

BIEAP-FREMP



Habitat Inventory

Burrard
Inlet
Environmental
Action
Program



Fraser
River
Estuary
Management
Program

BIEAP and FREMP

The Burrard Inlet Environmental Action Program (BIEAP) and the Fraser River Estuary Management Program (FREMP) are inter-governmental partnerships established to coordinate the environmental management of two significant aquatic ecosystems in the Lower Mainland of BC. Since 1996, the two partnership programs have been jointly administered from an office in Burnaby.

Two main roles:

- Policy/Planning Coordination
- Coordinated Project Review

BIEAP-FREMP Partners

- Fisheries and Oceans Canada
- Environment Canada
- Ministry of Environment
- Metro Vancouver
- Port Metro Vancouver

BIEAP-FREMP Area



FREMP Habitat Inventory & Classification Systems

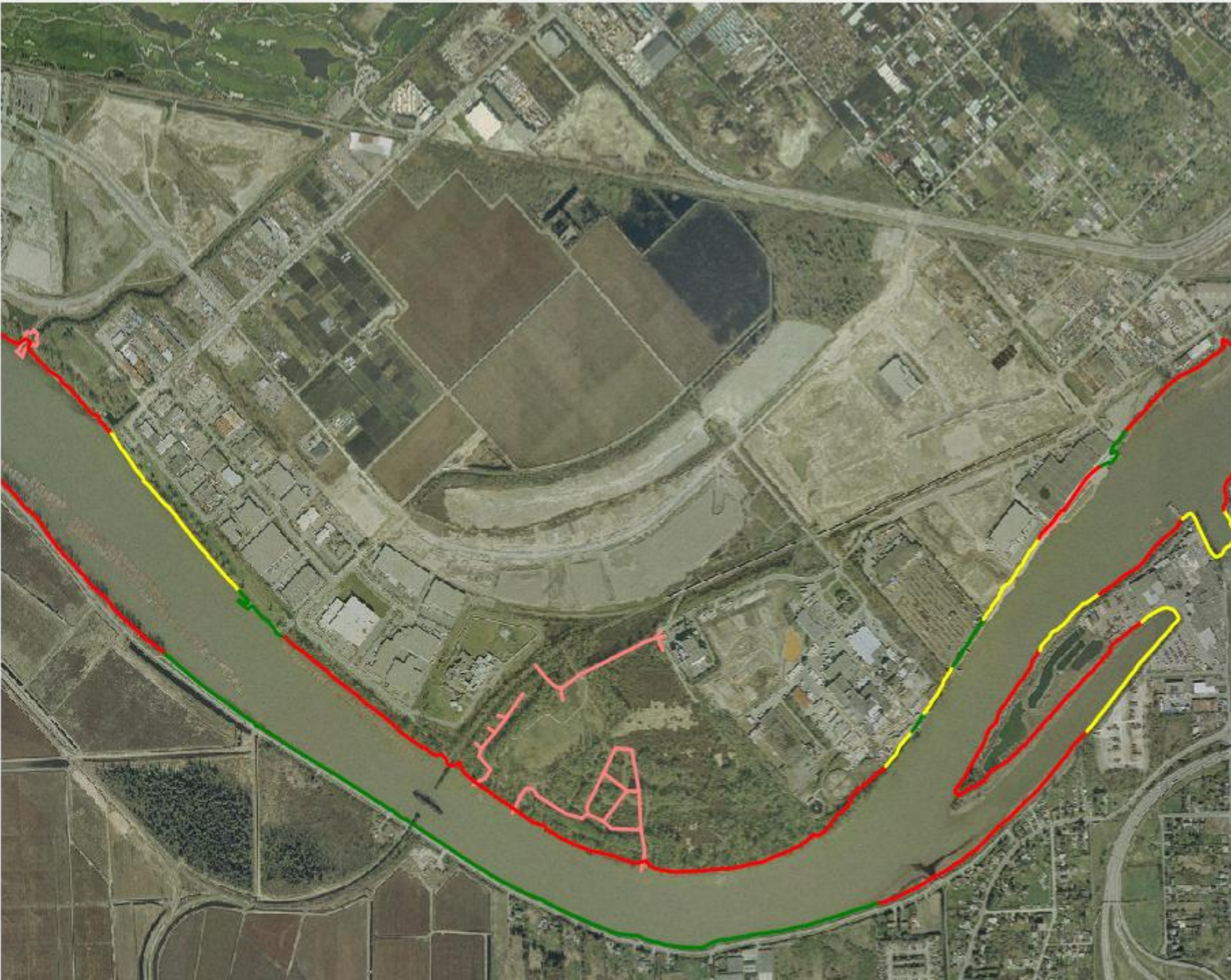


Shorelines classified on the basis of the relative values of habitat features

Three-tiered “colour coding” system (red, yellow and green)

The classification system is based on an inventory of all habitat types in the estuary

- Layers**
- Colour Coding
 - Colour Coding
 - High Productivity
 - Moderate Productivity
 - Low Productivity
 - Habitat Inventory (2006, updated 2007)
 - First Order Habitat
 - Intertidal
 - Riparian
 - Other
 - NULL
 - Second Order Habitat
 - Trees & shrubs
 - Graminoids & forbs
 - Mosses, lichens & algae
 - Unvegetated
 - Other
 - Community
 - Deciduous tree woodland
 - ...
 - Habitat Compensation Sites
 - Water Courses Classification
 - Other Information Layers
 - Burrard Inlet
 - Base Maps
 - Hydrology
 - Transportation
 - TRIM 1:20K
 - Orthophotos / Imagery



Habitat Classification and Updates

The first habitat classifications was based on coarse habitat inventory & paper based mapping from 1988 (there has been some classification changes in interim)

Ecological Features and Functions approach (EFFA) was adopted by FREMP partners as an approach to updating the habitat classifications (red, yellow, green)

Ecological Features & Functions Approach (EFFA)

Integrated view of the estuary and its reaches

Captures water/upland linkages; looks at both natural and human uses

Focuses on protecting the features needed for certain functions (e.g. tall trees for nesting)

Tasks included: New orthophotos, update habitat inventory, update habitat classifications (colour coding)

Habitat Inventory Update

- FREMP updated the habitat inventory in 2003/05
- BIEAP completed first habitat inventory in 2008/09
- FREMP Covers over 540km of estuary shoreline
- Includes intertidal areas and shallow subtidal areas
- Does not include highly developed or protected areas
- Includes upland areas within 200m of high water mark or river's edge (natural polygon closure outside BIEAP-FREMP area)

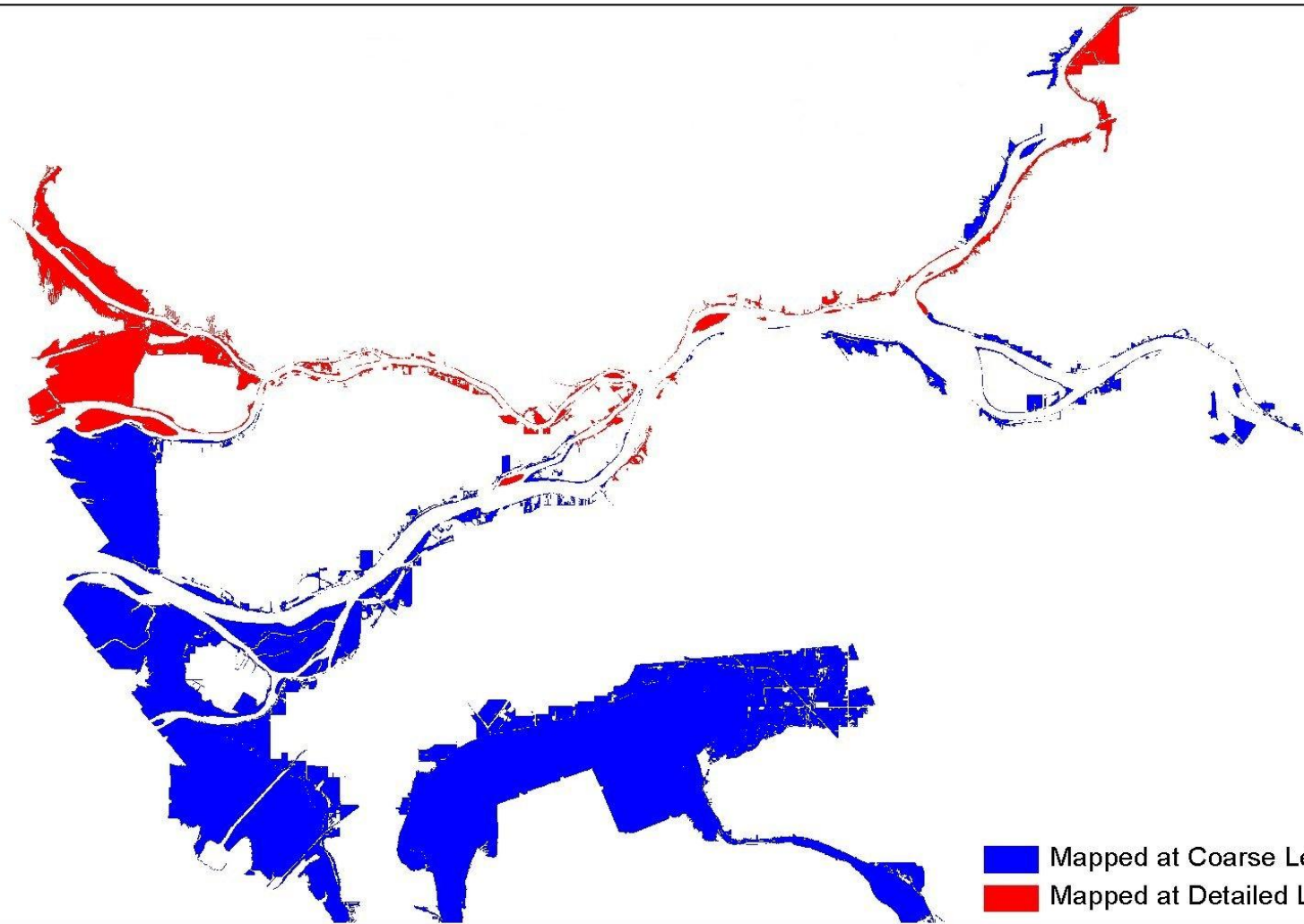
Habitat Inventory Update

Five habitat types were re-mapped:

- Intertidal marsh
- Mudflat
- Sandflat
- Riparian grasses and shrubs
- Riparian trees

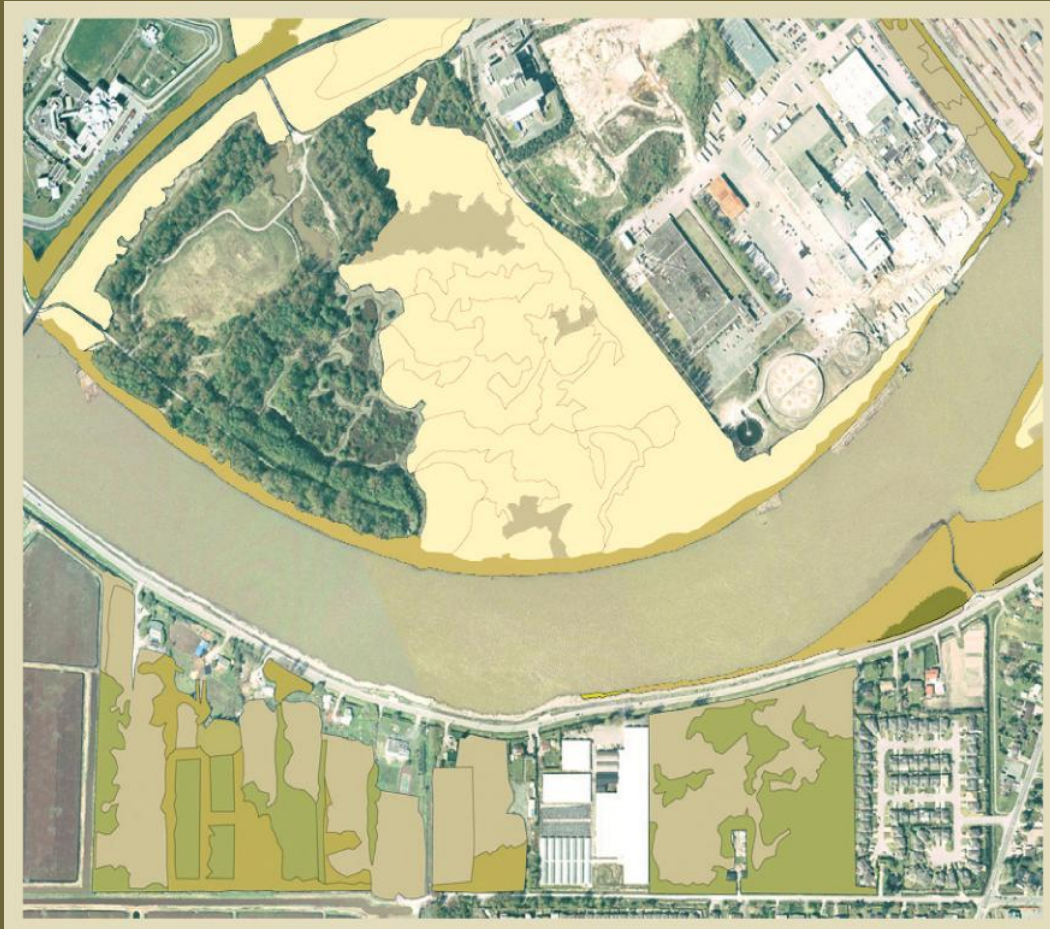
Features and functions approach used to capture more information on upland structures (e.g. bank type)

“Coarse” and “detailed” mapping



■ Mapped at Coarse Level
■ Mapped at Detailed Level

Sample Map



Level 1 - either Riparian (upland) or Tidal.

Level 2 - describes the type of vegetation present.

Level 3 - describes the type of species.

Level 4 - lists the dominant species whenever they could be determined with confidence.

i.e. a forest along the banks of the Fraser River could be delineated as Riparian, Trees, Deciduous, *Acer macrophyllum*.

Benefits of updated inventory

- Provides a better picture of what is happening at the river's edge
- Useful for planning and stewardship purposes
- Basis for updating the FREMP habitat classifications (“colour coding”)

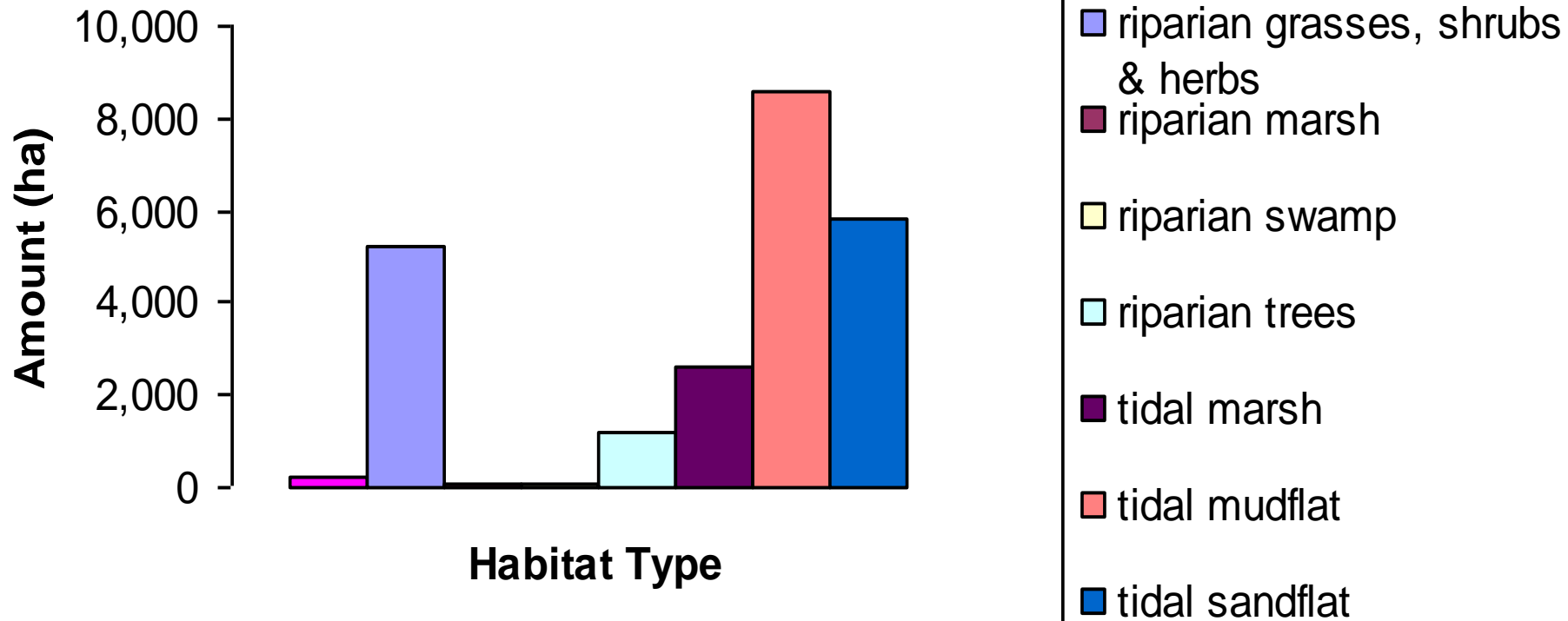


Summary Statistics

Developed for total mapped area and each municipality in FREMP area

Shows second order habitat breakdown and amounts (ha) for each municipality

Total Mapped Habitat



How to access the Habitat Inventory Data

The BIEAP-FREMP Habitat Inventory can be viewed on the [Atlas Gallery of the Community Mapping Network](http://cmnbc.ca/atlas_gallery)

http://cmnbc.ca/atlas_gallery

The complete dataset is available through the BIEAP-FREMP office:

mail@bieapfrempp.org or tel. 604-775-5756

Potential for Web Map Service (WMS from the CMN) with funding?

Approach to Habitat Inventory

- Ground-truth mapped polygons
- Supplementary attributes captured when ground-truthed
- More detailed mapping of habitat polygons and point features
- “Photo-Point Monitoring” of Habitat Compensation Sites
- Geo-referenced Shoreline Videos (2009-2010)

BIEAP-FREMP Habitat Mapping: Municipal Applications

- Strategic Planning
- Site Planning

Strategic Planning

- Where are greatest value lands?
- Linkages?
- Trade-offs?



Examples of Plans

- Official Community Plan
- Local area planning
- Integrated Stormwater Management Plans
- Park acquisition strategy
- Biodiversity planning

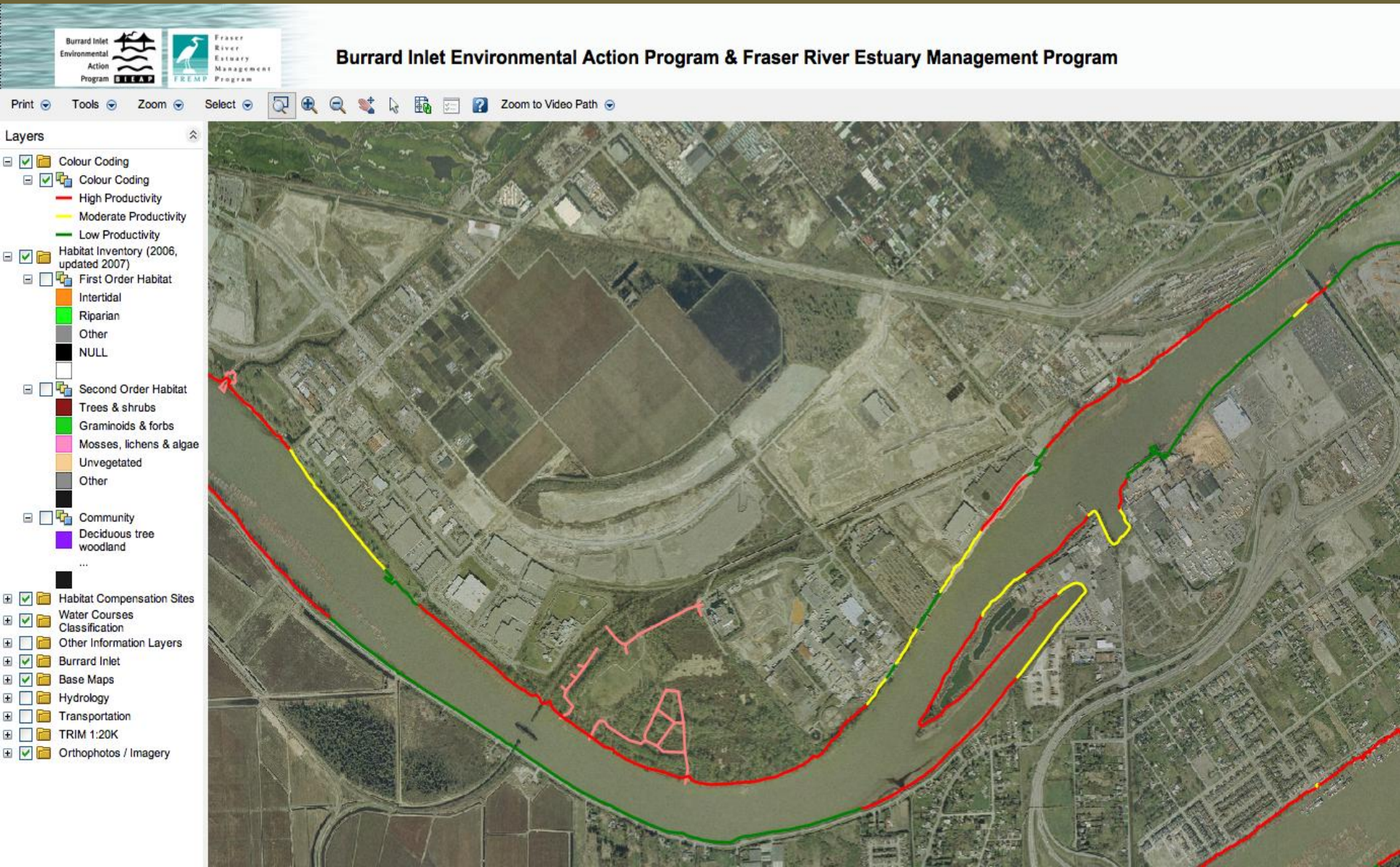
e.g., Big Bend Planning



Figure 1
Big Bend Parklands

City of Burnaby logo and a scale bar indicating 0 to 500 meters.

Current view on BIEAP-FREMP Atlas



e.g. Fraser Foreshore Park Acquisition



- A** Burnaby Fraser Foreshore Park
- B** Proposed acquisition area
- C** GVRD Incinerator
- D** BC Womens' Prison



North Arm of the Fraser River

Burnaby Fraser Foreshore Park



Centre - dry meadow for birds of prey foraging



North - Rare wet grassland habitat



West - tidal wetland and marshes



East - tidal marshes and salmon rearing channels

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Future Strategic Planning

- Integrated Stormwater Management Planning
- Biodiversity Planning
- Species at Risk Act

Ranking habitat types from GVRD Biodiversity Conservation Framework

Increasing ecological complexity

Wetland, old forest, intertidal areas

Lakes, rivers, streams and riparian areas

Young forest

Old field habitats

Agricultural forest

Shrub habitats

Agricultural lands and rural residential grass areas

Urban vegetated areas



Identify regionally significant areas typically supporting high biodiversity

Habitat Types



Indicator Species (and Associated Species) and their Habitats

Indicator	Habitat type(s)
Cooper's Hawk	• coniferous, deciduous, mixed forests
Northern Harrier	• fields, grasslands, wetlands, large patches
Brown Creeper	• mature/ old-growth coniferous forests
Red-legged frog	• small wetlands and still water
Pileated Woodpecker	• large patches of mature/old-growth coniferous and deciduous forest
Spotted Towhee	• forest/urban trees and shrubs
Great Blue Heron	<ul style="list-style-type: none"> • wetlands, still water, watercourses, riparian habitats, herb and grass (foraging) • mature coniferous, deciduous, and mixed forests (breeding)
Douglas' squirrel	• old-growth coniferous forests

Still Creek – Great Blue Heron

