

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

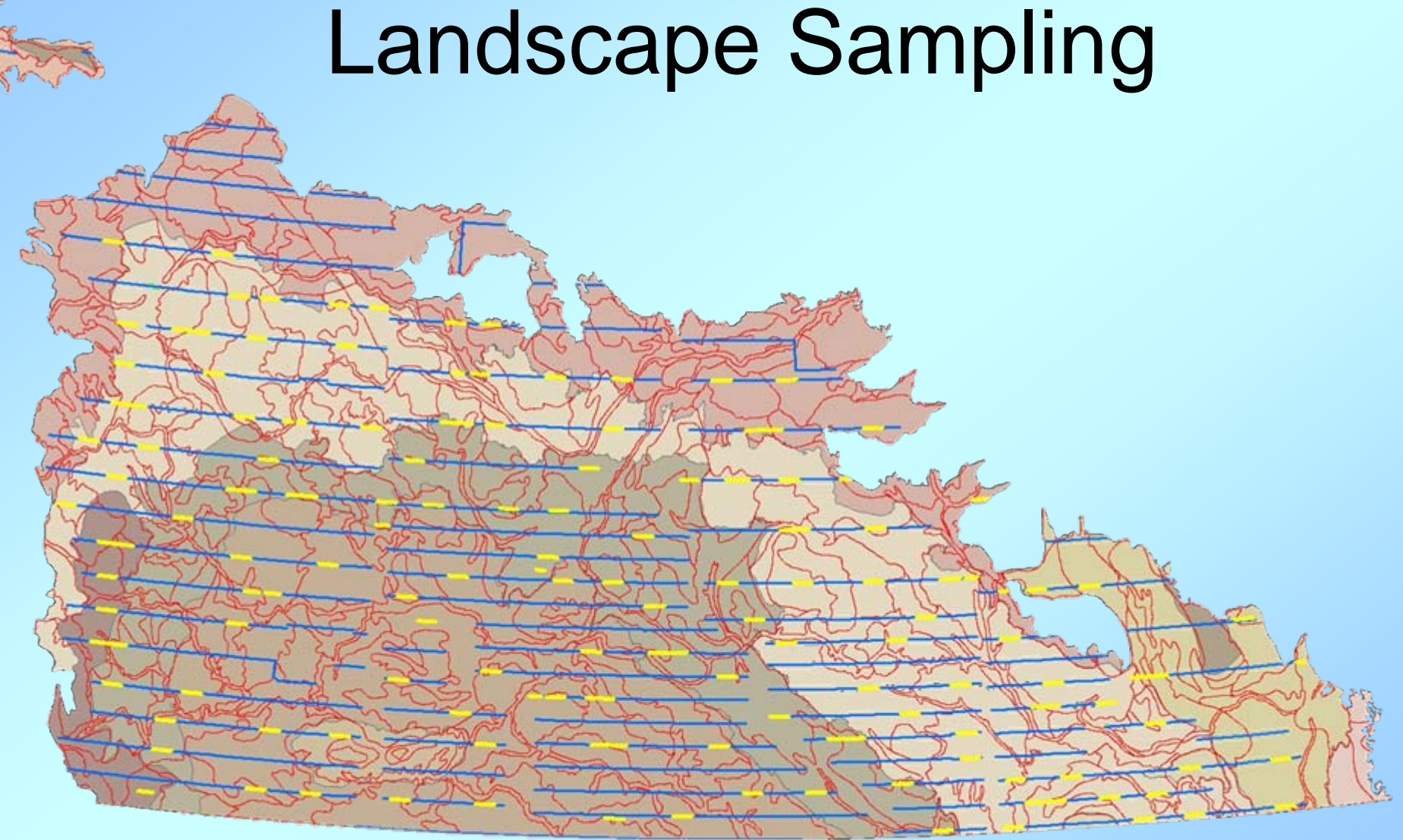


GIS analyses of the 1985 and Updated datasets for trend analysis.







Reporting (Phase I completed)

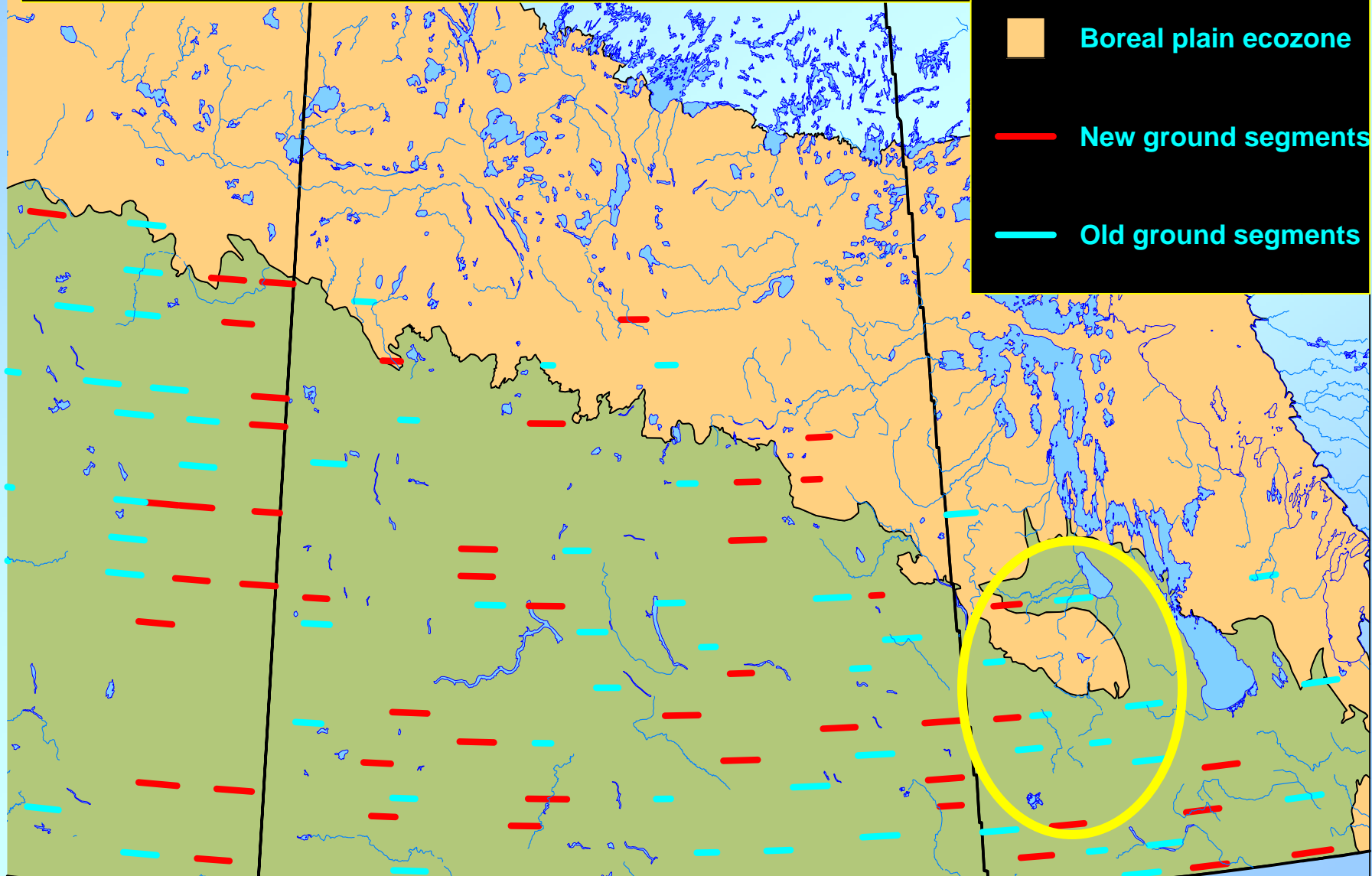
# Landscape Sampling



# 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

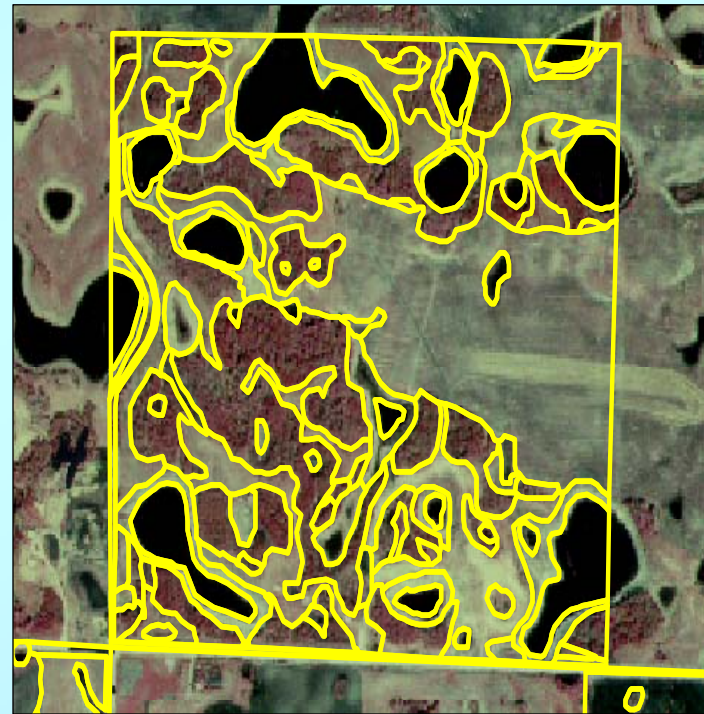
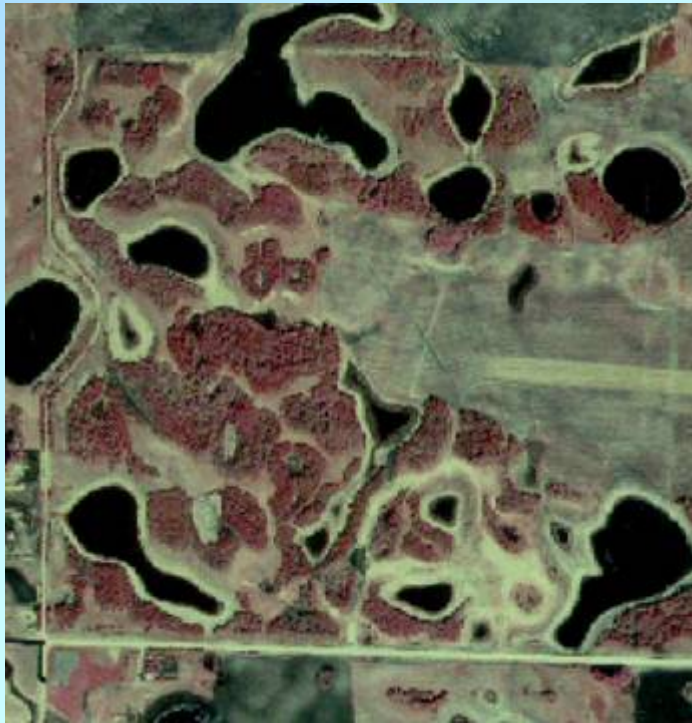


Upland Cover Classes	Wetland Cover Classes	Activity Classes	Margin Classes
Natural Grassland	Grass & Sedge	No Activity	Non-natural (includes cultivated margins)
Tame Grass	Bull Rush & Cattail	Grazing	Grass
Annual Crops	Saline Lakes & Ponds	Haying & Forage	Shrub
Summer Fallow	Natural Open Water	Cultivation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





# 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



1995 BASE YEAR POLYGN CLASSIFICATION DATA

Province A Correction and Landscape Dist. 710 Transect AUC

NIS Map No.            Transect Map No.           

Prepared by            Page 1 of 3 Aaw

*Change*

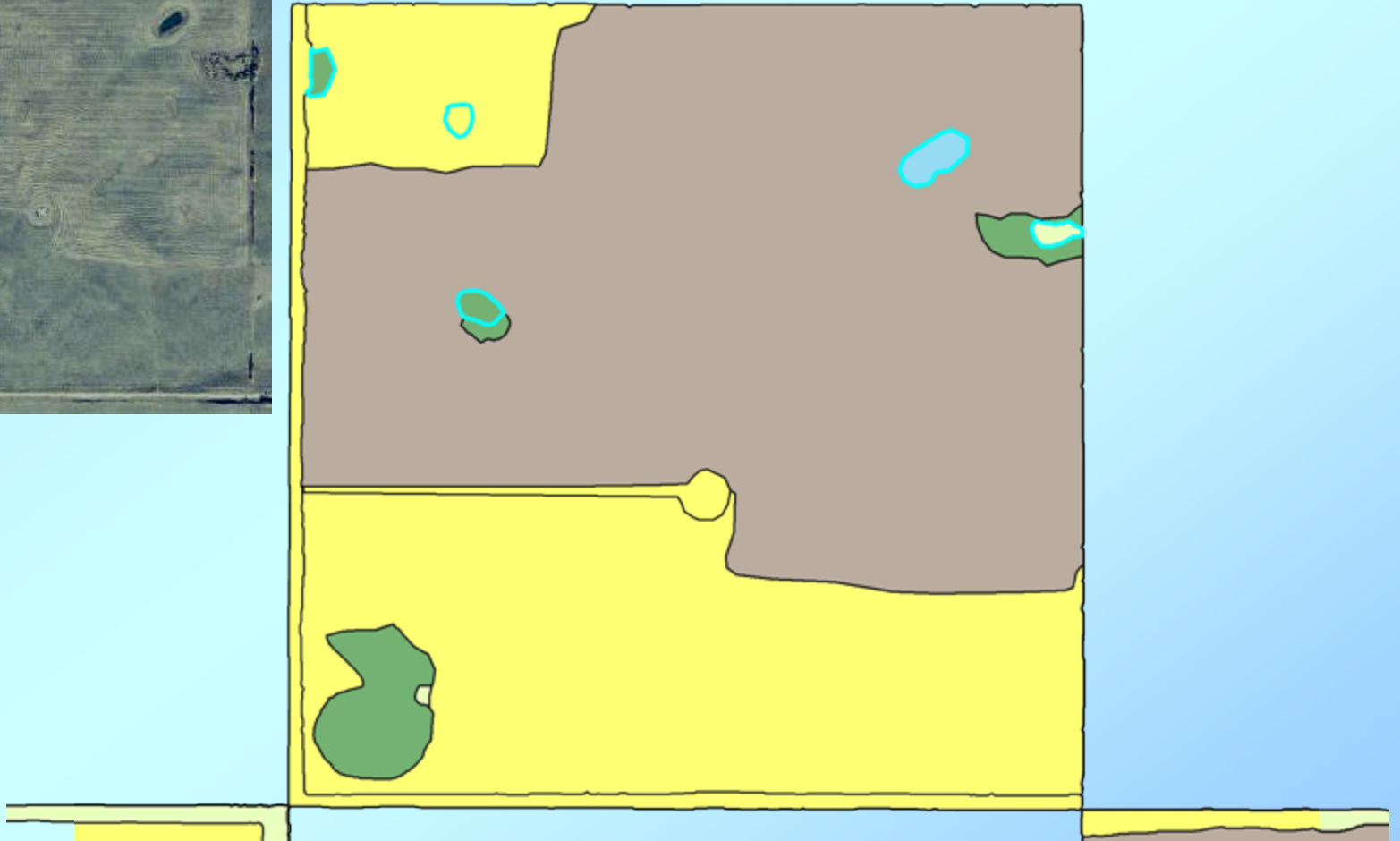
Polygon No.	Quarter Section No.	Cover	Activity	Section		Data		Status in Quarter	Comments
				Number	Area	Fri.	Sec.		
1111	V3	A12							
1112	V3	A11							
1113	W1	N0							
1114	X10	A11	21	11	0	0	S	T	
1115	X10	A11	21	12	0	0	S	T	
1116	X10	A11	21	13	0	0	S	T	
1117	V3	N0							
1118	V3	N0	21	14	S	B	T		
1119	W3	N0	21	15	S	B	T		[W]
1110	W3	N0	21	15	S	B	T		
1111	V3	N0							
1112	W1	N0							
1113	V3	N0	21	16	G	B	T		
1114	W3	N0	21	17	G	B	T		
1115	V3	A12	21	17	G	B	T		[RO WO]
1116	V3	A11							
1117	V3	A11	21	17	S	B	T		[A12]
1118	V3	N0	21	18	G	B	T		[A12]
1119	W1	N0							
1120	V3	N0	21	110	S	B	T		
1121	V3	N0	21	111	G	B	T		[A12]
1122	V3	N0							
1123	X10	A11	21	112	0	B	T		[RD]
1124	X10	A11	21	113	0	B	T		
1125	V3	N0	21	113	0	B	T		
1126	X10	A11	21	114	0	B	T		[A12]
1127	X10	A11	21	115	0	B	T		
1128	X10	A11	21	116	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	%					