An aerial photograph of a lush, green forested wetland area. Several interconnected ponds and a winding trail are visible. The text "OTTER PONDS TRAIL MASTER PLAN" is overlaid in large, white, bold letters across the top half of the image.

OTTER PONDS TRAIL MASTER PLAN

September 10, 2016

Summary

As the Otter Ponds Demonstration Forest (OPDF) continues to develop its capacity to undertake outreach and educational activities targeted at the woodlot owner community and interested public, ability to easily access project lands becomes more important.

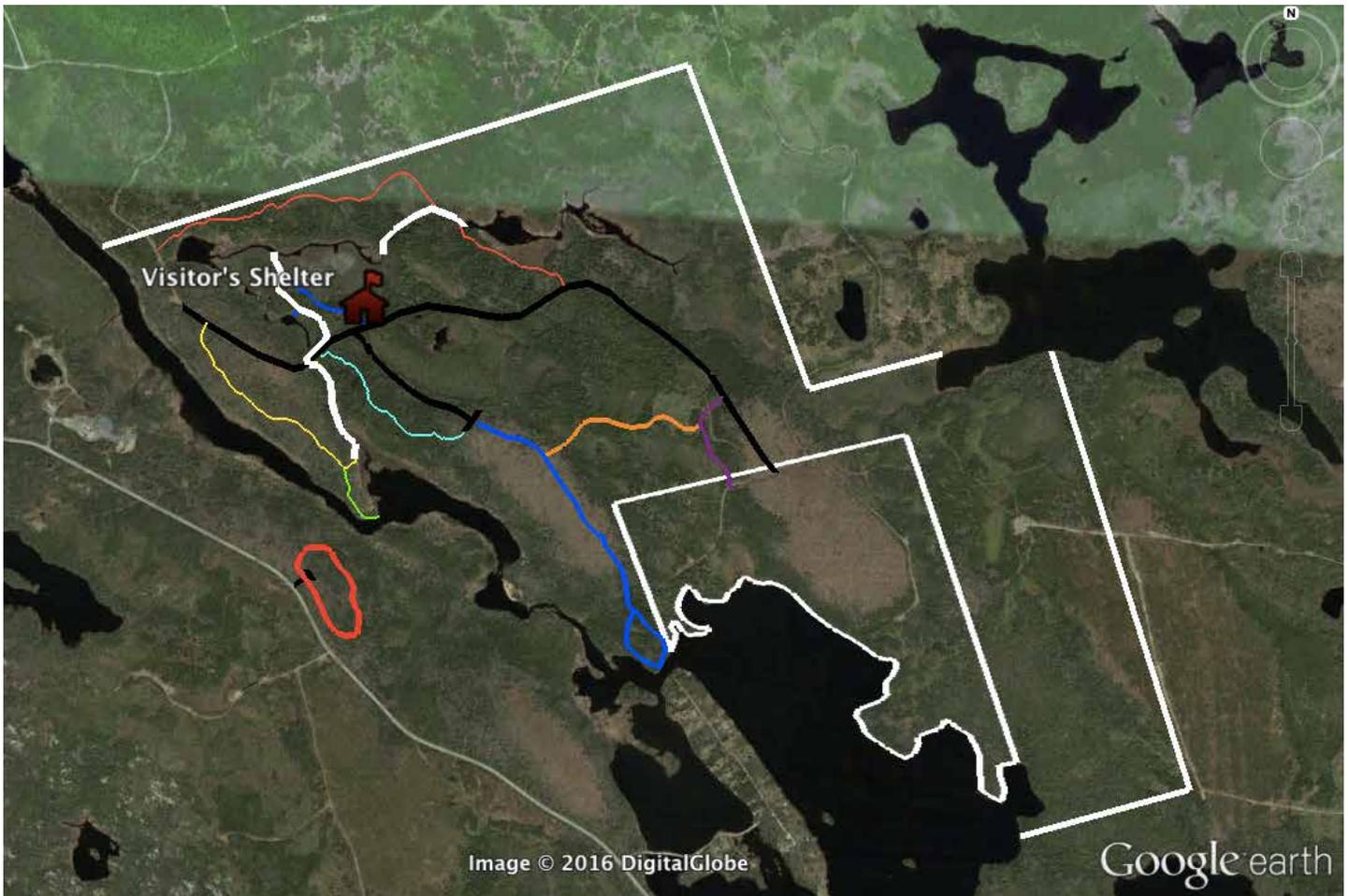
In the winter and spring of 2016 OPDF contracted Community Forests Canada Inc. (CFC) to undertake a project to identify and lay-out a comprehensive educational trail network for the project lands. Included in this contracted work was: to undertake one OPDF Trail Visioning Workshop; to map and finalise 8 km of Trail Route; to identify Sites of Ecological Significance along trail routes; to identify Areas of Special Consideration along that trail route; to cost construction of the trail; to complete one Trail Master Plan; and to undertake one Trail Building Workshop.

Herein contained is the Otter Ponds Demonstration Forest Trail Master Plan.

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Trail Master Plan



Herein contained is the completed Trail Master Plan for the Otter Ponds Demonstration Forest. This document is meant to guide the OPDF Board in the development of its educational trail network. Along with trail routes demarcated with durable flagging tape and GPS tracks for electronic recording of routes, this Trail Master Plan allows the OPDF Board to cost effectively develop its educational trail network to maximum impact.

By coordinating the lay-out and construction of the educational trail network in this way, OPDF can ensure that the final trail network accesses the full extent of ecological and silvicultural diversity contained within project lands.

General recommendations for trail building are laid out in the Trail Construction Best Practices section. This section provides general guidelines to be followed in the construction of all trail sections, ensuring all trails are constructed in a safe and accessible manner.

Trail Descriptions are provided that detail all relevant information for each trail section. The purpose of these descriptions is to facilitate the construction of each trail section piece by piece. By describing in detail each trail, along with Educational Opportunities and Sites of Ecological Interest, the OPDF will be able to ensure that construction maximises educational and outreach potential of all trail segments. Additionally, descriptions of Areas of Special Consideration and Construction Considerations identify challenges or obstacles that need to be addressed in the construction of each trail. This way, all trail work can be easily tendered to qualified contractors with a clear list of deliverables and expectations provided.

A brief description of canoe portage route opportunities is provided. Where possible educational trails can double as canoe portage routes to minimise the amount of overall trail to be constructed. Designing canoe routes within the project lands will further open up recreational opportunities within OPDF, thereby increasing the exposure of the general public to the mandate of OPDF.

Finally, all trail routes along with Areas of Special Consideration are provided in Google Earth (.kml) accessible format. This electronic format can easily be transferred onto handheld GPS devices. Along with demarcation of trail routes on the ground, this will ensure that trail construction follows intended trail routes.



Trail Construction Best Practices

Many trail organisations have sought to define best practices for trail design, construction, safety, signage and route demarcation. The 'Trails for All Ontarians Collaborative' have compiled one such guide, titled "Ontario's Best Trails: Best Practices for the Construction and Maintenance of Sustainable Trails for All Ontarians". In consultation with OPDF's Safety Officer, it was decided that this guide should serve as a 'go to' resource for OPDF staff interested in the sustainable construction and operation of a robust and safe educational trail network. An electronic copy of this "Ontario's Best Trails" document is made available to the OPDF Board along with other relevant electronic information.

Trail Construction Design Standards

Table 1: Summary of "Best Practices" Design Standards

Characteristic¹	Best Practice	Sustainable Design²	Universal Design³	Remote⁴
Slope				
Grade (% - m ⁵) on the tread	5 - any 8 - 50 10 - 25	10 - any	5 - any 8 - 60 10 - 10	10 - any 15 - with special ⁶
Cross Slope (% - m) on the tread	5 - any 8 - 10	5 - any 8 - for drainage	2 - any 5 - for drainage	Tread higher than side
Clear Corridor				
Tread Width (m)	0.9	0.9	0.9	0.6
Tread Height (m)	2.5	2.5	2.4	2.5
Buffer Width (m)	1.5	1.5	---	1.5
Buffer Height (m)	2.8	---	---	---
Protruding Objects (cm) ⁷	0.0	---	10.0	0.0
Surface				
Substance	Firm & Stable	Firm & Stable	Firm & Stable	---
Material	Natural or Human-made	Natural or Human-made	---	Natural
Openings (cm) ⁸	1.5	---	1.25	---

(From Ontario's Best Trails, pp. 2)

As seen in Table 1 above, trail construction standards vary from place to place depending on intended use and resources at hand.

For the Otter Ponds Demonstration Forest, it was heard during the Trail Visioning Workshop held in February of 2016 that the OPDF trail network needed to be safe, well demarcated and well maintained. As heard at the Trail Visioning Workshop, OPDF's trail network will most resemble trails constructed to the "Remote" standard provided above. Providing visitors with a high level of accessibility was not identified as important as getting the trail network constructed. Foot-paths that were clearly marked and clear of unsafe obstructions were identified as appropriate in most cases. It is important to recognise, therefore, that OPDF's trail network will be exclusive to those most physically capable.

That being said, one trail – the Otter Ponds Marsh Loop – was identified as a trail that provided a good opportunity for future upgrading to provide a more accessible route for physically challenged visitors. This route offers easy access from the visitor's centre as well as a relatively level route without abrupt changes in elevation. As such, this trail is an ideal candidate for upgrading if OPDF determines a trail with high levels of accessibility was warranted.

Following are brief explanations of general maintenance recommendations for maintaining a safe trail, including signage and trail route demarcation best practices, as taken from the "Ontario's Best Trails" guide.

General Maintenance Practices

"Ontario's Best Trails" (pp. 180) provides comprehensive recommendations for ensuring proper maintenance of all trails.

Paramount amongst these recommendations is the creation of a trail maintenance plan. This trail maintenance plan is to be developed in the context of an initial trail inventory: an inventory of trail conditions following trail construction that provides the information from which maintenance activities are determined. Problem areas – wet sections, sections of forest with abundant standing dead wood, etc. – are to be identified for each trail for ongoing monitoring.





Once the trail maintenance plan is created, regular trail inspections need to be scheduled to ensure trail conditions are safe for visitors. Regular trail inspections should take place at least once a year, particularly following winter. Creating a trail inspection form that is to be completed for each trail will allow the OPDF Board to ensure thorough inspection activities each year allowing for problem areas to be clearly identified and remedial recommendations made.

Regular maintenance activities need to take place as recommended during of trail inspection. Addressing these problems identified in trail inspections ought to take place promptly following inspection. Removal of problem trees, downed woody debris and other impediments to trail safety needs to be a regular part of OPDF activities to ensure a safe and effective educational trail network.

For further general trail maintenance practices, please refer to “Ontario’s Best Trails” guidelines.

Recommendations:

- **complete trail inventory and trail maintenance plan**
- **develop trail inspection form and schedule**
- **promptly undertake recommended maintenance activities**

Signage



Trail signage, particularly at trail access points, is an important component of any safe trail network. A trail access point is any location where trail visitors can enter or exit a trail. These points – also known as trail-heads – provide the opportunity for OPDF to communicate important information to trail visitors; such information includes trail routes, difficulty and points of interest and concern.

Given OPDF's ability to control access to project lands and trail-heads via the gate along the main road, it is advisable that OPDF consider a trail network sign close to the parking area just to the north of the road gate. This would ensure that all visitors, even those arriving during times when no OPDF events are being held, are able to access the vital information that they need to safely enjoy the trail network.

Additional trail signage should be considered at each trail-head. This signage can be minimal, communicating the trail route, proximity to other trails and trail difficulty.

The educational mandate of the OPDF can be promoted by way of on-trail signage. While such signage can be very informative, OPDF ought to be aware of the risk of compromising the trail experience for visitors. Educational signage that is intrusive, poorly designed and contains too much content can turn visitors off, resulting in disengaged visitors and lost educational opportunities.

Recommendations:

- **trail network sign near OPDF gate**
- **trail-head signage with map of route and essential trail information at all trail-heads**
- **educational signage that is clear, concise and does not compromise visitor experience**

Trail Route Demarcation



It is important that trail visitors are able to clearly identify the trail route on which they are travelling. Being able to distinguish between trails, particularly at intersections, is of utmost importance.

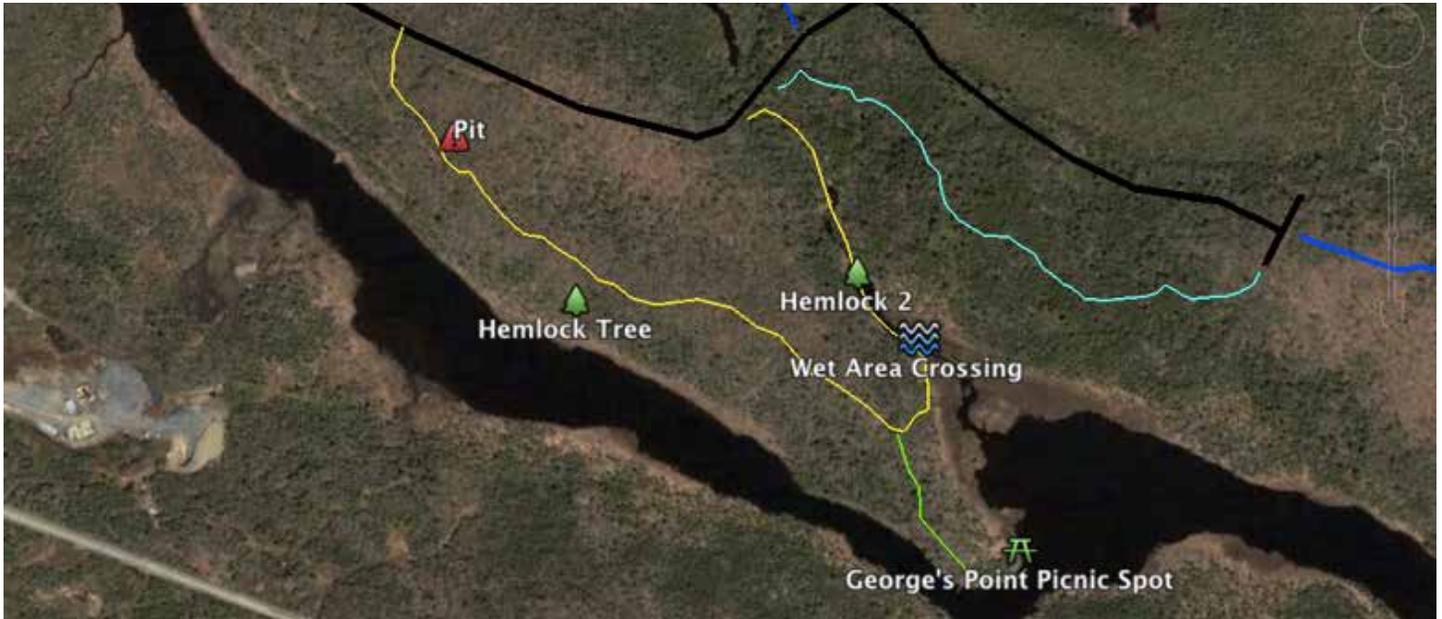
To clearly distinguish between trails, a colour coding system is typically adopted whereby individual trails are assigned a unique colour that is easily distinguished from other trail colours. This allows not only for mapped trail routes to be easily identified, but for clear and simple trail route identification along the route. By simply painting coloured shapes that correspond to each trail's unique trail colour on select trees directly adjacent to the trails themselves, visitors are able to quickly and consistently identify which trail they are on. The best trees on which to paint trail colours are trees that are highly visible along the trail route. It should be ensured that painted trail markers are frequent enough that trail visitors are always able to see at least two markers at any one time, regardless of the direction in which they are travelling. Additionally, markings should be freshened up as required to provide effective route demarcation.

Trail intersections are often points of confusion along even well developed trail routes. The points where two trails cross offers the opportunity for trail visitors to become disoriented and choose to pursue the incorrect route. Providing a small but articulate trail map at these points, with clearly identified "You are Here" markers on said maps helps ensure that visitors stay on the correct trail route and do not become disoriented.

Recommendations:

- **simple colour coding scheme for all trail routes**
- **clear, frequent trail-route markings with colour coding scheme**
- **"You are Here" signs at all trail intersections**

OPDF Trail Network Trail Descriptions



German Lake Hill to George's Point

Length : German Lake Hill (Yellow) 1,225 m / George's Point (Green) 250m

Difficulty : Easy

Features : Riparian Zones, Hardwood Forest, Drumlin, Picnic Spot

Trail Description

The German Lake Hill to George's Point trail traverses one of three hardwood-dominated drumlins within the Otter Ponds boundaries. Leaving from the main road, the trail heads south down the west-side of German Lake Hill. Passing through mixed red maple and yellow birch forest, the west side of the hill provides views of German Lake along with its adjacent meadow. The trail follows along the west slope of the hill until it shifts eastward onto the top of the hill, continuing south towards George's Point. Increasing softwood – primarily red spruce and over-mature balsam fir – is found mixed throughout the hardwood towards the south end of German Lake Hill.

German Lake Hill slowly slopes off as one continues to head south, with the trail eventually turning east towards Otter Ponds Brook. At this point, a short spur trail continues south to George's Point: the point of land sticking out into German Lake. This point provides good views of German Lake, Hawboldt's Farm Hill and project lands on the west shore of the Tangier River. Good opportunity exists here for a rest and/or picnic spot.

From the intersection with the George's Point spur trail, the German Lake Hill to George's Point trail heads back north-east along Otter Ponds Brook. Passing between the hill and lake-side meadows, the trail continues north to the bridge crossing Otter Ponds Brook, where it terminates.

Educational Opportunities

The high level of accessibility that this trail offers represents significant opportunities to leverage this trail as a key part of OPDF's educational infrastructure. As such, OPDF should consider this trail for increased investment to make it usable during all times of the year.

This trail covers a diverse range of forest and habitat types that offers excellent educational opportunities. Located primarily on a drumlin, this trail gives educators the opportunity to discuss glacier-derived geological features and the contribution glaciers have made in creating the landscape we see before us today.

The entire section of the trail on German Lake Hill has excellent examples of the role dead wood plays in a healthy forest ecosystem. The western slope of the hill is dominated by 5-15 foot tall yellow birch and mixed softwoods, being derived from the senescence of a stand of balsam fir that has now died and fallen down. This provides the opportunity to demonstrate ecological succession in this forest type.

Finally, the majority of the trail route borders or is located within important riparian zones. These riparian zones are often the most ecologically significant habitats within a given forest. As such this trail provides educators with the opportunity to discuss riparian habitat dynamics and the importance of healthy riparian zones within our working forests.

Interesting to note that during demarcation of this trail in January of 2016, significant use of the riparian zone by various fauna was apparent. The jaw of a large rodent was found at one point, having been killed and consumed within the previous 24 hours. Such opportunities to see these ecological dynamics in almost real-time are significant.

Ecological Features

- 1- Eastern Hemlock along German Lake
- 2- Forest succession in real-time
- 3- Beaver skid-trails

Special Considerations

- A- Side-hill
- B- Picnic spot opportunity
- C- Wet area crossings
- D- Prospector Pit

Construction Considerations

Across the majority of German Lake Hill pit-and-mound topography creates unique trail-construction challenges. Additionally, much of this same section of trail is covered in young mixed-wood regeneration that hides fallen dead trees. This situation makes trail clearing progress slowly.

Significant amounts of standing dead wood exist throughout the entire trail length. These dead trees represent hazards to trail visitors. As such, some form of danger-tree removal program is recommended.

Wet-areas exist along the entire section of the trail that follows Otter Ponds Brook. These wet-areas are perhaps best addressed with corduroy construction using freshly harvested trees, not rotten dead-wood. Using freshly harvested trees for this corduroy will extend the life-time of the corduroy sections. However it does create challenges to ensure that trail construction volunteers/contractors make use of only those trees which ought to be harvested and not from trees that will serve an important role in the forest of the future.

Construction Time/Cost Estimate

Time- 14 person-days labour with chainsaw and clearing saw

Cost- \$4,200



Otter Ponds Marsh Loop

Length : Main Trail (Loop) 585m / Marsh View (Spur) 85m

Difficulty : Easy

Features : Softwood Forest, Marsh, Wetland Observation Post

Trail Description

The Otter Ponds Marsh Loop trail heads north from the main project road between the Otter Ponds bridge and the Visitor Centre. Travelling through a managed stand of 110 year old red spruce, the trail eventually passes by several old prospector sites and circles back to the Visitor center on the east side of the same stand of spruce.

A unique opportunity exists for wetland observation along this trail route. At the northern-most section of the trail, a spur trail is demarcated that enters into the wetland. This wetland is characteristic of the Otter Ponds. This spur trail is short and terminates along the still-water between the lower and middle Otter Ponds. An observation platform at ground-level along the still-water would provide the opportunity for visitors to observe the ecological dynamics of wetlands.

Educational Opportunities

Two unique educational opportunities exist along this trail that exist along no other: level, accessible terrain; and wetland habitat.

The entire trail route does not vary significantly in elevation. Level ground free from significant pit-and-mound topography makes this trail an excellent candidate for improved accessibility for physically-challenged visitors. Given the disproportionately old demographic of the landowner community, this may be something to consider for OPDF. Constructing the trail in such a way as to facilitate mechanically leveling the trail will make it accessible to an often under-served demographic. Considering the proximity to the Visitor Centre, the Otter Ponds Marsh Loop trail is a good candidate for this purpose.

Second, the Otter Ponds Marsh Loop trail also includes unique opportunities for education about wetland habitats. With the spur trail extending into the marsh north of the main trail, visitors can experience the importance of these areas for water regulation and filtration, biodiversity and wetland specific wildlife such as waterfowl. Constructing a ground-level observation platform along the aforementioned still-water would provide the opportunity for OPDF to undertake habitat augmentation interventions (such as waterfowl nesting habitat) that would further improve educational opportunities.

Finally, the managed 110-year-old spruce stand that the main section of this trail travels through is an excellent example of the challenges represented in managing softwood stands on shallow soil sites. Demonstrating non-clearcut harvest methods of management of these sites, as is currently being practiced here, provides contrast to landowners who are often advised that such management on shallow soils is not possible. Clearly communicating these management challenges, and communicating how OPDF is managing this site through alternative interventions is of significant value to landowners with similar sites.

Ecological Features

- 1- Nesting cavity
- 2- Wetland habitat
- 3- Hurricane Juan wind throw

Special Considerations

- A- Wet area requiring corduroy
- B- Ground-level observation platform

Construction Considerations

As mentioned above, OPDF ought to consider constructing this trail with physically challenged visitors in mind. If OPDF chooses to undertake this level of trail construction, consider clearing the trail to be approximately 5' wide and leveled with a small excavator.

The spur trail that extends into the marsh will require extra effort. To cross the poorly drained marsh ground, corduroy at a minimum will be required. Such a corduroy walk-way ought to be at least 4' wide. A ground-level observation platform along the still-water should be capable of comfortably holding 12 people. A rail would improve safety and the aesthetic feel of the observation post. Additionally, constructing habitat augmentation installations would increase the value of this trail.

Construction Time/Cost Estimate

Estimates based on simple trail construction that does not accommodate physically-challenged visitors

Time- 9 person-days labour with chainsaw and clearing saw

Observation Platform- ~\$1,000 materials

Cost- \$3,700



North-Pond Bluff Trail

Length : 1700m (Red)

Difficulty : Moderate

Features : Mature Softwood Forest, Ponds, Beaver Dam

Trail Description

The North-Pond Bluff provides visitors with access to the area north of the Otter Ponds south of the project boundaries. This area is characterised by mature red spruce mixed with stands of 40-60 year old mixed softwood stands. Leaving from the east side of the main road before visitors first get to the Otter Ponds gate, the route heads east towards the foot of the second pond. Crossing the Otter Ponds Brook at a narrow point, the view from this point provides excellent perspective of the middle pond and beaver dam. Continuing east and veering south, the trail tracks back towards the Powder Horn Hill Road.

Educational Opportunities

Excellent opportunities exist to demonstrate ongoing silviculture practices in mature and under-mature red spruce dominated stands. The majority of the stands through which this trail passes are generally healthy for their age and offer an excellent opportunity for demonstrating these silvicultural practices for years to come.

The section of the trail that crosses the Otter Ponds Brook and passes along the edge of the middle pond provides excellent opportunity to discuss the importance of riparian habitats and the value of such inland freshwater ecosystems for wildlife such as like salmonids and waterfowl. Opportunities exist for habitat augmentation projects for waterfowl, opening the door for partnerships with groups like Ducks Unlimited and Delta Waterfowl and the additional educational opportunities such relationships would entail.

Ecological Features

- 1- Marsh and pond habitat
- 2- Stream habitat
- 3- Mature red spruce forest

Special Considerations

- A- Wet area crossings
- B- Stream crossing at foot of
Second Otter Pond

Construction Considerations

Given Board conversations regarding forestry extraction routes extending along the north side of the ponds, construction of this educational trail should proceed only after such extraction route plans are finalised.

Construction Time/Cost Estimate

Time- 8 person-days labour with chainsaw and clearing saw
Cost- \$2,400



Otter Ponds Brook to Hawboldt's Farm Hill Trail

Length : 675m (Turquoise)

Difficulty : Moderate

Features : Riparian Habitat, Mixed-aged, Transition from Softwood to Hardwood Drumlin

Trail Description

The Otter Ponds Brook to Hawboldt's Farm Hill Trail creates a loop leaving from the Otter Ponds Bridge and reaching Hawboldt's Farm Hill, allowing visitors to return to the bridge area along the Hawboldt's Farm Hill Road.

This is a very accessible trail that avoids any difficult terrain features. Traversing mixed-aged softwood forest south of the Otter Ponds Bridge, the trail takes visitors south through softwood stands of varying ages and life-stages.

Passing out of the softwood the trail crosses a wet drainage where there appears to be a small seepage. This marks the north end of the Hawboldt's Farm Hill drumlin. From here the trail climbs through mixed-wood with an increasing hardwood component as the trail gains elevation. Eventually the trail terminates at the landing on the north end of Hawboldt's Farm Hill.

Educational Opportunities

The accessible nature of this trail increases its educational value to OPDF. From the Visitor Centre an easy hiking loop is created heading south on this trail to the Hawboldt's Farm Hill landing and back north to the Visitor Centre via the Hawboldt's Farm Hill Road. Additionally the gradual nature of slopes throughout this trail make it easily accessed by all ages.

There are several educational opportunities along this trail. Sensitive forested wet-areas along the northern section of the trail provide a unique opportunity to discuss forest management within such areas. Much of the forest land along the Otter Ponds Brook is forested with merchantable timber. However, these sites, due to their wet nature, are very vulnerable to disturbance, and once disturbed by inappropriate harvesting practices are especially slow to recover. Additionally, inappropriate harvesting practices in these areas can have a disproportionately negative effect on the riparian ecology along the brook. Many of these wet areas extend beyond the provincially protected 20m riparian buffer and could be intensively harvested within current regulations. By choosing not to harvest in these sensitive zones, OPDF has the opportunity to demonstrate to visitors shortcomings in provincial harvesting regulations and why a careful touch is warranted in this case.

The area south of the Otter Ponds Bridge and west of the Hawboldt's Farm Hill Road has been identified as a section of forest to be treated via Selection Management (Category 7c) silvicultural treatment in the coming years. This will create the opportunity to demonstrate silvicultural techniques in such multi-aged softwood forest. Given the accessible nature of this section of the project lands, OPDF may consider taking additional steps to demonstrate careful and experimental silvicultural techniques here.

Ecological Features

1- Softwood to hardwood transition

Special Considerations

A- Forested wet riparian areas

B- Wet swale

C- Softwood to hardwood transition

Construction Considerations

Much of this trail will be easy to construct. On gentle slopes though much of its length, little earth-moving will be necessary. One section passes through a mature stand of 120 year old red spruce with dense understory. Large trees brought to the ground by the wind block sections of the trail route and will need to be moved. While this does create some construction challenges, it is not expected to considerably complicate trail construction.

Construction Time/Cost Estimate

Time- 3 person-days labour

Cost- \$900



Hawboldt's Farm Hill Trail

Length : 1415m (Blue)

Difficulty : Easy

Features : Hardwood Drumlin, Mature American Beech, Hardwood Succession, Massive Yellow Birch, Mixed-wood Forest

Trail Description

The Hawboldt's Farm Hill Trail passes from the landing on the north end of Hawboldt's Farm Hill down the length of the hill to River Lake. The general trail route is gentle moving through the pit-and-mound topography of the hardwood drumlins. Heading south the route leaves the south end of the hill passing through an impressive mixed-wood stand containing very large red spruce and yellow birch. Eventually reaching the north shore of River Lake, a short loop off of the west side of the trail enters an intact stand of red spruce, circling around a seasonal bog.

Educational Opportunities

This trail contains the best opportunity to discuss tolerant hardwood management on the project lands. The entire hardwood drumlin is covered in overmature red maple with mixed yellow birch and sugar maple scattered throughout. In the understory of these large trees is an abundance of young yellow birch regeneration. This yellow birch regeneration relies upon the influence from adjacent tall trees, pushing them to grow taller with higher stem quality. This represents a great opportunity to share with trail visitors the importance of careful management of hardwood stands, and of tolerant hardwood succeeding intolerant hardwoods. Three rare mature American beech also live on the north end of the hill. This trail passes adjacent to them. Regularly visible on the trunk of these trees are the claw marks of bears climbing the trees for their beech nuts. This is another significant educational opportunity, allowing guides to share with trail guests the story of the American beech's decline, and the loss of this important mast crop on wildlife.

Ecological Features

- 1- Mature American beech
- 2- Very old, large yellow birch
- 3- Deer bedding tree

Special Considerations

- A- River Lake Picnic Spot
- B- Vernal pool east of trail on east side of hill

Construction Considerations

Significant pit-and-mound topography makes this trail a very uneven one. OPDF managers may consider that this trail be smoothed out once it is cleared of trees and debris. This trail is relatively accessible and passes through an important forest type. As such it has important educational value.

A significant amount of red maple is expected to be harvested from this hill in the coming years. As such, trail construction ought to take into account how harvesting will take place so as to avoid conflict with harvest operations. Likewise, harvesting ought to recognise the importance of the trail route and special considerations be taken during harvesting to protect its integrity and educational value.

Finally, the termination point of this trail is to be determined. Harvesting operations will see a forestry extraction trail to be established at the south end of Hawboldts Farm Hill connecting with the River Lake Road. Once this extraction trail is established OPDF officers will be best able to determine how and where this trail terminates and accesses the River Lake Road.

Construction Time/Cost Estimate

Time- 3 person-days labour with chainsaw and clearing saw
Cost- \$900



Hawboldt's Farm Hill Shortcut

Length : 620m (Orange)

Difficulty : Moderate with difficult sections

Features : Hardwood Drumlin, Vernal Pool, Forested Wetland, Softwood Forest, Precommercial Thinning

Trail Description

This short trail is meant to connect the Hawboldt's Farm Hill trail with the roads to the east.

Leaving the hill on its north-east end, this trail cuts east off of the hill through the forested bog that borders the hill's east side. Crossing a small brook at the foot of the hill, the trail climbs back up a low ridge of mature red spruce. Following this ridge to the east and south, the trail enters into the thick regenerating softwood stand that was clearcut harvested in the 1990s. Leaving this thicket on its east side, the trail then meets up with the River Lake Shortcut.

Educational Opportunities

The most valuable educational opportunity of this trail is the connection that it provides between Hawboldt's Farm Hill and the low spruce ridges to its east. Leaving from the Visitor's Centre, visitors from the trail can hike south down to Hawbolts Farm Hill, along the hill, east through this trail and over to the Powder Horn Hill Road, closing the loop by hiking back along that truck road to the visitor's centre. This will allow visitors to view the full diversity of forest habitats on the project lands, along with important road infrastructure.

Ecological Features

- 1- Vernal pool on east side of Hawboldt's Farm Hill
- 2- Forested wetland
- 3- Pre-commercial thinning

Special Considerations

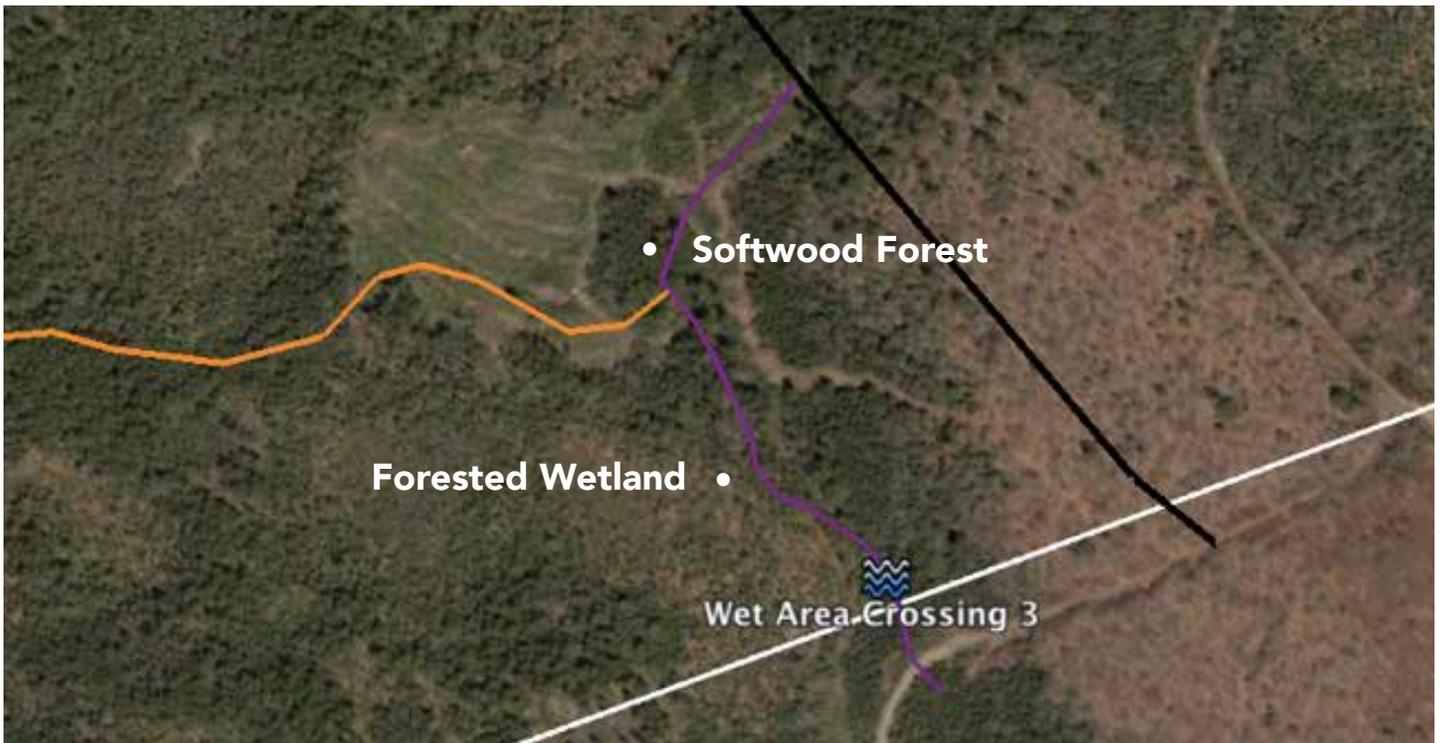
- A- Small bridge crossing
- B- Thicket that slows trail construction

Construction Considerations

The section of trail that leaves Hawboldt's Farm Hill below the vernal pool is difficult ground to build a trail through. There is a lot of broken rock leading up to the forested wetland that will have to be reconciled if a safe trail is to be built through it. Additionally, there is a small stream to cross east of this point which will require a short section of corduroy on either end to make the trail reasonable to hike during wet times of the year. Finally, traversing through the recent cutover requires clearing of thick softwood regeneration which is both time consuming and labour intensive.

Construction Time/Cost Estimate

Time- 6 person-days labour with chainsaw and clearing saw
Cost- \$1,800



River Lake Hill Shortcut

Length : 410m (Purple)

Difficulty : Easy

Features : Softwood Forest, Forested Wetland, River Lake

Trail Description

This trail provides an easy hiking route from the central project lands to the road along the north side of River Lake, thereby avoiding the hike up River Lake Hill.

For example, visitors leaving from the north landing of Hawboldts Farm Hill hiking south the length of Hawboldts Farm Hill Trail can return to the landing by hiking east on the River Lake Road, turning north along the River Lake Shortcut and west again where the Hawboldts Farm Hill Shortcut trail meets the River Lake Hill Shortcut trail. This creates an easily manageable circuit route that visitors can use to see most of the ecological and silvicultural diversity of the project lands.

Outside of providing a convenient route around the steep roads ascending River Lake Hill, this shortcut also skirts along forested wetland on the western side of River Lake Hill. Terminating at its south end at the River Lake Road, this trail has a short section on adjacent private property.

Educational Opportunities

The most significant opportunity that this trail provides is creating the convenient circuit along the route described above. These circuit routes are imperative to creating a first class educational experience at Otter Ponds. By way of these circuits guides can avoid covering the same ground more than once, significantly improving visitor's experience.

Additionally, the forested wetland adjacent to the west side of River Lake Hill provides the opportunity to discuss the importance of such forested wetlands in providing ecological habitat and filtering water. Moving through varying softwood forest habitats at its northern end, this trail also provides the opportunity to discuss forest management of dense, young red spruce forest types.

Ecological Features

- 1- Forested wetland
- 2- Softwood forest

Special Considerations

- A- Small wet-area crossing
- B- Side-hill route
- C- Crosses private land

Construction Considerations

The southern half of this trail passes adjacent to a forested wetland at the foot of a significant slope. As such, a combination of corduroy road in wet sections along with cutting away steep sections to better facilitate a level walking surface will be required.

Also important to consider is that the southern section of this trail terminates on adjacent private land where it meets the River Lake Road. The OPDF Trails Committee needs to ensure that the appropriate conversations and agreements are made with this private landowner to ensure cooperation.

Construction Time/Cost Estimate

Time- 3 person-days labour with chainsaw and clearing saw
Cost- \$900



Long Hill Loop

Length : 830m (Red)

Difficulty : Easy

Features : Regenerating Mixed-wood Forest

Trail Description

This trail passes through a regenerating clear-cut that has strong links to the genesis of the Otter Ponds Demonstration Forest.

In the spring of 2009, under lease via the Scott Maritimes Act, Northern Pulp contractors began harvesting this section of forest. This area was slated to be clearcut harvested as it contained over-mature balsam fir mixed with both tolerant and intolerant hardwood species. It was this act of clearcutting that brought together the groups that now constitute the board of directors of the OPDF.

Today, this area is quickly regenerating with yellow birch, balsam fir, red maple and red spruce, with other species mixed throughout.

Beginning on the east side of the Mooseland Road, this trail completes a quick loop that passes down off of the edge of this drumlin.

Educational Opportunities

The purpose of this trail is to demonstrate how OPDF management of this cutover is working to guide its regeneration to ensure diversity of species and mixed-wood forest more characteristic of the Acadian Forest. This section of forest is quickly regenerating and will soon be ready for pre-commercial treatments such as pre-commercial thinning. Ensuring that the trail is maintained throughout such treatments will be important for continuously sharing how this site is being managed.

Ecological Features

- 1- Regenerating forest
- 2- Pre-commercial thinning

Special Considerations

- A- None

Construction Considerations

Constructions for this trail loop are few. With the area being very recently harvested, clearing of the trail route consists of clearing thicket along the entire trail route. In some places brush and harvesting debris must be cleared to create a safe trail surface.

Construction Time/Cost Estimate

Time- 6 person-days labour with chainsaw and clearing saw
Cost- \$1,800

OPDF Canoe Portage Routes



***Portage routes identified in white**

Otter Ponds Demonstration Forest exists within the watershed of the Tangier River. This river system supports significant recreational activities like canoeing and fishing. As such, the opportunity exists to improve access for these recreational users to the project lands by way of a clearly demarcated and well maintained portage route system. By developing portage and canoe routes that allow recreational users to more easily access the Otter Ponds, the OPDF will increase the awareness of the project to the greater public.

During the Trail Visioning Workshop in February of 2016, it was heard that establishing portage routes through the project lands was of secondary importance to developing a well marked, safe educational trail network. Therefore, the herein mentioned portage route network is briefly described, however in less detail than the hiking trails. Portage routes are not demarcated with flagging tape within the project lands.

Well defined and marked portage routes are needed to allow users to easily move between navigable waterways.

Where appropriate, hiking trails can be used as portage routes. Design and construction standards are similar for both hiking trails and portage routes. However, portage routes should be free of overhead obstructions and tight turns that are acceptable for hiking paths are not acceptable for portaging. In this way, OPDF will be able to ensure that the established Otter Ponds Trail Network is as efficiently designed for a maximum amount of users possible using the same trails.

For example, canoeists travelling from German Lake up Otter Ponds Brook and into the Otter Ponds can make use of the appropriate sections of the German Lake Hill-George's Point trail, traveling north to the Otter Ponds Brook Bridge, then up the Otter Ponds Marsh Trail to the viewing platform to access the Otter Ponds.

Additionally, users wanting to access the Second and Third Otter Ponds from the first can make use of a section of the North-Bluff Trail. While this route will require a new trail section from the eastern-most point of the First Otter Pond to the North Bluff Trail, the additional trail required here is minimal.

Portage Route Signage

Just as is the case with hiking trails, route signage is necessary at all portage route 'trail-heads' to clearly communicate to users where they are, where portage routes are and how they interact with other trails in the network. Ensuring that portage routes have easy to understand signage at all portage route trail-heads is equally as necessary.