

INTRODUCTION

The primary function of this manual is identification through pictorial comparison. The individual attempting to identify a plant should page through the manual and locate a picture which resembles the plant under question. The written description may then serve to verify the identification. The plant species have been arranged to the extent possible according to habitat type. Thus, salt marsh species appear first. These are followed by brackish, freshwater and swamp species. Finally, species that are commonly found in bogs are presented. It should be realized that some plants can tolerate a wider range of environmental factors than others. This means that some species will "cross" habitat types. For example, many freshwater marsh plants are also found in brackish waters and swamps.

Remember that nature is highly variable! The same plant if grown in two different areas, might exhibit different characteristics. This variability is related to the physical and chemical nature of the soil and water in which the plant is growing as well as the climatic conditions of the area. Some plants are able to adapt to a wide range of conditions, others are more limited. Although many of the species found in this manual may be able to survive in non-marsh areas, it is probable that other non-marsh species will be more adapted to the upland environment and therefore outcompete the wetland plants.

The above discussion leads to one very important point: Identify as many species as is possible. The more species that can be identified as marsh plants at a given site, the greater the certainty that the area in question is a wetland. Even in stands of *Spartina alterniflora* there are often other species present, although few in number. Be as thorough as possible.

The areas which will present the most problems in determining the extent of our jurisdiction are the transition zones between wetland and upland. These zones (known as ecotones) usually consist of a mixture of both wetland and upland

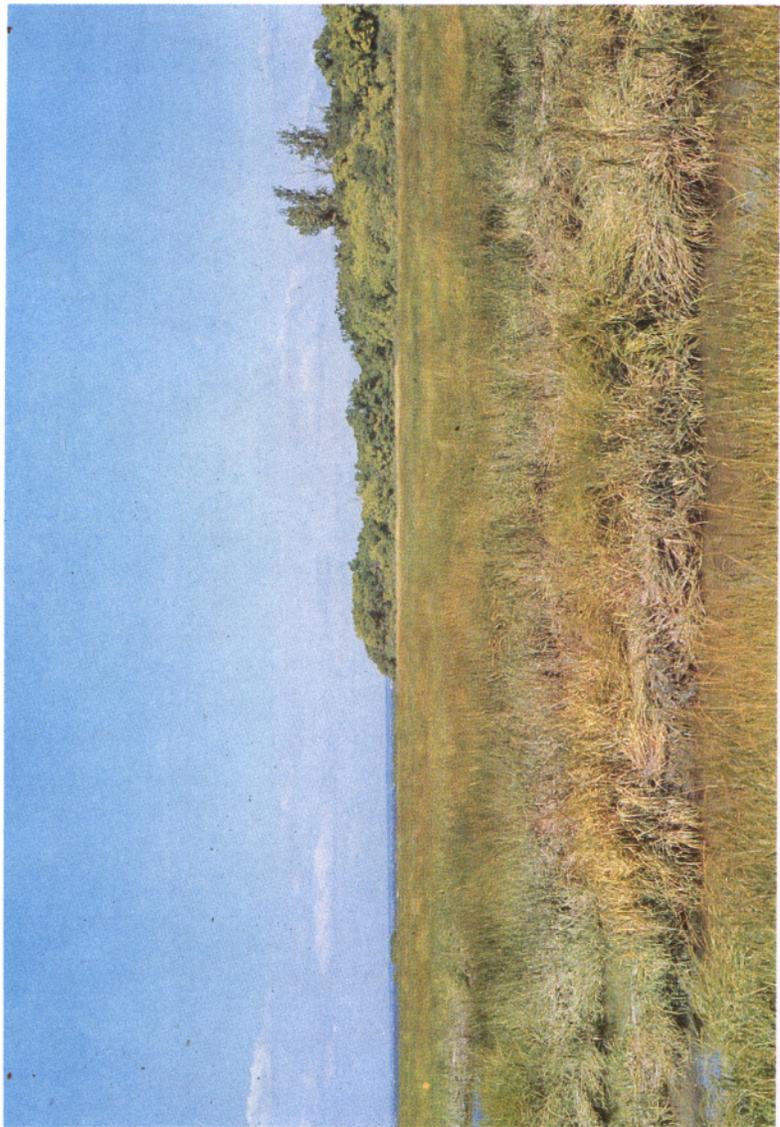
species, as well as some species characteristic of the intermediate moisture conditions.

From an ecological view point, these areas are extremely important. Oftentimes the diversity of animals associated with ecotones is much greater than the number of species found in either the marshland or the upland. In addition, they serve as buffer zones which lessen the detrimental effects of many natural and man-made stresses. Because of its integral relationship, the ecotone can be considered an extension of the wetland.

A WORD OF CAUTION - A positive identification of many plants is not possible from pictures alone. It is hoped that this manual can serve as a tool to field inspectors. However, if you are still in doubt after using this guide, consult someone with a more extensive background in plant identification. Even the experts in many cases, cannot agree upon a plant's identity.

Following the index at the end of the manual, a list of references has been provided. These range in difficulty from the highly technical Gray's Manual to the layman's texts such as those of Peterson and McKenny and Silberhorn. The work of Teal and Teal is highly recommended for a basic discussion of the ecology of salt marshes. Recently published, the guide by Newcomb is very useful. Its novel key permits the rapid identification of wildflowers, vines and shrubs when they are in bloom.

TYPICAL WETLANDS - The next six pages depict the general structure of typical wetland types. Listed beneath each are plants commonly found in that wetland (may not actually be present in the photograph). When the wetland is stratified the plant names have been arranged according to vegetation layers (i.e. trees above shrubs above herbs).



Saltmarsh Cordgrass
REGULARLY FLOODED SALT MARSH



Cordgrass



Glasswort

Marsh-elder

Groundsel-tree

Beachgrass

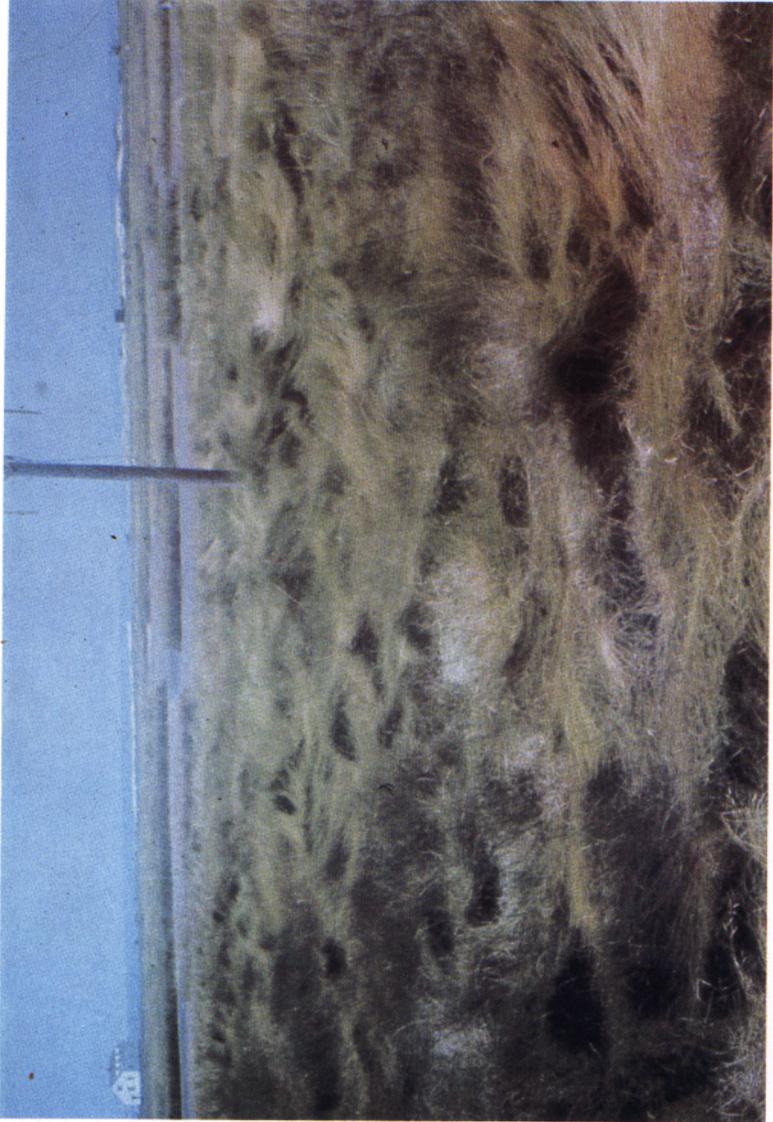
Beach Plum

Poison Ivy

Holly

Sumac

SALTMARSH-UPLAND ECOTONE



WP

Saltmeadow Cordgrass
Saltgrass
Black Needlerush

COASTAL SALT MEADOW



Arrow-Arum
Bulrush

Pickerelweed
Bulltongue

Water-Lily

Cattail

River Birch
Red Maple
Alder

Arrowhead

SHALLOW FRESHWATER MARSH



Water Tupelo	Bald Cypress	Red Maple	River Birch
Arrowhead	Arrow-Arum	Jewelweed	Sedges
Buttonbush	Alder	Redbay	

WOODED SWAMP



American Larch Black Spruce Alder Red Maple
Laurel Blueberry Cranberry
Pitcher-Plant Sundew Orchids

BOG

IDENTIFICATION

As a means of facilitating identification of wetland plants and as a study aid for learning plant characteristics, the user may find the following grouping scheme to be helpful. This method is based on the work of Hotchkiss (1970). By the use of ten short narrative descriptions, the plants in this manual have been grouped into assemblages with similar characteristics. As a further aid in identifying an unknown species, the habitat location of each follows the common name using the code:

Salt - Saltmarsh
Brack - Brackish Marsh
Fresh - Freshwater Marsh
Medo - Wet Meadow
Shore - Shores of Streams, Rivers, Ponds
and Lakes
Shalo - Shallow Water
Bog - Acid and Peaty Bogs
Pine - Wet Pine Barrens
Swamp - Freshwater Hardwood Swamps

Once a plant has been placed in the appropriate group, the user should pin-point those species which are listed as growing in the same habitat as the plant in question. The photographs and non-technical descriptions of each then should be scrutinized until identification is made. Remember that it is quite possible, especially in freshwater wetlands, that you may find species which are not described in this manual. If this occurs, check with a plant taxonomist or refer to one of the identification manuals listed in the Reference Section.

Group 1

Plants with upright or upslanted leafless stems; or similar plants with long, narrow leaves coming from the lower part of the stems; flowers usually individually inconspicuous, but crowded and numerous.

	B	F		S	S		S
COMMON NAME	S	r	r	M	h	h	P
	a	a	e	e	o	a	B
	l	c	s	d	r	l	o
	t	k	h	o	e	o	g
							n
							m
							a
							p

American Three-Square 17.02	X	X	X		X			
Black Needlerush 14.02		X						
Bog Rushes 14.00		X	X				X	
Branching Bur-Reed 20.10			X			X		
Broad-Leaved Cattail 20.00					X	X	X	X
Bulrush 17.00	X	X	X					
Carolina Yellow-Eyed Grass 42.21					X		X	X
Common Rush 14.04			X				X	X
Dragon's Mouth 42.20				X			X	
Great Bulrush 17.04		X	X		X	X		
Horn Bladderwort 42.36					X		X	
Marsh Fimbristylis 17.44	X	X				X		
Narrow-Leaved Cattail 20.02		X	X					
Nodding Ladies-Tresses 30.98				X			X	X
Olney Threesquare 17.03	X	X						
Pipewort 17.40					X	X	X	X
Spike-Rushes 17.30	X	X	X		X	X		
Sweetflag 22.20					X			X
Three-Ribbed Arrow-Grass 13.10	X	X						

Group 2

Plants with upright or upslanted stems with grasslike leaves on two sides (one plane); flowers individually inconspicuous between scales which overlap in two rows to form spikelets, the spikelets clustered toward the top of stems.

COMMON NAME	B	F		S	S		S	
	S	r	r	M	h	h	P	w
	a	a	e	e	o	a	B	i
	l	c	s	d	r	l	o	n
	t	k	h	o	e	o	g	e
Big Cordgrass 4.06		X	X					
Common Reed 13.00		X	X		X			
Cordgrass 4.00	X	X	X					
Gama-Grass 21.10				X	X			X
Giant Foxtail 21.00		X						X
Gibbons Panicgrass 13.11						X		X
Rice Cut Grass 21.98					X			X
Saltgrass 5.00	X							
Saltmarsh Cordgrass 4.02	X							
Saltmeadow Cordgrass 4.04	X	X						
Walter's Wildmillet 13.20		X				X		X
Wildrice 21.30			X			X		
Wooly Beardgrass 21.20								X

Group 3

Plant with upright stems with grasslike leaves on three sides; flowers individually inconspicuous between scales which usually overlap in several rows to form spikelets, the spikelets clustered toward the top of stems.

COMMON NAME

	B	F		S	S			S
S	r	r	M	h	h		P	w
a	a	e	e	o	a	B	i	a
l	c	s	d	r	l	o	n	m
t	k	h	o	e	o	g	e	p

Beak-Rushes 19.20
 Cotton-Grass 42.37
 Saltmarsh Bulrush 17.01
 Umbrella-Sedges 19.00
 Wool-Grass 17.06

		X				X	X	X
						X		
X	X							
X	X	X	X	X				X
			X					X

Group 4

Plants with upright, sprawling, or horizontal stems with singly placed, nongrasslike, lance-shaped or wider, un-toothed leaves; flowers clustered at the end of stems or single or clustered at the base of leaves.

COMMON NAME	B	F	S	S	S	P	P
	S a l t	r a c k	r e e h	M e e o	h o e	h a l o g	B i o n e
Arrow-Leaved Tearthumb 18.01			X	X			
Bog Aster 16.52					X		
Crested Yellow Orchis 40.05				X		X	
Common Smartweed 18.03			X	X	X		
Halbred-Leaved Tearthumb 18.02			X	X			
Large Blue-Flag 28.70			X	X	X		
Lizards Tail 29.20					X		X
Mud Plantain 27.03					X	X	
New York Aster 16.53				X		X	X
Orach 8.30	X						
Perrenial Saltmarsh Aster 16.50	X	X					
Pinkweed 18.04	X	X	X	X			
Rose Pogonia 42.10				X	X	X	
Salt-Marsh Waterhemp 8.50	X	X			X		
Sea-Blite 7.00	X						
Seaside Goldenrod 8.40	X				X		
Seedbox 28.00							X
Small Cranberry 39.00						X	X
Smaller Forget-Me-Not 18.52			X	X	X	X	
Smartweeds 18.00	X	X	X	X	X	X	
Swamp Dock 27.60					X	X	X
Turk's Cap Lily 28.54				X			X
Yellow Iris 28.71			X	X	X		

Group 5

Plants with upright, sprawling, or horizontal stems with paired, whorled, or otherwise clustered, lanceshaped or wider, untoothed leaves; or plants with leafless stems and paired or whorled branches; flowers single or clustered at the end of stems, in stalked heads along stems, or single or clustered at the base of leaves.

COMMON NAME

B F S S S
 S r r M h h P w
 a a e e o a B i a
 l c s d r l o n m
 t k h o e o g e p

Bedstraw 28.98				X	X		X		X
Canadian St. John's-Wort 29.10			X		X				X
Climbing Hempweed 18.40				X	X				X
Cross-Leaved Milkwort 35.32				X			X		X
Dwarf Saltwort 9.02	X								
Dwarf St. John's-Wort 29.14			X		X				X
False Pimpernel 18.50					X				X
Fringed Loosestrife 16.74					X				X
Lance-Leaved Sabatia 8.22					X		X	X	X
Linear-Leaved Loosestrife 16.70	X	X							
Marsh St. John's-Wort 29.00							X		X
Perennial Saltwort 9.03	X								
Saltwort 6.00	X								
Sea Ox-Eye 9.10	X	X							
Sea-Pink 8.20	X	X		X					
Short-Leaved Milkwort 35.30								X	X
Slender Glasswort 9.00	X								
Spiked Loosestrife 16.72				X					X
Swamp-Loosestrife 16.76							X		X
Swamp Milkweed 30.40						X			X
Water-Milfoil 25.40					X	X			

Group 6

Plants with both their lance-shaped or wider, untoothed leaves and the stalks of their solitary flowers or flower clusters coming from underground stems or underwater stems.

COMMON NAME

B F S S S
 S r r M h h P w
 a a e e o a B i a
 l c s d r l o n m
 t k h o w o g e p

American Lotus 27.01
 Arrow-Arum 22.00
 Broad-Leaved Arrowhead 23.00
 Bulltongue 24.00
 Engelmann's Arrow-Head 23.20
 Fragrant Water-Lily 26.00
 Grass-Pink 42.00
 Long-Beaked Arrow-Head 23.10
 Pickerelweed 25.00
 Pitcher-Plant 41.00
 Round-Leaved Sundew 40.02
 Sea-Lavender 8.10
 Skunk Cabbage 22.10
 Small Water Plantain 24.20
 Spatterdock 26.10
 Spatulate-Leaved Sundew 40.03
 Thread-Leaved Sundew 40.00
 Umbellate-Water-Pennywort 25.50
 Water Arum 38.51

					X				
		X		X					X
		X	X						
		X							X
				X	X				
				X	X	X			
				X	X	X			X
		X		X	X				
X	X					X	X		
			X						X
				X	X				X
						X	X		
				X	X	X	X		X
						X			

Group 7

Plants with toothedged to deeply divided leaves or leaflets.

COMMON NAME	B	F	S	S	S	P	W		
	S	r	r	M	h	h	B	i	a
	a	a	e	e	o	a	B	i	a
	l	c	s	d	r	l	o	n	m
	t	k	h	o	e	o	g	e	p
Bittersweet Nightshade 18.46				X	X		X		
Blue Vervain 27.50				X	X				
Bog Hemp 27.00				X					
Cardinal Flower 28.40				X	X				X
Crimson-Eyed Rose-Mallow 16.00	X	X	X		X				
Eryngo 17.45		X	X			X	X		
Gold Thread 35.20							X		X
Hairy Thoroughwort 30.32		X						X	
Jewelweed 30.00				X					X
Mad-Dog Skullcap 27.64				X					X
Marsh Marigold 29.30				X					X
Marsh Yellow Cress 27.58				X	X				
Mock-Bishop Weed 30.20		X	X						
Salt-Marsh Fleabane 8.10	X	X							
Sea-Rocket 8.00					X				
Seashore-Mallow 15.00	X	X			X				
Sneezeweed 28.30				X	X				X
Spotted Joe-Pye Weed 30.30				X	X				
Square-Stemmed Monkey-Flower 27.54			X	X	X				X
Tickseed-Sunflower 28.10				X			X		X
Virginia Bugleweed 18.54				X	X				
Virginia Meadow-Beauty 29.01					X			X	X
Water Hemlock 30.10									X
Water-Milfoil 25.40					X	X			
Water-Parsnip 30.12				X	X				X

Group 8

Shrubs or trees with broad leaves.

COMMON NAME	B	F	S	S		S	
	S a l t	r a c k	r e e s h	M e e d i c i n e	h o r t e n s e	h o l o g y	P h o t o g r a p h y
Black Willow 32.50				X			X
Buttonbush 31.00				X			X
Common Alder 32.02				X			X
Dense-Flower St. John's-Wort 29.12						X	X
Groundsel-Tree 12.00	X	X	X				
High-Bush Blueberry 38.00						X	X
Labrador Tea 43.20						X	X
Laurel-Magnolia 33.10							X
Leather-Leaf 37.52				X		X	X
Marsh-Elder 10.00 11.00	X						
Pale-Laurel 43.01						X	X
Redbay 35.00				X			X
Red Maple 37.00				X		X	X
River Birch 31.01				X		X	
Seaside Alder 32.00			X	X			
Sheep Laurel 43.00						X	X
Swamp Dogwood 31.10				X			X
Swamp Honeysuckle 32.20							X
Swamp Rose 32.10				X			X
Sweet Pepperbush 37.50						X	X
Water Tupelo 33.00							X

Group 9

Shrubs or trees with needle-like leaves.

COMMON NAME	B	F	S	S	S	P	W		
	S	r	r	M	h	h	B	i	a
	a	a	e	e	o	a	B	i	a
	l	c	s	d	r	l	o	n	m
	t	k	h	o	e	o	g	e	p
America Larch 44.00							X		X
Bald Cypress 34.00					X	X			X
Black Spruce 45.00							X		
White Cedar 36.00	X	X					X		X

Group 10

Ferns: Flowerless, seedless plants composed of roots, stem and leaflike fronds which reproduce by spores.

COMMON NAME	B	F	S	S	S	P	W		
	S	r	r	M	h	h	B	i	a
	a	a	e	e	o	a	B	i	a
	l	c	s	d	r	l	o	n	m
	t	k	h	o	e	o	g	e	p
Cinnamon-Fern 80.30									X
Interrupted Fern 80.34									X
Lady Fern 80.00				X					X
Marsh Shield-Fern 80.10			X	X			X		X
Net-Veined Chain-Fern 80.35							X		X
Royal Fern 80.32			X		X				X
Sensitive Fern 80.20				X					X