

FIFTH LINE – 22 SIDEROAD (LIMEHOUSE CA AND AREA)

Region of Halton	NAI Area # 7497	Credit Valley Conservation Authority
Town of Halton Hills	Size: 176 hectares	Watershed: Credit River
Con 5, Lots 21-22; Con 6, Lots 18-22	Ownership: 58% private, 42% public (Credit Valley Conservation)	Subwatershed: Black Creek

General Summary

This is a large natural area in relatively good condition and with high biodiversity. A substantial portion of this area is included in Limehouse Conservation Area, receiving moderate passive recreational use. There is a prominent west-facing escarpment face within the conservation area. Exposed escarpment cliffs, caves and crevices distinguish this highly aesthetic area. The limestone substrate supports several rare calciphilic plant species. Black Creek flows through a valley and associated streams feed into it. The crevices may also provide habitat for bat hibernacula, which bears further investigation. Vegetation communities are primarily forests with wetlands along Black Creek and Beeney Creek and in low-lying depressions. The area supports several Species At Risk as well as provincially and regionally rare species and communities.

The lime kilns here constitute an important historical site.

NAI ELC surveyors inventoried vegetation communities of the private, non-conservation area part of this natural area (Table 1). In 2002, CVC consultants conducted vegetation community inventories within the conservation area portion of this site. Thus total ELC coverage is 65% of the natural area (determined by access permission). Botanical, breeding bird, butterfly, dragonfly/damselfly and herpetofaunal inventories were conducted in 2003 and 2004 by Halton Natural Areas Inventory (HNAI) biologists using a methodology similar to that of this NAI (Dwyer, 2006). Data from the Halton Natural Areas Inventory surveys is included in the NAI data set. Additional data was contributed by various individuals. This combined body of knowledge about this natural area is presented here. With respect to the NAI core inventories (vegetation communities, plants, breeding birds), this area is considered data-complete. Fish species were inventoried from stations both within the natural area and from upstream and downstream sampling stations. As there are no barriers between this natural area and the upstream station and this area and the downstream station, the data collected at these other stations was extrapolated to this natural area and combined with the data from on-site. An audio bat inventory was conducted in 2007 on the conservation area property.

Table 1: NAI Field Visits

Visit Date	Inventory Type
Unspecified 1995	Fish
24 Oct. 1996	Fish
08 Oct. 1999	Fish
14 Oct. 1999	Fish
30 Aug. 2007	Fauna
31 Aug. 2007	Fauna
03 Sept. 2007	Fauna

15 July 2008	ELC
16 July 2008	ELC
18 July 2008	ELC
21 July 2008	ELC
21 Aug. 2008	Fish
25 Aug. 2008	Fish

Natural Feature Classifications and Planning Areas

This natural area is part of:
 ESA - Limehouse Cliffs ESA
 Niagara Escarpment Plan
 Greenbelt Plan

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Physical Features

This area is in the Niagara Escarpment physiographic region; characterized by an escarpment that forms a significant break in the bedrock of the region. The escarpment has formed from the differing erosion rates of the bedrock layers, the softer lower shale layers eroding out from under the hard dolostone cap rock until portions of the cap rock collapse to form a cliff face and talus slope.

There is cliff face and talus slope within the Limehouse Conservation Area part of this site. Crevices are present for a short distance back from the rock face. This area is well-known for Hole-in-the-Wall, a spot where the Bruce Trail drops down a crevice and between large cliff blocks via a ladder, exemplifying the escarpment geology of the area. The railway cut along the northern border of this site has good exposures of Silurian bedrock and is a locally significant earth science Area of Scientific and Natural Interest (ANSI) (Natural Heritage Information Centre, 2010; North-South Environmental, 2004).

Black Creek flows east through this natural area and then turns south at the point where it is joined by Beeney Creek, a small tributary of Black Creek.

Human History

The nearby community of Limehouse was first settled in 1820. By the 1840's limestone quarrying and "burning" of limestone in kilns to make lime, had begun. The Grand Trunk Railway built its line through Limehouse in 1856 which required 200 workers and their families to settle in the area. Many of these families stayed in the community after the rail line was completed. Besides the lime industry, there was also a woollen mill, sawmill and a paint factory (using coloured clay from the area) (Gibson, Undated; Lewis, 2010; McIlveen, 2006).

Parts of this natural area were cleared for logging and agricultural purposes. Some of the land may have been grazed.

The lime kilns provided mortar for local buildings from the 1840's until about 1915. At this time, a dammed mill pond existed along Black Creek in the north-west corner of this natural area and provided water power to lime industry buildings and to a sawmill. The pond has reverted to marshland when the dam was broken. A railway once bisected the area below the cliffs and the old railbed is visible. The remains of the lime kilns still exist and a local organization has formed to protect and restore this historic site. In about 1967, CVC acquired approximately 200 acres to be set aside as Limehouse Conservation Area.

Limehouse Conservation Area occupies almost half of this natural area. It is developed for passive recreations (hiking) on a network of hiking trails, of which the Bruce Trail is a part. The conservation area receives moderate-high use as a section of the Bruce Trail and the lime kilns are popular attractions.

This area is bordered by Fifth Line on the west side, by a railway line to the north and a narrow part along Black Creek extends to Sixth Line where the creek crosses under the road. Surrounding land use is agricultural, regenerating old fields, rural residences and recreational manicured area with two baseball diamonds.

Vegetation Communities

The general community types present are open rock barren (<1%), coniferous forest (6%), deciduous forest (34%), mixed forest (14%), marsh (4%), cultural meadow (4%), cultural thicket (5%), cultural savannah (11%), cultural woodland (15%) and plantation (6%).

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A total of 66 vegetation communities of 24 different types were mapped over the 65% of this area to which the NAI ELC crew and consultants had access (Table 2). Cliff and talus communities are regionally rare and although these communities are too small in extent here to be mapped as distinct communities, they are nonetheless present. The two communities of Fresh-Moist Sugar Maple – Hemlock Mixed Forest (FOM6-1) are regionally rare.

Table 2: ELC Vegetation Communities

Map reference *	Vegetation type	Size in hectares	% of natural area
RBO1-1	Dry Carbonate Open Rock Barren	0.11	0.06
FOC3-1	Fresh-Moist Hemlock Coniferous Forest (2 communities)	2.35	1.34
FOC4-1	Fresh-Moist White Cedar Coniferous Forest (6 communities)	3.83	2.18
FOD3-1	Dry-Fresh Poplar Deciduous Forest (6 communities)	12.81	7.29
FOD4-1	Dry-Fresh Beech Deciduous Forest	0.56	0.32
FOD4-2	Dry-Fresh White Ash Deciduous Forest (4 communities)	9.18	5.23
FOD5-1	Dry-Fresh Sugar Maple Deciduous Forest (7 communities)	19.06	10.85
FOD5-3	Dry-Fresh Sugar Maple – Oak Deciduous Forest	1.97	1.12
FOD5-4	Dry-Fresh Sugar Maple – Ironwood Deciduous Forest	1.47	0.83
FOD5-10	Dry-Fresh Sugar Maple – Paper Birch – Poplar Deciduous Forest (2 communities)	7.23	4.11
FODM5-11	Dry – Fresh Sugar Maple – Hardwood Deciduous Forest	2.27	1.29
FOM3-1	Dry-Fresh Hardwood Hemlock Mixed Forest	1.15	0.66
FOM3-2	Dry-Fresh Hemlock – Sugar Maple Mixed Forest (2 communities)	9.36	5.33
FOM6-1	Fresh-Moist Sugar Maple – Hemlock Mixed Forest (2 communities)	6.33	3.60
FOM7-2	Fresh-Moist White Cedar – Hardwood Mixed Forest (2 communities)	1.68	0.96
FOMA-A	Fresh-Moist White Pine – Sugar Maple Mixed Forest (2 communities)	4.02	2.29
MAM2-2	Reed-canary Grass Mineral Meadow Marsh (4 communities)	4.69	2.67
MAM2-10	Forb Mineral Meadow Marsh	0.67	0.38
MAS2-1	Cattail Mineral Shallow Marsh (3 communities)	0.36	0.20
THDM2-11	Hawthorn Deciduous Shrub Thicket	2.23	1.27
CUT1-1	Sumac Cultural Thicket (5 communities)	6.34	3.61
CUS1-1	Hawthorn Cultural Savannah (7 communities)	9.06	5.15
CUW1-A2	White Pine Cultural Woodland	6.34	3.61
CUP3-2	White Pine Coniferous Plantation (3 communities)	4.44	2.53
	TOTAL AREA INVENTORIED	117.51	

* Note: The map reference code refers to the vegetation type shown on mapping for this area and also to the Appendix list of species typically encountered in this vegetation type.

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Species Presence

Vascular Plants

Plant biodiversity is high in this area. A total of 410 vascular plant species are recorded for this area, of which 291 (71%) are native. One of these, Butternut (*Juglans cinerea*), is Endangered both nationally and provincially, as well as being provincially rare (S-rank S3?; Table 3). One sapling and thirteen older Butternut trees were noted, most of which are mature trees. Cooper's Milkvetch (*Astragalus neglectus*, S-rank S3) is provincially rare. Twenty-one species are regionally rare (Table 4).

Birds

A total of 79 species of breeding birds are recorded, of which 77 (97%) are native. Four of these are Species At Risk. Bobolink (*Dolichonyx oryzivorus*) is Threatened nationally and provincially, Golden-winged Warbler (*Vermivora chrysoptera*) and Canada Warbler (*Wilsonia Canadensis*) are Threatened nationally and Special Concern provincially and Eastern Meadowlark (*Sturnella magna*) is Threatened nationally.

Interior forest habitat is present at this site, supporting eight species of area-sensitive forest interior birds, namely Hairy Woodpecker (*Picoides villosus*), Pileated Woodpecker (*Dryocopus pileatus*), Brown Creeper (*Certhia americana*), Winter Wren (*Troglodytes troglodytes*), Red-breasted Nuthatch (*Sitta canadensis*), Veery (*Catharus fuscescens*), Ovenbird (*Seiurus aurocapilla*) and Scarlet Tanager (*Piranga olivacea*). This site also supports three species of colonial-nesting birds, Great Blue Heron (*Ardea herodias*), Green Heron (*Butorides virescens*) and Bank Swallow (*Riparia riparia*), and at least three raptor species, Broad-winged Hawk (*Buteo platypterus*), Northern Goshawk (*Accipiter gentilis*) and Barred Owl (*Strix varia*). It supports one species of waterfowl, Common Merganser (*Mergus merganser*). Early successional habitat here supports six species of grassland birds, Bobolink, Eastern Kingbird (*Tyrannus tyrannus*), Eastern Meadowlark, Savannah Sparrow (*Passerculus sandwichensis*), Vesper Sparrow (*Pooecetes gramineus*) and Field Sparrow (*Spizella pusilla*); of which three species (Bobolink, Eastern Meadowlark, Savannah Sparrow) are area-sensitive. Common Raven (*Corvus corax*) was found here, a species expanding its range south into the Credit River watershed.

Fish

Eighteen species of fish are recorded, of which 15 (83%) are native. One of these is a 1988 record of American Eel (*Anguilla rostrata*), which is designated Special Concern nationally and Endangered provincially (Table 3). Three additional species are known from historic records including the nationally and provincially Endangered Redside Dace (*Clinostomus elongates*). Redside Dace is also provincially rare (S-rank S2). This natural area supports coldwater fish communities. Brook Trout (*Salvelinus fontinalis*), a coldwater stream species, was found in Black Creek.

Butterflies, Skippers and Moths

A total of 23 butterfly, skipper and moth species were recorded, of which 22 (96%) are native. One of these species, Monarch (*Danaus plexippus*), is Special Concern nationally and provincially (Table 3). Some incidental moth species records are collected for this natural area.

Dragonflies and Damselflies

Fourteen dragonfly and damselfly species were recorded, all of which are native. Two of these, Swamp Spreadwing (*Lestes vigilax*) and Sweetflag Spreadwing (*Lestes forcipatus*) are regionally rare in Halton Region (Dwyer, 2006).

Herpetofauna

Thirteen herpetofaunal species were recorded, all of which are native. One of these, Eastern Milksnake (*Lampropeltis triangulum triangulum*), is Special Concern nationally and provincially (Table 3). It is also provincially rare (S-rank S3). The remaining herpetofauna present here consist of six

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frog/toad species, two salamander species, one turtle species and three snake species. An historic record exists of a Northern Red-bellied Snake (*Storeria occipitomaculata occipitomaculata*) (pre-1990; Macadam, 1999) either in or near this natural area.

Mammals

Sixteen species of native, common mammals were detected here, including five bat species based on an acoustic bat survey. One of these, the Northern Long-eared Bat (*Myotis septentrionalis*), is provincially rare (S-rank S3?). Undated records exist of Mink (*Mustela vison*), observed within the conservation area along Black Creek.

Table 3: Designated Species At Risk

Scientific name	Common name	COSEWIC	COSSARO	S rank	G rank
BIRDS					
<i>Dolichonyx oryzivorus</i>	Bobolink	THR	THR	S4B	G5
<i>Wilsonia canadensis</i>	Canada Warbler	THR	SC	S4B	G5
<i>Sturnella magna</i>	Eastern Meadowlark	THR		S5B	G5
<i>Vermivora chrysoptera</i>	Golden-winged Warbler	THR	SC	S4B	G4
BUTTERFLIES					
<i>Danaus plexippus</i>	Monarch	SC	SC	S2N,S4B	G5
FISH					
<i>Anguilla rostrata</i>	American Eel	SC	END	S5	G4
<i>Clinostomus elongatus</i>	Redside Dace	END	END	S2	G4
HERPETOFAUNA					
<i>Lampropeltis triangulum triangulum</i>	Eastern Milksnake	SC	SC	S3	G5T5

Table 4: Regionally Rare Vascular Plant Species (Kaiser, 2001)

Scientific name	Common name	S rank	G rank
VASCULAR PLANTS			
<i>Asclepias exaltata</i>	Poke Milkweed	S4	G5
<i>Asplenium rhizophyllum</i>	Walking Fern	S4	G5
<i>Asplenium trichomanes ssp. trichomanes</i>	Maidenhair Spleenwort subspecies	SU	G5T5
<i>Astragalus neglectus</i>	Cooper's Milkvetch	S3	G4
<i>Brachyelytrum erectum</i>	Bearded Short-husk	S4S5	G5
<i>Carex cryptolepis</i>	Northeastern Sedge	S4	G4
<i>Carex trisperma var. trisperma</i>	Three-seed Sedge subspecies	S5	G5T5
<i>Dicentra cucullaria</i>	Dutchman's Breeches	S5	G5
<i>Heracleum lanatum</i>	Cow-parsnip	S5	G5
<i>Hydrophyllum canadense</i>	Blunt-leaf Waterleaf	S4	G5
<i>Hypericum punctatum</i>	Spotted St. John's-wort	S5	G5
<i>Lobelia cardinalis</i>	Cardinal Flower	S5	G5
<i>Monotropa hypopithys</i>	American Pinesap	S4	G5
<i>Penstemon hirsutus</i>	Hairy Beardtongue	S4	G4
<i>Physalis heterophylla</i>	Clammy Ground-cherry	S4	G5
<i>Polypodium virginianum</i>	Rock Polypody	S5	G5
<i>Salix nigra</i>	Black Willow	S4?	G5

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<i>Symphyotrichum pilosum</i> var. <i>pilosum</i>	White Heath Aster variety	S5	G5T5
<i>Symphyotrichum urophyllum</i>	Arrow-leaved Aster	S4	G4G5
<i>Teucrium canadense</i> ssp. <i>canadense</i>	Canada Germander	S5?	G5TR
<i>Triosteum aurantiacum</i>	Coffee Tinker's-weed	S5	G5

Site Condition and Disturbances

This natural area is large, and while a good portion exists as a cohesive core area in and adjacent to the conservation area, other parts are highly fragmented with patches linked only narrowly. In spite for the fragmentation, the area still has high biodiversity and high habitat diversity.

Forest age is variable and currently regenerating from historic land clearing for logging, agriculture and grazing purposes.

Most of this area is part of Limehouse Conservation Area and this portion has been impacted by widespread well-marked trails (including the Bruce Trail) and the presence of two ball diamonds. Recreational use is light to moderate, littering is light. Some damage has been sustained by unauthorized ATV use, fire-pits and camping. Shotgun shells were found. The lime kilns have been vandalised in the past. Some trampling of limestone plants is apparent (North-South Environmental, 2004).

Non-native species are occasional to abundant and widespread. Part of this may be due to the area's history as a busy commercial area with rail lines running through the area as well as nearby. Notable problematic invasive species present here are Garlic Mustard (*Alliaria petiolata*), Common Buckthorn (*Rhamnus cathartica*), Dame's Rocket (*Hesperis matronalis*) and Norway Maple (*Acer platanoides*).

Remnants of early limestone quarry operations exist including lime kilns and a man-made pond. Some of the track-bed from an abandoned rail-way is also visible. An old building foundation, and discarded farm machinery are also present. Noise from a nearby active quarry can be heard from this site.

Ecological Features and Functions

All of this natural area is part of Limehouse Cliffs ESA (valley related).

With forest communities greater than 4 ha, wetlands over 0.5 ha in size and cultural thicket/cultural savannah totalling over 10 ha, this natural area has the potential to support and sustain biodiversity, healthy ecosystem functions and to provide long-term resilience for the natural system. The riparian areas provide a transitional zone between terrestrial and aquatic habitats, helping to maintain the water quality of the creek, and providing a movement corridor for plants and wildlife.

By containing a relatively high number of habitat types, this natural area has the potential for high biodiversity function, particularly for species that require more than one habitat type for their life needs. This natural area contains regionally rare vegetation communities and thus has the potential to support additional biodiversity above and beyond that found in common community types.

Linkages to other natural areas exist to the north, upstream along Black Creek, and to the south and west along Black Creek in the downstream direction. Connectivity also exists between this natural area and smaller habitat patches to the north across 22 Sideroad and to the west across Fifth Line, although these connections are interrupted by manicured lots associated with residences. There is a broad area of linkage to with a natural area to the northeast, across Sixth Line. The relatively close proximity of other areas of natural habitat creates above-average potential for wildlife movement between natural areas, species dispersal and recovery from disturbance, creating additional resilience for the ecosystem.

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Black Creek, a major tributary of the Credit River, runs through this area and thus supports the connectivity function of the Credit River and its tributaries by providing a natural habitat corridor that facilitates the cross-regional movement of wildlife along this corridor between major provincial corridors.

Exposed limestone cliffs, caves and crevices are a distinctive character of this natural area and support calciphilic plants.

This site contains regionally rare vegetation communities.

This site supports eight Species At Risk (one plant species, four bird species, one butterfly species, one fish species, one snake species). The historical data also includes another Species At Risk fish species in addition to the one noted. Also, four provincially rare species (two plant species, one snake species, one bat species) occur here as well as 21 regionally rare plant species.

Interior forest habitat is present at this site, supporting eight species of area-sensitive forest interior birds.

This site also supports three colonial-nesting bird species, one species of waterfowl, at least three raptor species and six grassland bird species. Three of the grassland bird species are area-sensitive.

Wetlands of this area support amphibian breeding.

Based on the above features, this area should be evaluated to determine if significant wildlife habitat is present in accordance with the Provincial Policy Statement.

Opportunities

As a moderately-used public area, particularly with a network of hiking trails throughout, this area would be a good candidate for invasive species mapping, in order to identify areas where controls might be affected as well as to monitor the spread of these problematic species over time. In particular, a patch of sapling Norway Maples (*Acer platanoides*) growing within a cultural savannah in the northwest corner of the conservation area might be a good control target. Educational signage at the conservation area property might help to raise awareness of ecosystem issues such as fragmentation, invasive species and disturbance impacts.

Groundwater seepage was reported in the 1979 ESA report for this natural area and a search is warranted to determine if it persists. There are several rare species that are associated with seepages, so identifying areas of seepage may help to guide additional surveys for rare species.

Some regenerating old fields could be maintained as meadows by periodic mowing (every 3-5 years) to prevent succession to treed communities and providing habitat for grassland birds. Mowing should be done after the young of grassland birds have fledged.

The health of the Butternut trees present at this site could be assessed by a Butternut Assessor to determine whether any might be candidates for inclusion in the Butternut recovery program.

Opportunities exist to enhance linkages with nearby natural habitat patches, including support for landowners to increase the width of wildlife movement corridors by planting native trees and shrubs.

Mink are known from this area and a targeted search might reveal their den sites, considered to be significant wildlife habitat.

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This natural area contains seven mature forest communities which should be checked for old-growth forest characteristics.

The geology of this site allows for the possibility of bat hibernacula. With hibernating species detected at this site in late summer, additional surveys targeted for locating hibernacula are warranted.

Literature Cited

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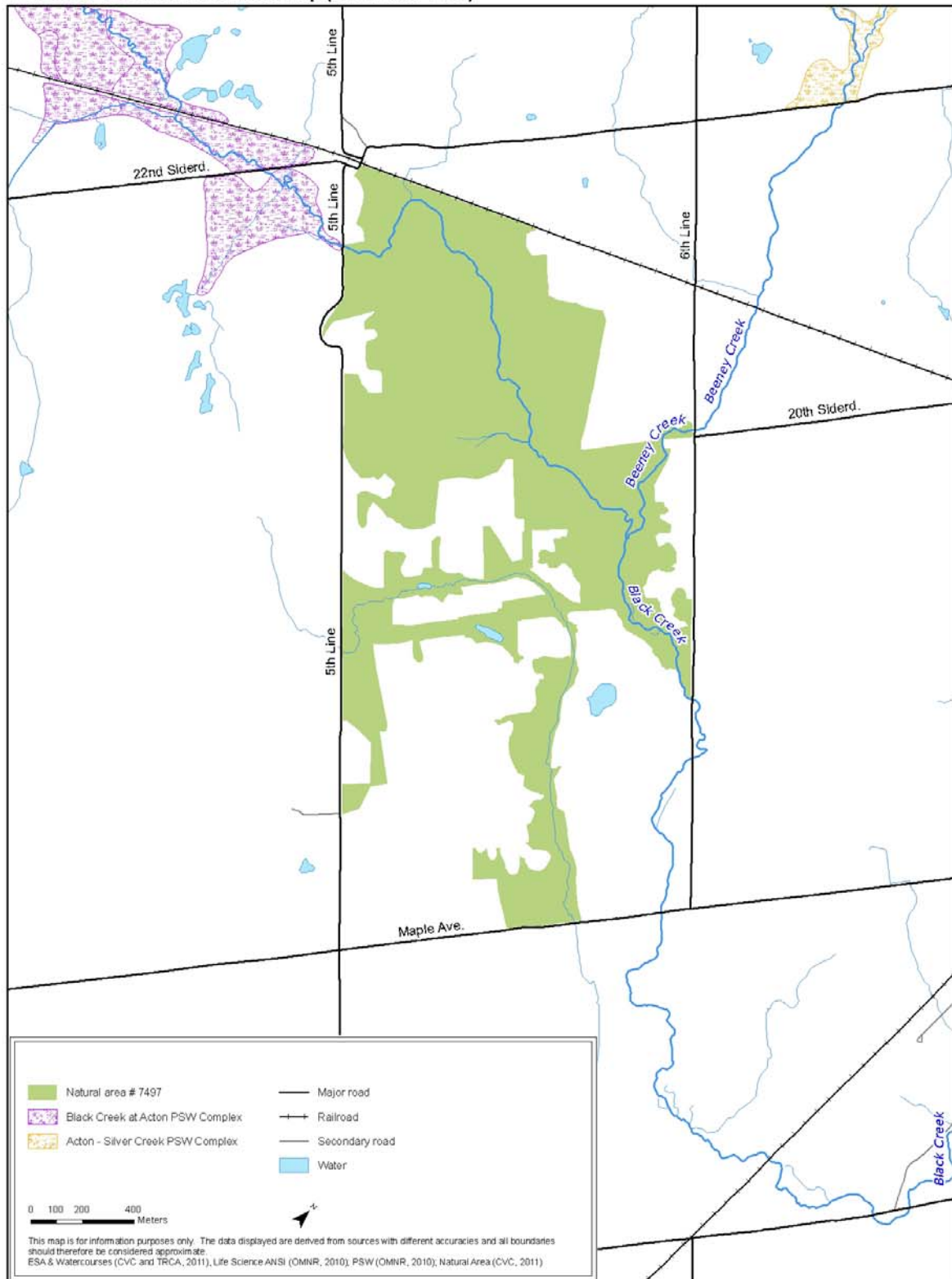
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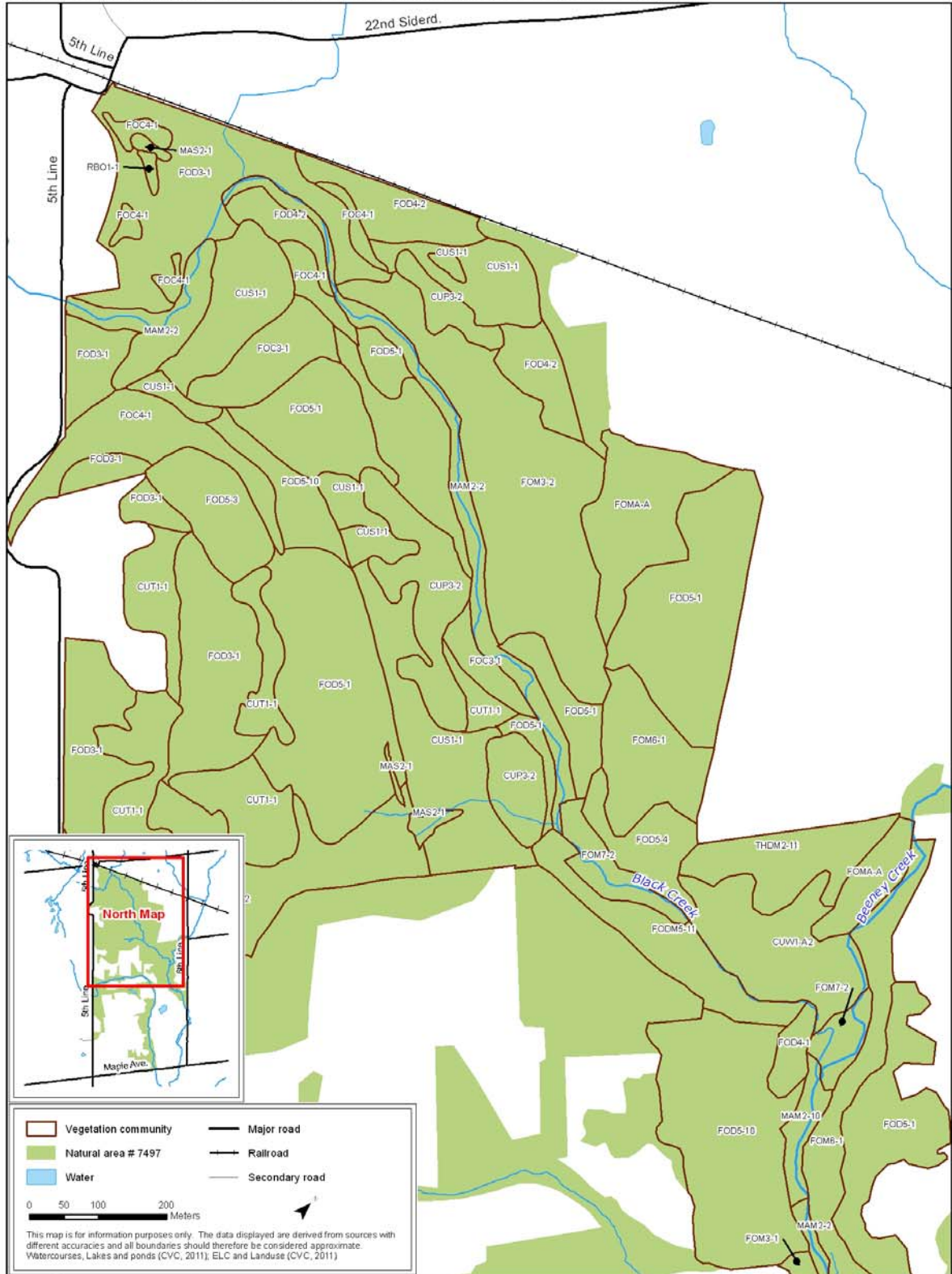
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Fifth Line - 22 Sideroad Context Map (NAI Area # 7497)



FIFTH LINE – 22 SIDEROAD (LIMEHOUSE CA AND AREA)

Fifth Line - 22 Sideroad Vegetation Communities Map (North NAI Area # 7497)



FIFTH LINE – 22 SIDEROAD (LIMEHOUSE CA AND AREA)

Fifth Line - 22 Sideroad Vegetation Communities Map (South NAI Area # 7497)

