Section 2
How To Identify Natural Communities

MANOMET
Center for Conservation Sciences

MASSACHUSETTS ENVIRONMENTAL TRUST

How To Identify Natural Communities

- **The Approach (How to view the world)**
  - **Hydrology**
  - **Structure**
    - **Describing Structure**
  - **Species**

- **Classification Hierarchy**
  - **Flow charts and keys**
  - **Community descriptions**
  - **Supporting information**
  - **Classification hierarchy**

- **Other Considerations**
  - **Field Gear**
  - **Where am I?**
  - **How big an area do I need to identify?**
  - **Decision Rules**
  - **Reporting Information**

The Approach
(How to View the World)

Coastal Salt Pond Marsh, Falmouth

Identifying Natural Communities:
As Easy as 1, 2, 3

Identifying Natural Communities:
As Easy as 1, 2, 3

1. **Identify Hydrology**

Identifying Natural Communities:
As Easy as 1, 2, 3

1. Identify Hydrology

2. Identify Structure

Identifying Natural Communities:
As Easy as 1, 2, 3

1. Identify Hydrology

2. Identify Structure

3. Identify Species

1. Identify Hydrology

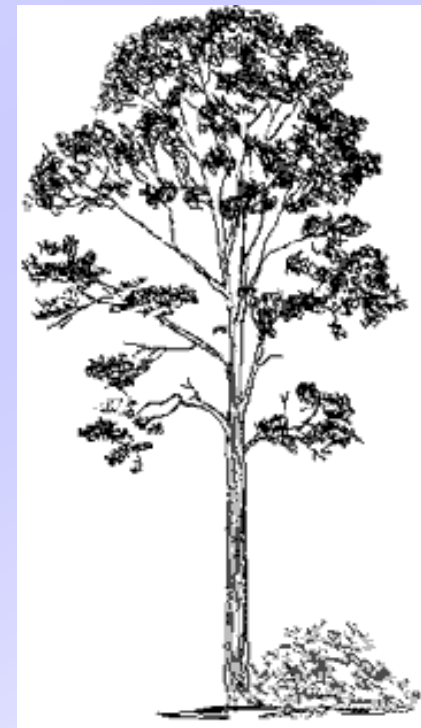**Terrestrial** – vegetation not significantly influenced by standing water

Palustrine – all fresh, non-tidal wetlands

Estuarine – all saline, brackish, or tidally influenced wetlands

2. Identify Structure

Terrestrial System

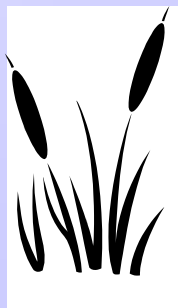**Vegetation** →

Open	Herbaceous	Shrub	Forest/Woodland
Rock	Grasses	Shrubs	Trees
Sand	Wildflowers		
Cliff Faces			

Palustrine System

Vegetation

Non-Forested   **Forested**

Grasses   Shrubs   Trees

Sphagnum
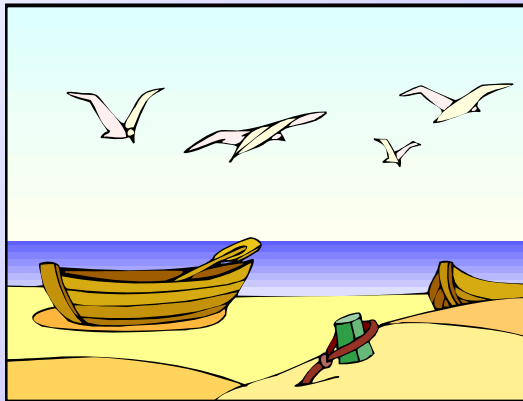
Estuarine System

Marine		Estuarine	
Sub-tidal	**Intertidal**	**Sub-tidal**	**Intertidal**
Flats	Flats	Flats	**Vegetation**
	Beaches	Salt Pond	Flats Herbaceous Shrub Trees

Describing Structure:
The Magic Number

Natural Community identification <u>almost</u> always involves the value 25% (or a multiple)
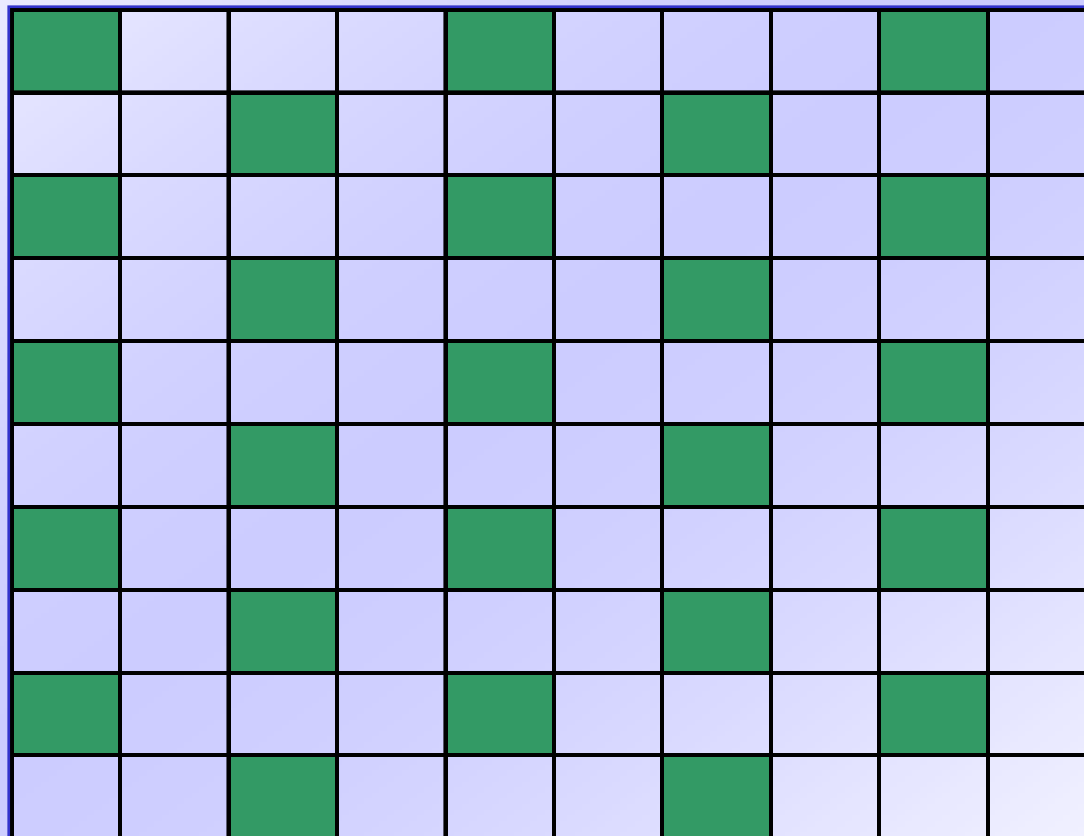
Open = <25% tree, shrub, and herbaceous cover

Herbaceous = herbaceous vegetation with <25% tree and shrub cover
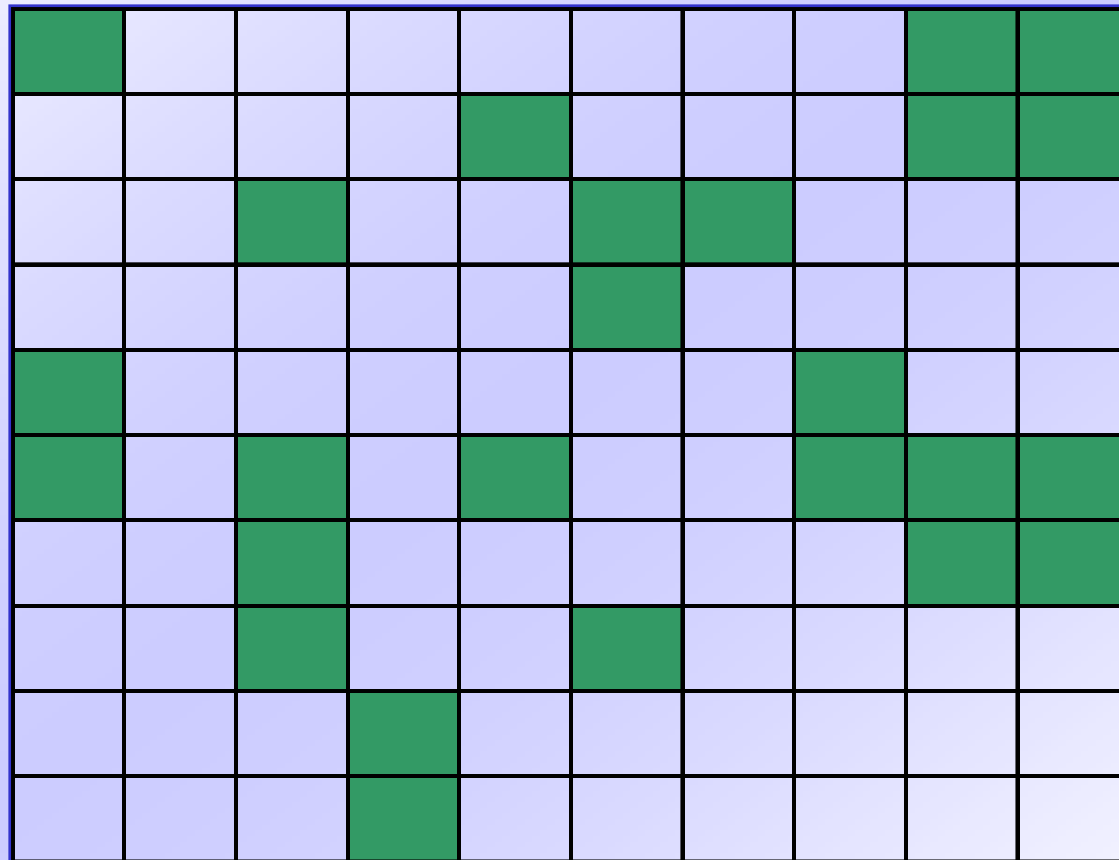
Shrub = <25% tree canopy

Forest/Woodland = >25% tree canopy

Describing Structure:
The Magic Number (continued)
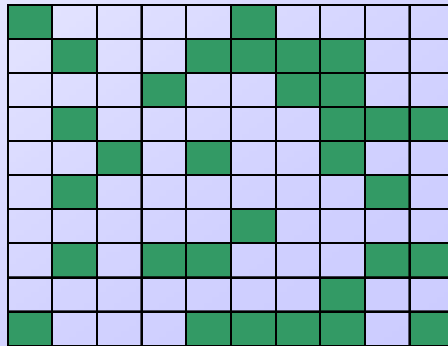

25% - Regular Distribution

Describing Structure:
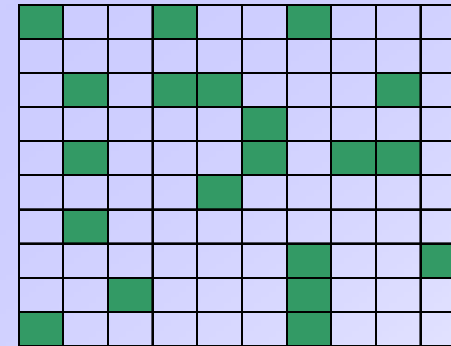**The Magic Number (continued)**

25% - Clumped

Describing Structure:
The Magic Number (continued)
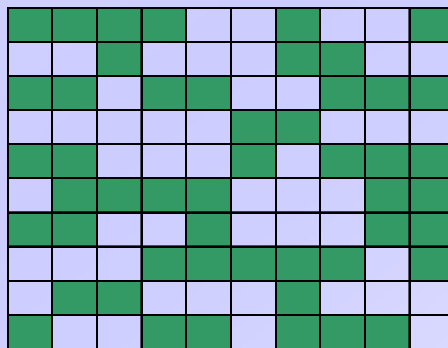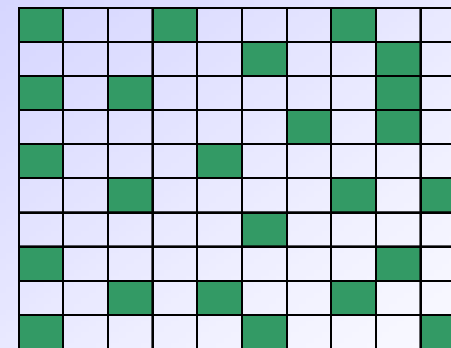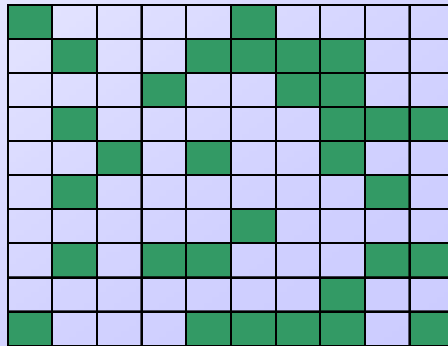
More or Less than 25%?

A

B

C

D

Describing Structure:
The Magic Number (continued)
More or Less than 25%?

A
32%

B
20%
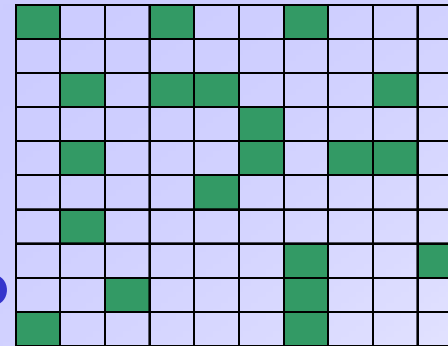
C
50%
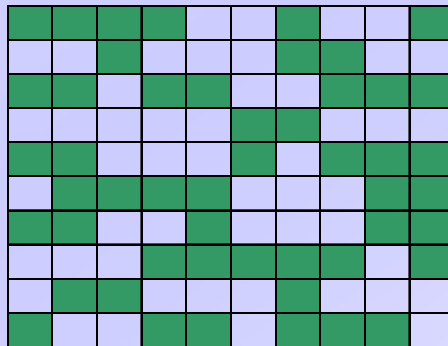
D
24%
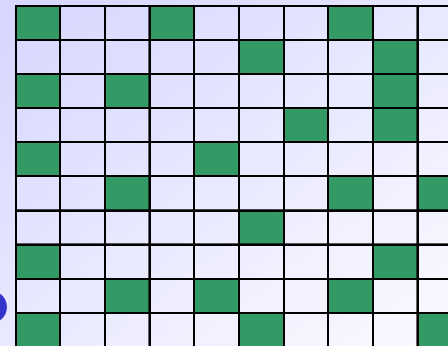
Describing Structure: Other Useful Terms

Vegetation Density
(return of the magic number)

Absent =	0%
Sparse =	>0 - <25%
Intermediate =	25 - <75%
Dense =	75 - 100%

Describing Structure:
Other Useful Terms (continued)

Vegetation Distribution

Clumped – vegetation is aggregated into clusters

Even – vegetation not clumped; distributed uniformly or almost uniformly

Describing Structure:
Other Useful Terms (continued)

Deciduous

Broad-leafed trees that typically lose their leaves in the fall

A deciduous forested community has >= 75% deciduous canopy

(Terrestrial System)

Describing Structure:
Other Useful Terms (continued)

Coniferous

Cone (and needle) bearing trees that typically don't lose their leaves in the fall

A coniferous forested community has >= 75% coniferous canopy (Terrestrial System)

Describing Structure:
Other Useful Terms (continued)

Mixed Coniferous-Deciduous

Communities that have:

25-75% deciduous canopy; and

25-75% coniferous canopy

(Terrestrial System)

Describing Structure:
Other Useful Terms (continued)

For Palustrine System:
(slightly different terms that mean the same thing!)

Conifer Dominated – equivalent to Coniferous

Hardwood Dominated – equivalent to Deciduous

3. Identify Species

Identify plant species in as many layers as necessary to identify the Community Type

In some instances you won't even need to identify species!

The keys were designed to require you to identify as few species as possible

The Classification Hierarchy

Coastal Atlantic White Cedar Swamp

The Classification Hierarchy

Every natural community may be recorded using a 5-step hierarchy

(Keep in mind 1-2-3)

The Classification Hierarchy
(continued)

System

    Sub-system

        Community Group

            Community Sub-group

                Community Type

Note: NH&ESP has only named the 1st and 5th levels.

Page 3

System

1. Hydrology

    Sub-system

        Community Group

2. Structure

           Community Sub-group

                Community Type **3. Species**

Note: NH&ESP has only named the 1st and 5th levels.

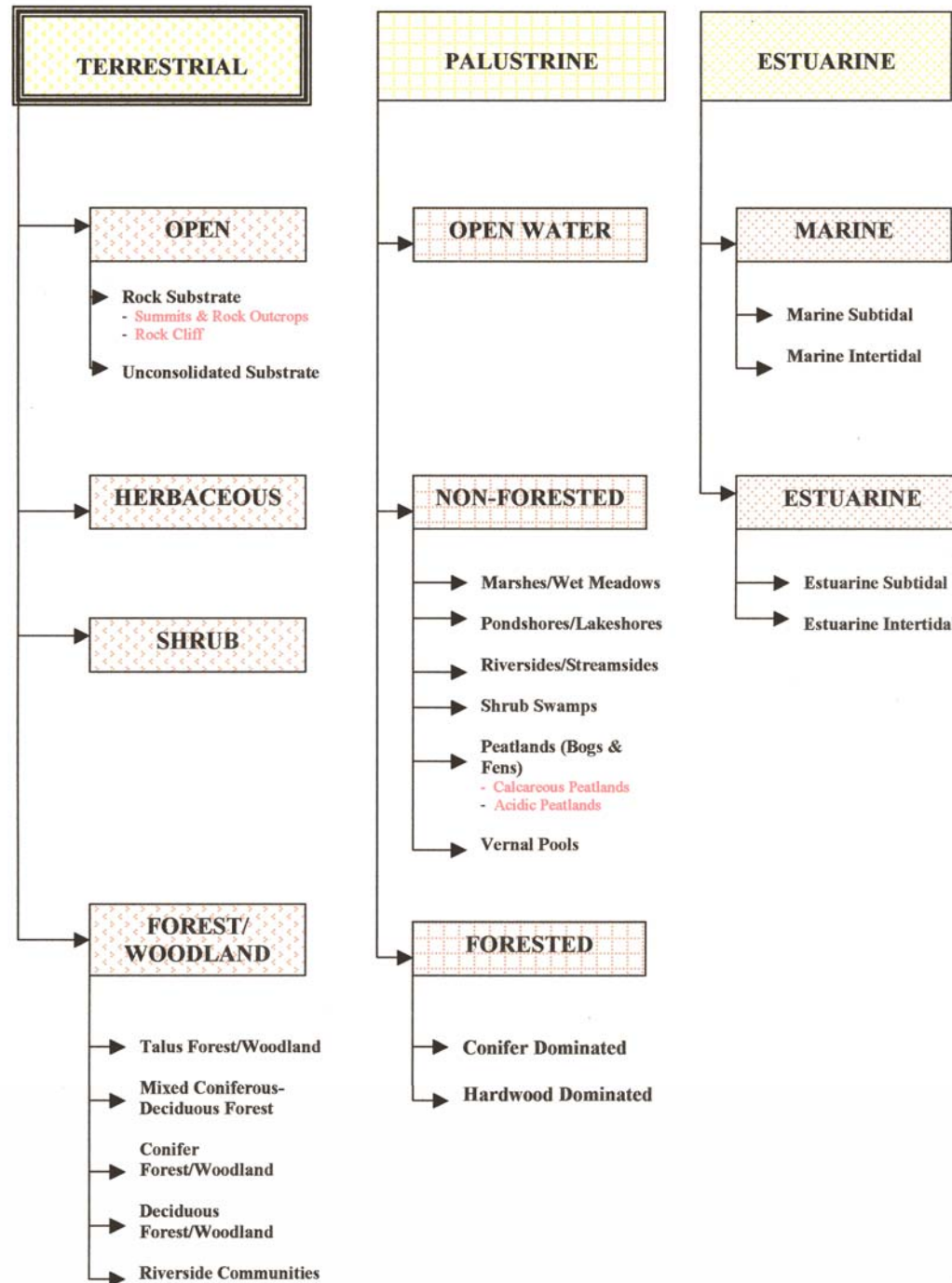Page 3

Where Do I Begin?

Begin by using your flow charts and keys

Flow Charts get you quickly from the System to the Community Group, or Sub-group

Keys let you identify the *most likely* Community Type

Consider a pine forest…

Flow Charts

FOREST/WOODLAND
(>25% TREE CANOPY)

TALUS FOREST/WOODLAND
(Boulder strewn slopes; **Page 28**)

Circumneutral Talus Forest/Woodland
Acidic Talus Forest/Woodland

Calcareous Talus Forest/Woodland

CONIFER FOREST/WOODLAND
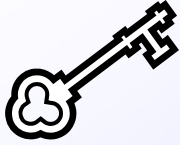(Canopy >= 75% conifers; **Page 32**)

Successional White Pine Forest
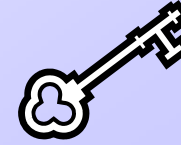Hemlock Ravine

High Elevation Spruce Forest

MIXED CONIFEROUS-DECIDUOUS FOREST/WOODLAND

(Canopy >= 25% conifers and >=25% deciduous; **Page 34**)

Maritime Oak-Holly Forest Woodland
Coastal Forest/Woodland
Pitch Pine – Oak Forest

Keys

Use dominant and/or characteristic plant species to identify Community Type

CONIFER FOREST/WOODLAND COMMUNITIES

Shortcut Key: Check full descriptions following use of keys

1. Hemlock dominated community with 80-100% canopy closure

   A. Yes – Hemlock Ravine [a]
   B. No – Go to 2

2. Balsam fir dominated community located at high elevation.

   A. Yes – High Elevation Spruce - Fir Forest/Woodland
   B. No – Go to 3

3. White pine dominated community

   A. Yes – Successional White Pine Forest

Page 32

Community Descriptions

Successional White Pine Forest	S5
Description/Concept	Old field white pine, several decades after establishment. Other species co-occur, but seldom share dominance.
Topography	
Soils/Substrate	Abandoned agricultural land, usually pasture.
Canopy	White pine, with scattered white oak, northern red oak, and red maple.
Sub-canopy	
Shrub layer	Variable density, from sparse to thick. Includes elderberry, black cherry, and maple-leaved viburnum. Often includes non-native species such as buckthorn, multiflora rose, and honeysuckle. Lowbush blueberry forms patches mixed with black huckleberry on less disturbed sites.
Herb layer	"Thin" or variable. Canada mayflower, starflower, and clubmosses common on formerly plowed soil. Partridgeberry, fringed polygala, and pink lady's slipper grow in long established sites. Bracken is often common.
Leaf litter	Forest floor carpeted with needles. Blackberry vines and poison ivy often cover ground near openings in formerly open, disturbed areas.

[Decision Rule: WP s category = >75% white pine.]

A brief overview of the community, providing a general description, topographic and geologic information, and a "top-down" listing of key vegetative features

Page 33

Supporting Information

In addition to keys and community descriptions, the following information may be provided:

Hints

Caution Signs CAUTION

Footnotes

Location Information

Species matrix (i.e., tables)

Use <u>ALL</u> resources provided

Applying the Hierarchy
to This Example

System	**Terrestrial**
Sub-system	**Forest/Woodland**
Community Group	**Conifer Forest/Woodland**
Community Sub-group	**N/A**
Community Type	**Successional White Pine Forest**

How Do I Know How to Apply the Hierarchy?

It is in your Guide!

Terrestrial   pages 55-56

Palustrine   pages 103-104

Estuarine   page 122

(or you could interpret the flow chart!)

Other Considerations

Low-Energy Riverbank

Field Gear (Recommended)

Field guides
Hand lens
Data sheets
Compass
GPS or Maps
Camera
Zip-loc bags

Where Am I?

When identifying a natural community type, you need to know where that community is located

GPS

Topo Map

Aerial Imagery

Other Maps (trail maps)

Quality of Information

Excellent

Good

Not So Good

How Big An Area Do I Need To Identify?

The answer to this question depends on:

Community **Type**– some are intrinsically small

Objective – you may want to adjust size to
correspond with other surveys/sampling

If you use aerial photos, and the community boundaries
are clearly visible on aerial images, you may want to
identify the whole thing

Decision Rules

MassWildlife (*not* the NH&ESP) has a separate classification system for mapping vegetation on Wildlife Management Areas

They call this classification "Decision Rules"

Some of these Decision Rules are the equivalent of natural communities, some are finer, and some are coarser

These Decision Rules are included in your Guide (indicated in []) and in more detail on your workshop CD

Decision Rules (continued)

Decision Rules are required for consultants
mapping MassWildlife properties

They are <u>not</u> part of the official natural
community classification system

Most of you may ignore Decision Rules

Reporting Natural Community Info

Identification natural communities is just the first step

Please report any and all natural community information to your town, land trust, Manomet (on-line submission form), etc.

Report rare natural communities (S1-S3) to the Natural Heritage and Endangered Species Program.

Report form included in your workshop CD

Any Questions?

Multiple natural communities, Myles Standish State Forest, Plymouth