from MSC 2007/Timberland Wilderness Section, Lincoln County project*



## **Bridge Construction *OUTLINE* – see also SCA Handout**

### **All tools to be stored in trailer at the end of the work day**

**#1:** harvest standing northern white cedar, limb and peel for use as log stringer(s). If 8' cedar sticks hauled to the site by Eagle Scout/troop Tuesday have not been peeled, do so, flatten both sides of 10 sticks and leave them @ full length to be cut to length as needed per application. **#2:** install silt fencing at the crib/sill locations. **#3:** prep sill/crib locations on both sides of the water; cut and mate 4) 2" x12" x 4'L and 4) 6"x6" x 4'L PT stock and assemble to make 4 sills. The sill/crib footprint is 2'W x 4' L. Level and install. **#3:** run/level a string line across the water between crib/sill base; measure the height from string to H20. The target minimum is 24". **#4:** if the height from string to H20 crib height needs to increase build the cribs up as needed. The first stick course laid on top of the PT stock should be full length for step purposes; use 4' stick lengths in a perpendicular direction to the stringer(s); build cribs to achieve the target height minimum of 24"; NOTE that the top crib course must be perpendicular to the N-S direction of the log stringer(s). Pre-drill & pin (pole barn stakes) each course at the corners as you build up. **#4B:** while crib construction is happening a second crew prepares the stringers: build two H-frames on the north side of the crossing and lift log stringers onto the temporary H frames; find the crown(s) and determine which end of the log(s) is north, determine how the two logs will fit/mate together and what the final width of the 'deck' will be –a minimum 20" wide walking surface is needed. Take one log off the H-frames; secure remaining log with blocks and prepare the surface (kerf w/chainsaw then remove material with a sharp adze. Whoever does the adze work MUST WEAR SAFETY CHAPS & EYE PROTECTION; repeat with the second log. **#5:** when the top of the log(s) are prepared put both timbers back on the H-frames in the direction they will set; the bottom of each timber stringer needs to "flattened" for about 40" long for the stringers to rest securely on the cribs/sills; the stringers need to be the same finished height. Take no more 'meat' from the log than necessary when flattening the bottom. **#5a:** Optional pending progress is to notch (dovetail) and fit two or three splines on the underside of the logs (one at center) to tie the logs together. **#6:** build a handrail system composed of 5 vertical uprights and two linear/horizontal rails. The top rail height is 42 inches and the second rail ~30". Determine the locations & spacing of 5 uprights; locate one vertical post to be secured to the back of each crib (2), one at center (1), one between center and crib per side (2) = 5 vertical posts. Mark these locations then notch the outside of the east log to fit the vertical posts. Prep and test-fit the uprights in the notches. Before final installation of the vertical uprights notch the uprights to accommodate the horizontal rails. This can be done now or once stringers are on the cribs. **#7:** lift stringers onto cribs and secure them in place. **#8:** complete the guard rail system **#9:** complete the approaches. **#10:** steady yourself for groupie adulation and kudos all around!!