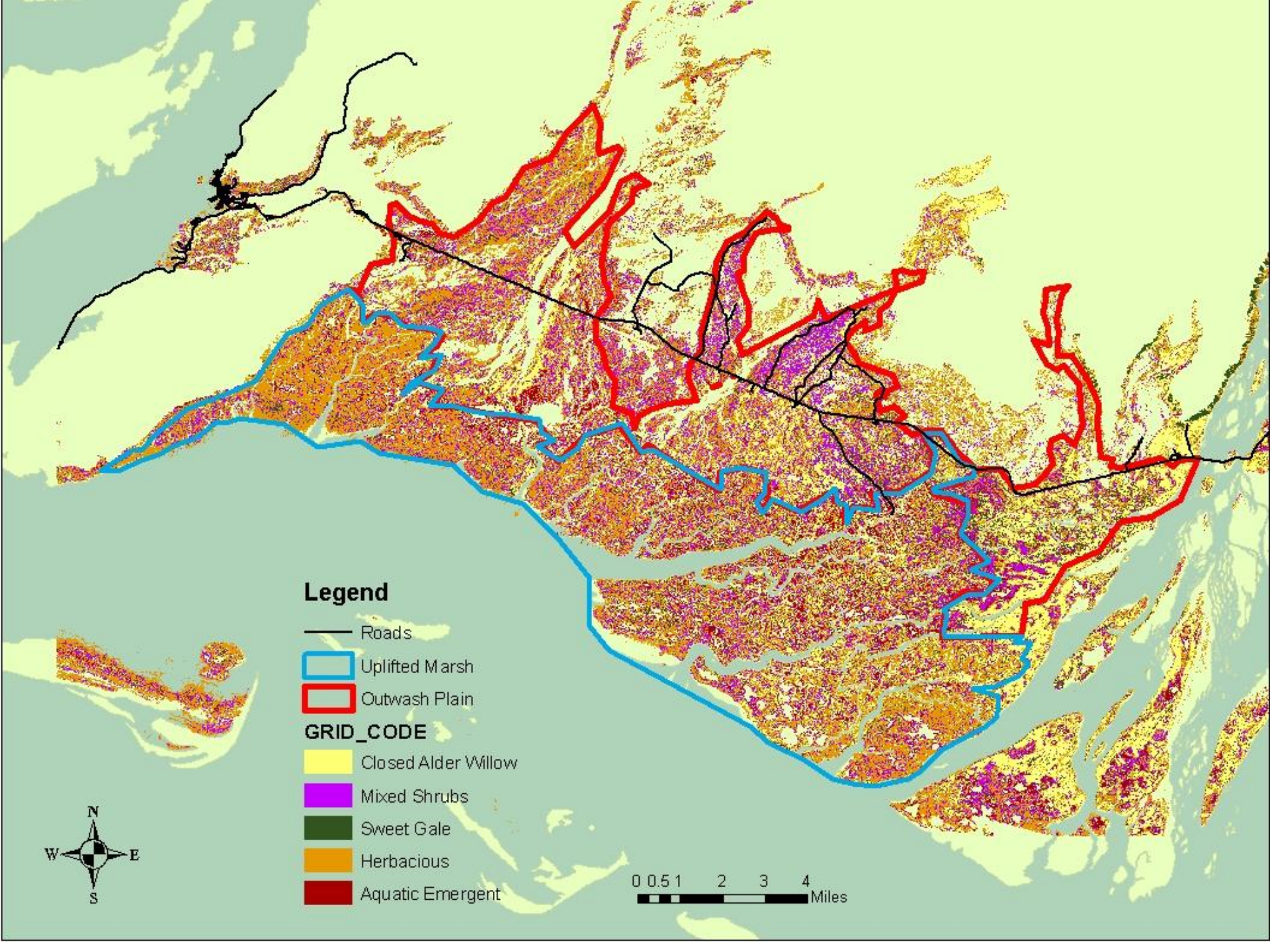




Copper River Delta: An integrated expansion of freshwater ecological evaluations

Kenneth W. Cummins



Legend

— Roads

Uplifted Marsh

Outwash Plain

GRID_CODE

Closed Alder Willow

Mixed Shrubs

Sweet Gale

Herbacious

Aquatic Emergent



0 0.5 1 2 3 4 Miles

Copper River Delta Research

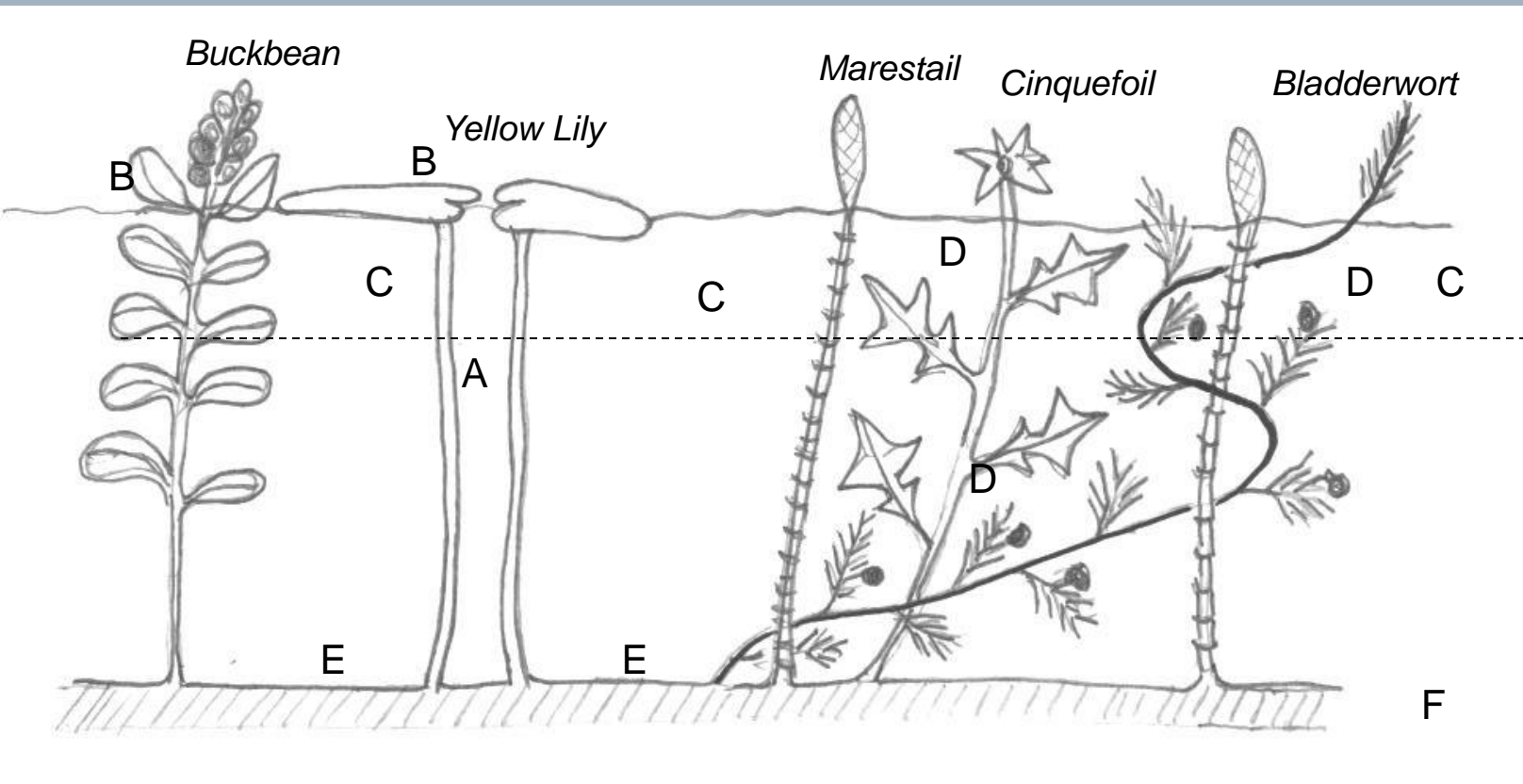
Date	Project	Product	Cooperators
1994-5	Cutthroat trout – range-wide genetics	PhD Dissertation	Oregon State Univ.
1995-7	Relation of cutthroat trout and of Dolly Varden populations in Prince William	PhD Dissertation Report to EVOS Trustee Council	Oregon State Univ.
1995-2002	Movement of cutthroat trout on the western Copper River Delta	Peer-reviewed publication	
1998-2000	Influence of spawning adults on the growth of juvenile coho salmon in beaver ponds on the Copper River Delta	MSc Thesis Peer-reviewed publication	Oregon State Univ.

2001-2	Hybrids between rainbow trout/steelhead and cutthroat trout on the Copper River Delta	MSc Thesis Peer-reviewed publication	, USGS
2005-6	Beaver and vegetation on the west Copper River Delta following the 1964 earthquake	MSc Thesis	Oregon State Univ.
	Surveys of angler use on the Copper River Delta	PNW GTR	Univ.
2006-7	Factors associated with nesting and nest success of geese on the western Copper River Delta	MSc Thesis	Oregon State University
2006-7	Diversity and abundance of aquatic invertebrates in streams on the Copper River Delta	MSc Thesis (to be completed in 2009)	Michigan St. Univ. Univ.
2007-9	Movement of whitefish in McKinley Lake	MSc Thesis (to be completed in 2010)	Oregon St. Univ.

2008-9	Diversity and productivity of aquatic invertebrates in ponds for different parts of the Copper River Delta	MSc Thesis (to be completed in 2010)	Loyola Chicago Univ. Michigan St. Univ. Univ Notre Dame Univ.
2008-9	Relation between aquatic plants and invertebrates in ponds on the Copper River Delta	MSc Thesis (to be completed in 2010)	Loyola Chicago Univ. Michigan St. Univ. Univ Notre Dame Univ.
2009-10	Relation between aquatic invertebrate productivity and nesting success of rusty blackbirds on the western Copper River Delta	MSc Thesis (to be completed in 2011)	Loyola Chicago Univ. Michigan St. Univ. Univ Oregon State Univ.
2009-10	Aquatic-terrestrial food webs in ponds on the western Copper River Delta	MSc Thesis (to be completed in 2011)	Loyola Chicago Univ. Michigan St. Univ. Univ Oregon State Univ.

Macroinvertebrate habitat types in rooted vascular plants of Copper R Delta Ponds

LATERAL VIEW



“Canopy”

“Understory”

“Floor”

A = open habitat of climbers (e.g. Aeshnidae); **B**=habitat of herbivore shredders and leaf miners (e.g. Limnephilidae); **C**=habitat of swimmer/divers (surface breathers, e.g. Dixidae, Corixidae, Dytiscidae adults); **D**=habitat for concealed climbers, swimmers, and plant structure sprawlers (e.g. Dytiscidae larvae, Baetidae, Zygoptera); **E**= habitat of surface sediment sprawlers (e.g. Libellulidae, Caenidae; **F**=habitat of shallow burrowers (e.g. Chironominae, Amphipoda).

Odonata Nymphs of the “Canopy” - Climbers



Dragonfly: Aeschnidae, climber



Damselfly: Lestidae, climber

Trichoptera larvae of the “Canopy” - Climbers

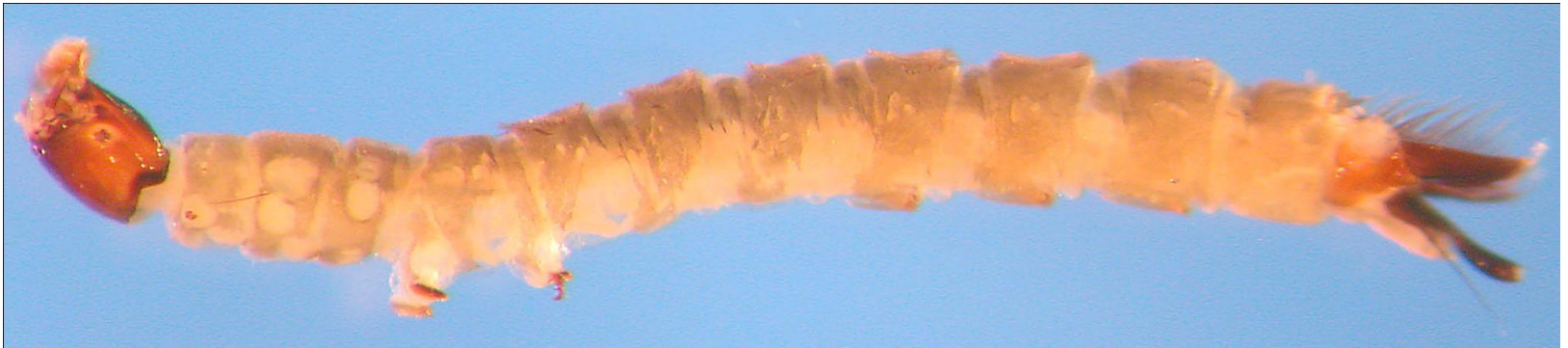


Phryganeidae



Limnephilidae

Air-breathers of the “Canopy” and “Understory” - Swimmers



Diptera: Dixidae – filter-feeder



Hemiptera: waterboatman, Corixidae - scraper

Sprawlers & Burrowers of the “Floor”:

Diptera: Chironomidae



Chironominae



Orthocladiinae



Odonata: Libellulidae



Pond lilly

Buckbean



Marestalk

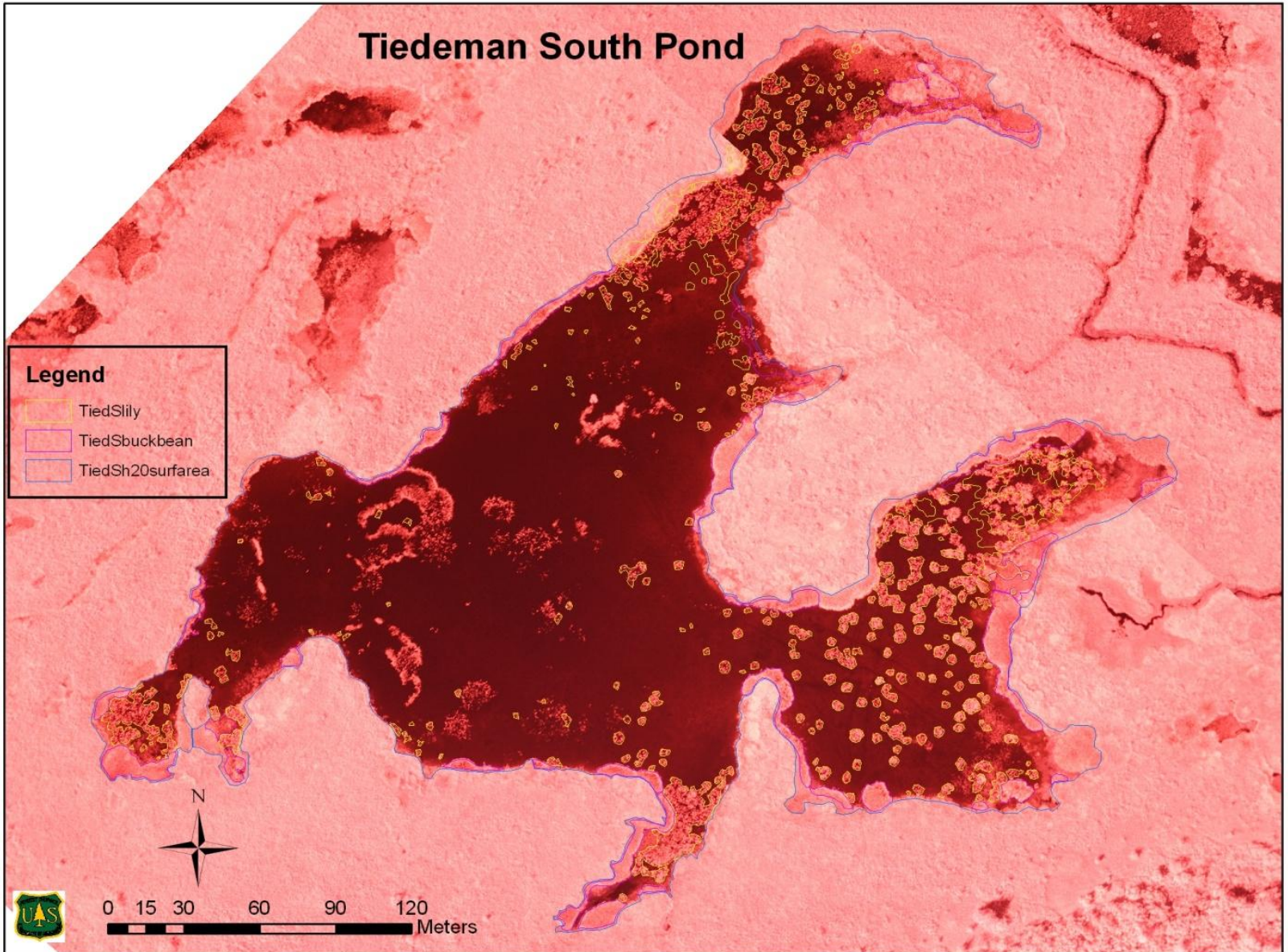
Tiedeman South Pond

Legend

- TiedSlily
- TiedSbuckbean
- TiedSh20surfarea



0 15 30 60 90 120
Meters



Tiedman South Pond Plant Bed Areas

Pond Name	Area (hectares)	Pond Lily		Buckbean		Marestail	
		Area (ha)	% Cover	Area (ha)	% Cover	Area (ha)	% Cover
Tiedeman South	5.70	0.60	10.5	0.45	7.9	-	
Tiedeman North	0.68	0.08	11.8	0.10		0.11	
Ibeck Lily Pond	2.05	0.80	39.0	-		-	
Rusty Pond East	2.21	0.08	4.6	0.13	5.9	-	
Rusty Pond West	4.11	0.02	0.4	0.38	9.2	-	

Estimated nymphs and larvae in Lily and Buckbean plant beds in Tiedeman South pond (Pond area 5.2 hectares; September samples, data from Ryan)

Inverts	Lily beds total area (m ²)	Animals per m ²	Total animals in lily beds	Buckbean beds total area (m ²)	Animals per m ²	Total animals in Buckbean beds	Total in pond
Odonata	6,000	4	24,000	4,500	2	9,000	33,000
Trichoptera		2	12,000		2	9,000	15,000
Totals	6,000	6	36,000	4,500	4	18,000	48,000

Odonata = *Aeschna* and *Enallagma*

Trichoptera = *Agrypnia* and *Nematolius*

Corixidae (water boatman)

