

Environment Canada's Prairie & Northern

Habitat Monitoring Program



Environment Canada
Environnement Canada





Objective/Rational

- Establish a sampling network for estimating long-term habitat and land use trends for the settled portions of the three Prairie Provinces.
- Feed into the adaptive management strategy process adopted by the PHJV.

Background

- Approximately 25,000 wetlands are sampled annually with the implementation of NAWMP.

METHODS

Landscape Stratification and Sample Design



Air Photo Acquisition and Processing



1985 Baseline Habitat Feature Extraction



Habitat Dataset Updating 1999,2002, and 2003

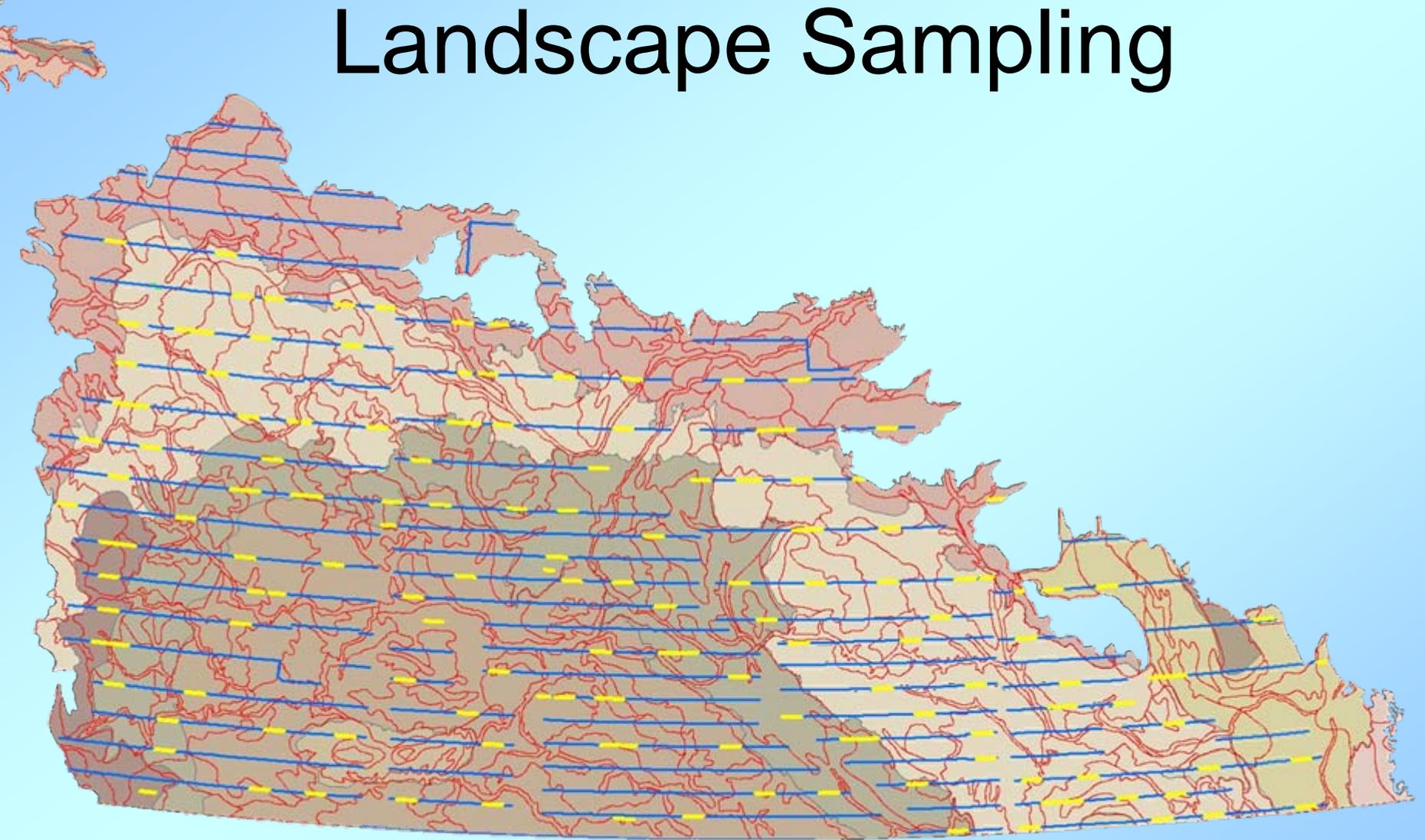


GIS analyses of the 1985 and Updated datasets for trend analysis.



Reporting (Phase I completed)

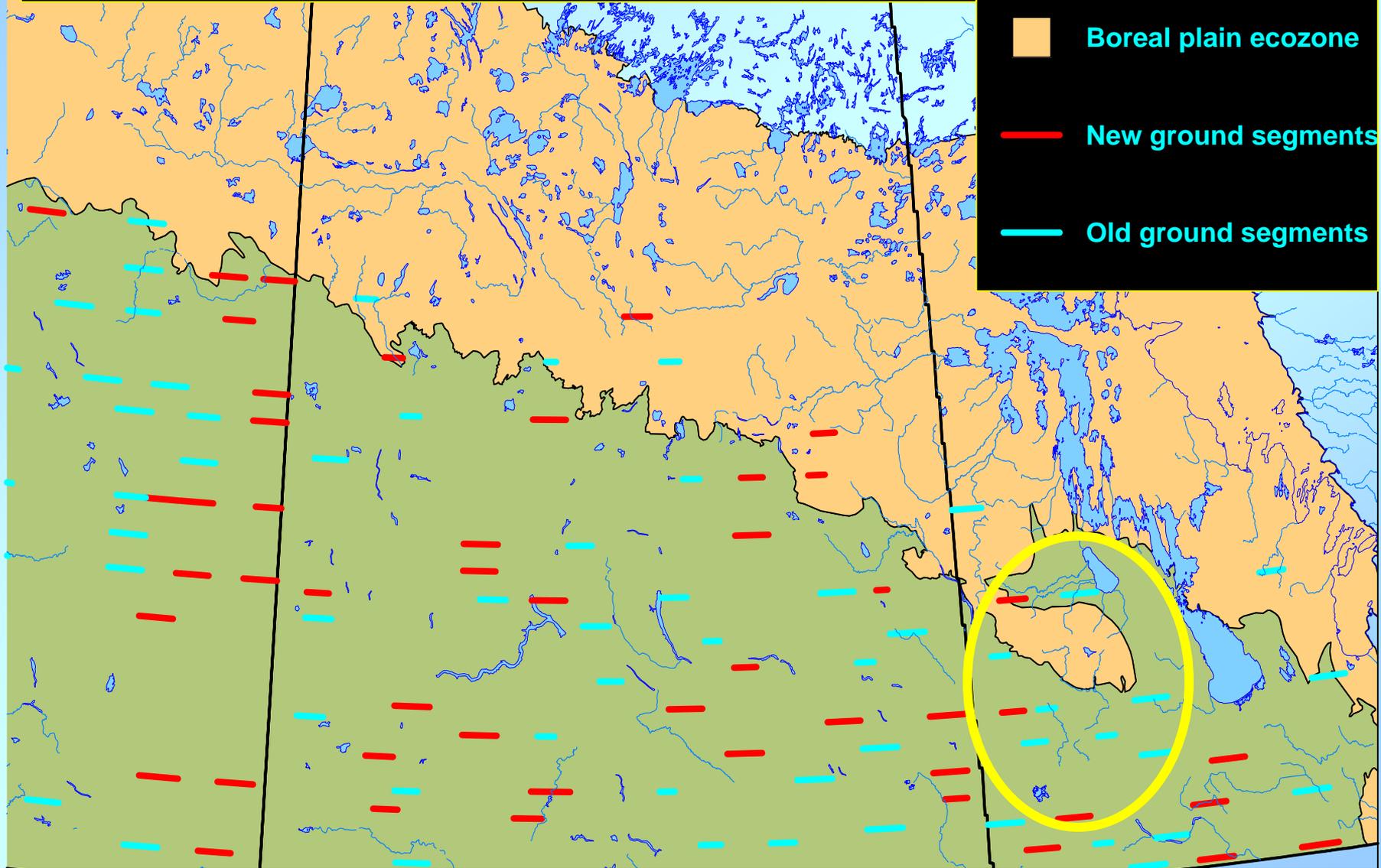
Landscape Sampling



Prairie Canada Survey Segments and Prairie Canada Ecozones

Legend:

-  Prairie ecozone
-  Boreal plain ecozone
-  New ground segments
-  Old ground segments





MOORE PARK-2

163

PART B
starts here

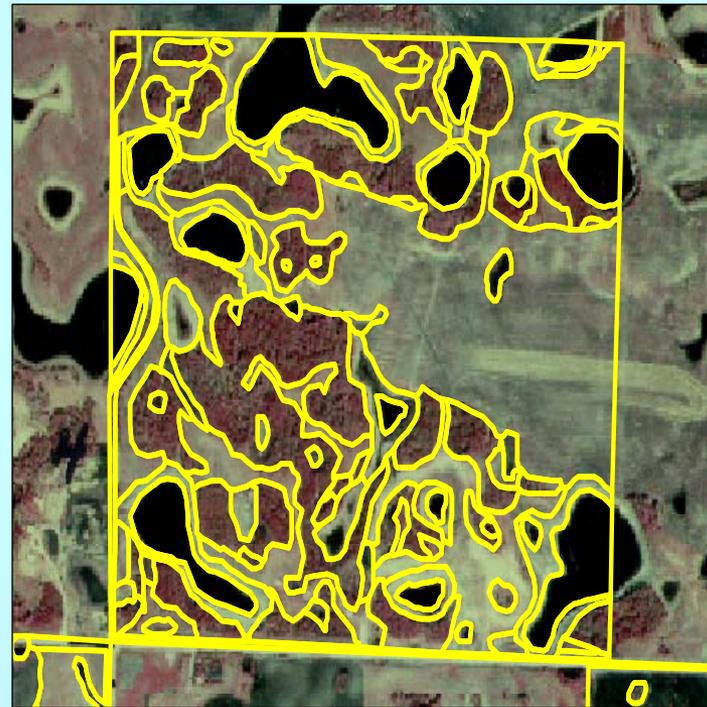
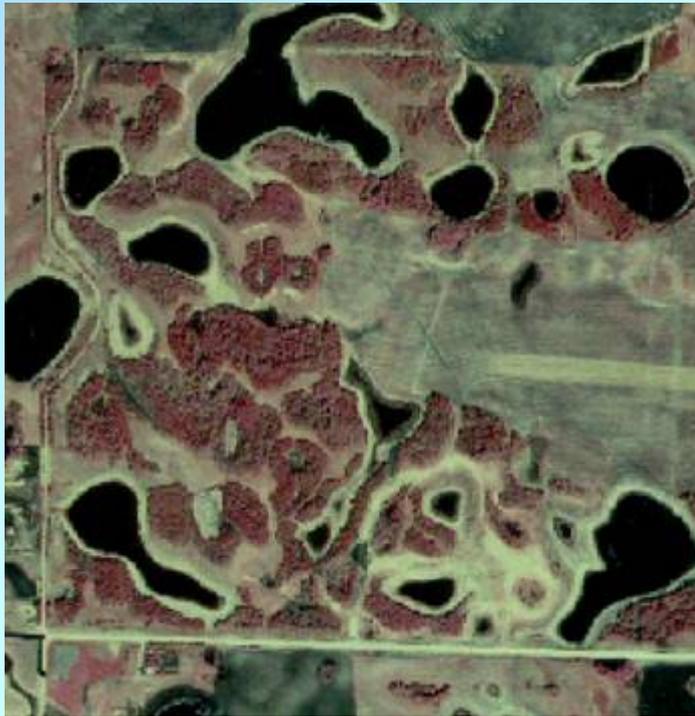
Transect



| Upland Cover Classes | Wetland Cover Classes | Activity Classes | Margin Classes |
|---|---|--|--|
| Natural Grassland Tame Grass Annual Crops Summer Fallow Shrub & Trees Bare Ground Numerous Others | Grass & Sedge Bull Rush & Cattail Saline Lakes & Ponds Natural Open Water Artificial Open Water Cultivated Basins Wooded Basins | No Activity Grazing Haying & Forage Cultivation Farmsteads Roads Other | Non-natural (includes cultivated margins) Grass Shrub |



Heads Up Digitizing of Habitat Polygons



Type I (Temporary or Ephemeral) Wetlands

Temporary water, sheet water and wet depressions which can be expected to last less than three weeks after initial observation and have less than 15cm of water depth.

Cultivated Wetland



Type III (Seasonal) Wetlands

Wetlands containing natural aquatics which normally are dry by midsummer but are expected to retain water for at least three weeks following initial observation. These wetlands normally have a uniform vegetative cover and contain at least 15cm of water.



Grass and Sedge



Type IV (Semi-permanent) Wetlands

These wetlands have sufficient water depth that will likely last throughout the brood season but may become dry during late August or September. Water is present in these wetlands in at least 7 out of 10 years, and the vegetation is normally clumped covering all but the centre of the wetland.



Bulrush/Cattail Marsh



Type V (Permanent) Wetlands

Usually deep marshes or lakes that have sufficient water to persist through the summer and fall. These wetlands normally are characterized by a peripheral rim of aquatic vegetation bordering and open water



Natural Open Water



Streams and Artificial Wetlands

- Streams
- Artificial Wetland
 - Artificial water bodies include anything that may hold water and is man-made.
 - Ex: Dugouts, Borrow Pits, Stock Ponds, Irrigation Canals, Sewage Lagoons, and Reservoirs.

Dry Basins

- Occur in all categories
 - Natural Basins
 - Streams
 - Artificial Wetlands



Tame Grass





Natural Grassland



Ground Checks



1945 BASE YEAR POLYON CLASSIFICATION DATA

Province A Correction and Landscape Dist. 710 Tract AUC

NIS Map No. Tract Map No.

Prepared by Page 1 of 3 Aaw

Change

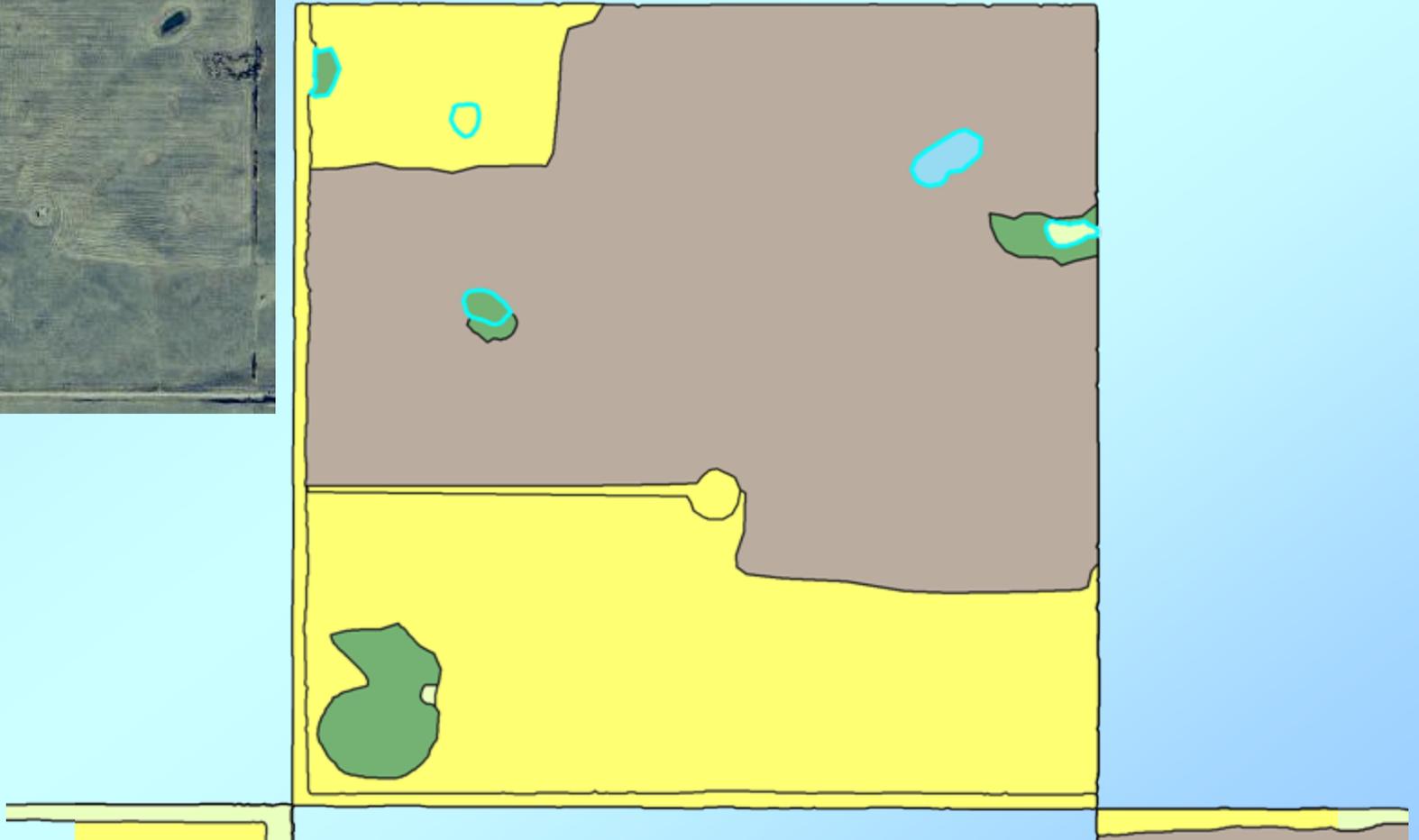
| Polyon No. | Quarter Section No. | Cover | Activity | Section | | Data | | Status in Quarter | Comments |
|------------|---------------------|-------|----------|---------|------|------|------|-------------------|----------|
| | | | | Number | Area | Fri. | Sec. | | |
| 11 | V3 | A12 | | | | | | | |
| 12 | V3 | A11 | | | | | | | |
| 13 | W1 | N0 | | | | | | | |
| 14 | X0 | A11 | 11 | 11 | 0 | 0 | S | T | |
| 15 | X0 | A11 | 12 | 12 | 0 | 0 | S | T | |
| 16 | X0 | A11 | 13 | 13 | 0 | 0 | S | T | |
| 17 | V3 | N0 | | | | | | | |
| 18 | V3 | N0 | 14 | 14 | S | B | T | | |
| 19 | W3 | N0 | 15 | 15 | S | B | T | | |
| 20 | W3 | N0 | 16 | 16 | S | B | T | | |
| 21 | W1 | N0 | | | | | | | |
| 22 | V3 | N0 | 17 | 17 | G | B | T | | |
| 23 | W3 | N0 | 18 | 18 | G | B | T | | |
| 24 | V3 | A12 | 19 | 19 | G | B | T | | RD WO |
| 25 | V3 | A11 | | | | | | | |
| 26 | V3 | N0 | 20 | 20 | S | B | T | | RD 90 |
| 27 | V3 | N0 | 21 | 21 | G | B | T | | RD 90 |
| 28 | W1 | N0 | | | | | | | |
| 29 | V3 | N0 | 22 | 22 | G | B | T | | RD 90 |
| 30 | X0 | A11 | 23 | 23 | 0 | B | T | | RD |
| 31 | X0 | A11 | 24 | 24 | 0 | B | T | | |
| 32 | V3 | N0 | 25 | 25 | 0 | B | T | | |
| 33 | X0 | A11 | 26 | 26 | 0 | B | T | | |
| 34 | X0 | A11 | 27 | 27 | 0 | B | T | | |
| 35 | X0 | A11 | 28 | 28 | 0 | B | T | | |
| 36 | X0 | A11 | 29 | 29 | 0 | B | T | | |
| 37 | X0 | A11 | 30 | 30 | 0 | B | T | | |
| 38 | X0 | A11 | 31 | 31 | 0 | B | T | | |
| 39 | X0 | A11 | 32 | 32 | 0 | B | T | | |
| 40 | X0 | A11 | 33 | 33 | 0 | B | T | | |
| 41 | X0 | A11 | 34 | 34 | 0 | B | T | | |

Change Detection





Change Mapping





Wetlands: Results





Wetland Loss

Filling





Wetland Loss

Filling





Wetland Loss

Drainage





Wetland Loss

Drainage





Wetland Loss

Drainage





Wetland Loss

Drainage





Wetland Loss

Drainage





Wetland Loss

Drainage





Wetland Loss

Partial Drainage/Filling



Results

Arden E (ADN)

| | | | | | | | | | |
|--------------|------|---------------------|-------|----|---------------------|-------|----|--------|---|
| base year: | 1985 | total wetland area: | 43.56 | Ha | gross wetland loss: | 4.46 | Ha | -10.24 | % |
| update year: | 2002 | total wetland area: | 39.27 | Ha | gross wetland gain: | 0.17 | Ha | 0.39 | % |
| | | net change: | -4.29 | Ha | net change | -4.29 | Ha | | |
| | | | -9.85 | % | | | | | |

Arden W (ARD)

| | | | | | | | | | |
|--------------|------|---------------------|-------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 60.03 | Ha | gross wetland loss: | 0.41 | Ha | -0.68 | % |
| update year: | 2002 | total wetland area: | 59.62 | Ha | gross wetland gain: | 0.00 | Ha | 0.00 | % |
| | | net change: | -0.41 | Ha | net change | -0.41 | Ha | | |
| | | | -0.68 | % | | | | | |

Results

Carberry (CAR)

| | | | | | | | | | |
|--------------|------|---------------------|-------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 84.21 | Ha | gross wetland loss: | 0.05 | Ha | -0.06 | % |
| update year: | 2002 | total wetland area: | 84.16 | Ha | gross wetland gain: | 0.00 | Ha | 0.00 | % |
| | | net change: | -0.05 | Ha | net change | -0.05 | Ha | | |
| | | | -0.06 | % | | | | | |

Crandall E (CDL)

| | | | | | | | | | |
|--------------|------|---------------------|--------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 315.81 | Ha | gross wetland loss: | 5.04 | Ha | -1.60 | % |
| update year: | 1999 | total wetland area: | 310.96 | Ha | gross wetland gain: | 0.19 | Ha | 0.06 | % |
| | | net change: | -4.85 | Ha | net change | -4.85 | Ha | | |
| | | | -1.54 | % | | | | | |

Results

Crandall W (CRN)

| | | | | | | | | | |
|--------------|------|---------------------|--------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 115.58 | Ha | gross wetland loss: | 0.35 | Ha | -0.36 | % |
| update year: | 2002 | total wetland area: | 115.24 | Ha | gross wetland gain: | 0.01 | Ha | 0.01 | % |
| | | net change: | -0.34 | Ha | net change | -0.34 | Ha | | |
| | | | -0.30 | % | | | | | |

Dauphin (DAU)

| | | | | | | | | | |
|--------------|------|---------------------|-------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 48.55 | Ha | gross wetland loss: | 2.75 | Ha | -5.67 | % |
| update year: | 2002 | total wetland area: | 45.54 | Ha | gross wetland gain: | 0.04 | Ha | 0.08 | % |
| | | net change: | -2.71 | Ha | net change | -2.71 | Ha | | |
| | | | -5.59 | % | | | | | |

Results

Grandview E (GRE)

| | | | | | | | | | |
|--------------|------|---------------------|--------|----|---------------------|-------|----|--------|---|
| base year: | 1985 | total wetland area: | 41.36 | Ha | gross wetland loss: | 7.45 | Ha | -18.01 | % |
| update year: | 2002 | total wetland area: | 34.26 | Ha | gross wetland gain: | 0.35 | Ha | 0.84 | % |
| | | net change: | -7.10 | Ha | net change | -7.10 | Ha | | |
| | | | -17.17 | % | | | | | |

Grandview W (GRW)

| | | | | | | | | | |
|--------------|------|---------------------|--------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 272.27 | Ha | gross wetland loss: | 2.51 | Ha | -0.92 | % |
| update year: | 2002 | total wetland area: | 269.86 | Ha | gross wetland gain: | 0.09 | Ha | 0.03 | % |
| | | net change: | -2.41 | Ha | net change | -2.41 | Ha | | |
| | | | -0.89 | % | | | | | |

Results

Lavinia (LAV)

| | | | | | | | | | |
|--------------|------|---------------------|--------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 226.93 | Ha | gross wetland loss: | 11.23 | Ha | -4.95 | % |
| update year: | 1999 | total wetland area: | 217.13 | Ha | gross wetland gain: | 1.43 | Ha | 0.63 | % |
| | | net change: | -9.80 | Ha | net change | -9.80 | Ha | | |
| | | | -4.32 | % | | | | | |

Moore Park (MOP)

| | | | | | | | | | |
|--------------|------|---------------------|--------|----|---------------------|--------|----|-------|---|
| base year: | 1985 | total wetland area: | 288.48 | Ha | gross wetland loss: | 25.50 | Ha | -8.84 | % |
| update year: | 1999 | total wetland area: | 264.56 | Ha | gross wetland gain: | 1.58 | Ha | 0.55 | % |
| | | net change: | -23.92 | Ha | net change | -23.92 | Ha | | |
| | | | -8.29 | % | | | | | |

Results

Penrith (PEN)

| | | | | | | | | | |
|--------------|------|---------------------|--------|----|---------------------|-------|----|-------|---|
| base year: | 1985 | total wetland area: | 248.22 | Ha | gross wetland loss: | 9.51 | Ha | -3.83 | % |
| update year: | 2002 | total wetland area: | 240.22 | Ha | gross wetland gain: | 1.51 | Ha | 0.61 | % |
| | | net change: | -8.00 | Ha | net change | -8.00 | Ha | | |
| | | | -3.22 | % | | | | | |

Overall Summary Statistics:

| | | | | | | | | |
|--------------|---------------------|----------|----|---------------------|--------|----|-------|---|
| base year: | total wetland area: | 1,744.99 | Ha | gross wetland loss: | 69.27 | Ha | -3.97 | % |
| update year: | total wetland area: | 1,681.10 | Ha | gross wetland gain: | 5.37 | Ha | 0.31 | % |
| | net change: | -63.89 | Ha | net change | -63.89 | Ha | | |
| | | -3.66 | % | | | | | |