

21 Bulrush is easy to confuse with sedge.  
 0 This may have been recorded as sedge in the past.

Location: Joppa Flats, Newb  
 Transect 3 (near parkinglot) upland end 1 METER SEGMENTS marsh end

		Transect 4 (Near Doughnut Hole Panne)																														
		2003 Duff					2005										10/18/05,10/19/05 Duff															
SPECIES		1 METER SEGMENTS																														
12 species present		upland end																									marsh end					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25						
Phragmites	1999	1	1	1																							3					
<i>Phragmites australis</i>	2000	1																									2					
	2001	1	1	1	1															1							5					
	2002	1		1																							2					
	2003	1	1	1	1																1						5					
	2004	1	1													1				1							4					
	2005	1	1	1	1	1	1														1		1	1	1	1	10					
is immature	2006	1	1	1	1	1	1	1												1	1	1	1	1	1	1	12					
herbicide used	2007																										4					
herbicide used	2008																										2					
	2009																										0					
Creeping Bent Grass	1999	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
<i>Agrostis stolonifera</i>	2000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20					
	2001	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2003	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2004	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16					
	2005	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2006	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2007	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2008	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2009																										0					
Switch Grass	1999	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8					
<i>Panicum virgatum</i>	2000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9					
	2001	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9					
	2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8					
	2003	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	19					
	2004	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11					
	2005	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12					
	2006	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13					
	2007	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13					
	2008	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14					
	2009																										0					
Freshwater Cordgrass	1999				1			1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	16					
<i>Spartina pectinata</i>	2000										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9					
	2001		1									1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7					
	2002											1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5					
	2003											1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5					
	2004	1	1					1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	14					
	2005	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	13					
	2006																										7					
	2007																										6					
	2008																										7					
	2009																										0					
Goldenrod	1999	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	18					
<i>Solidago sempervirens</i>	2000	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22					
	2001	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25					
	2002	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	22					
	2003	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20					
	2004	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17					
	2005	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	20					
	2006	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15					
	2007	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12					
	2008	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	8					
	2009																										0					
Fescue	1999																										3					
<i>Festuca rubra</i>	2000																										0					
	2005																										0					
Salt Marsh Cordgrass	1999				1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	17					
<i>Spartina alterniflora</i>	2000																					1	1	1	1	1	3					
	2001																					1	1	1	1	1	5					
	2002																										0					
	2003												1														1					
	2004											1										1	1	1	1	1	6					
	2005	none recorded																									0					
	2006																										0					
	2007																										0					
	2008																										0					
	2009																										0					

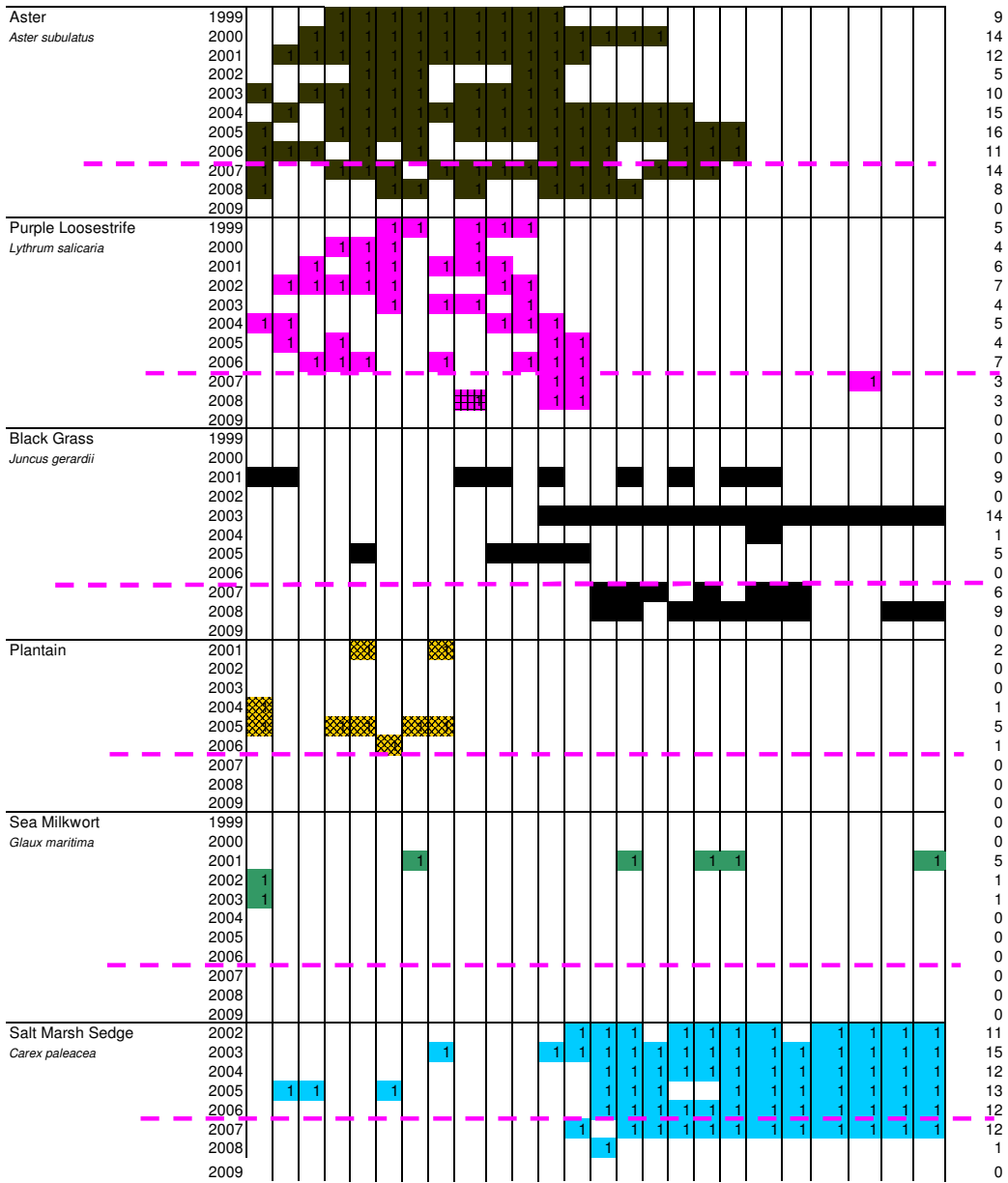
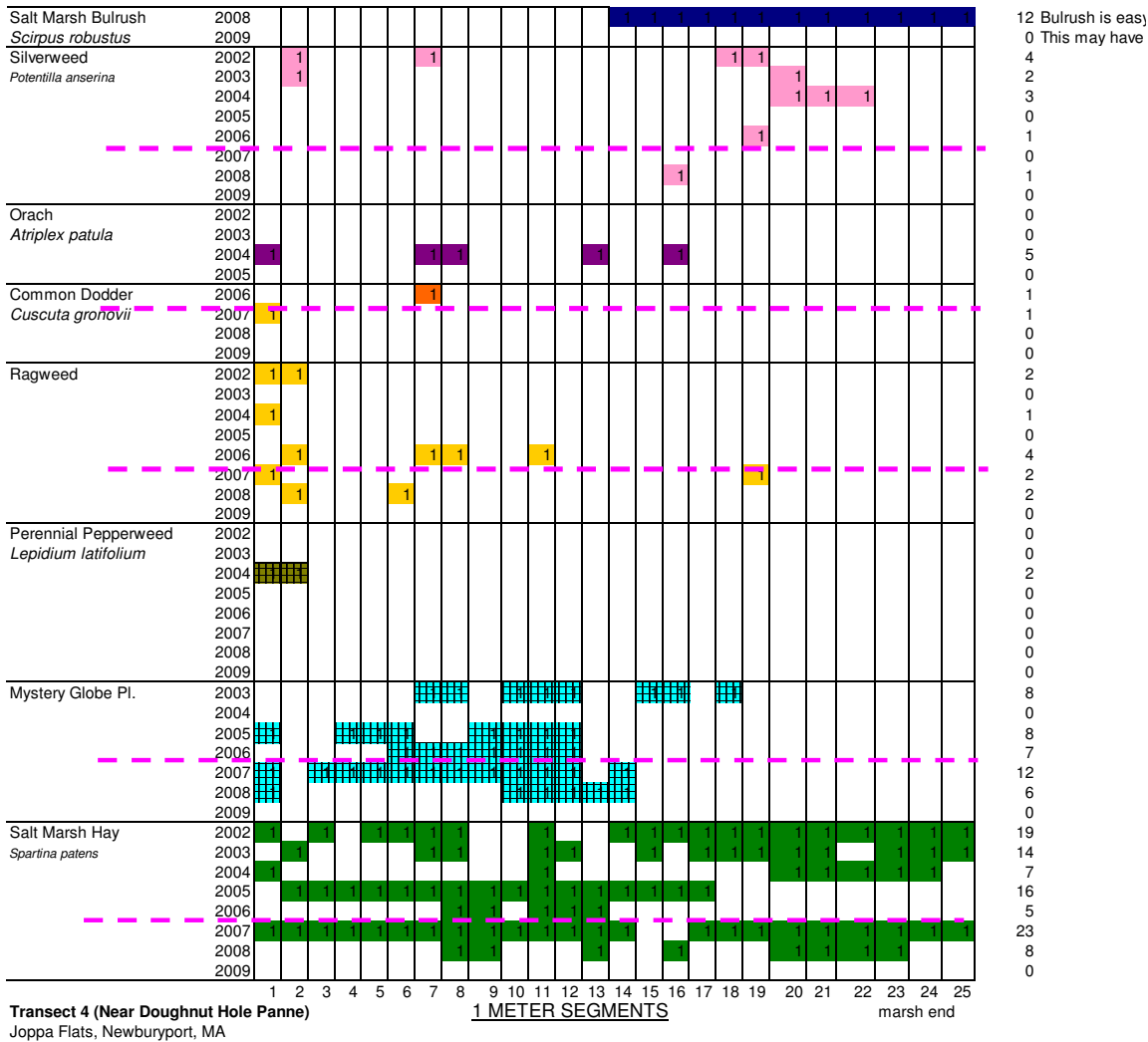
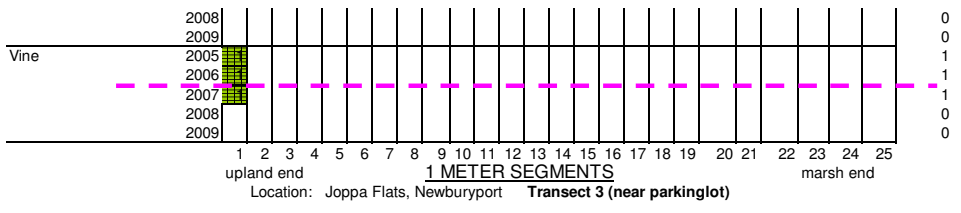


Fig.













**Average *Phragmites* and Purple Loosestrife Heights, Transect 4, Joppa Flats, Newburyport  
1999-2007**

