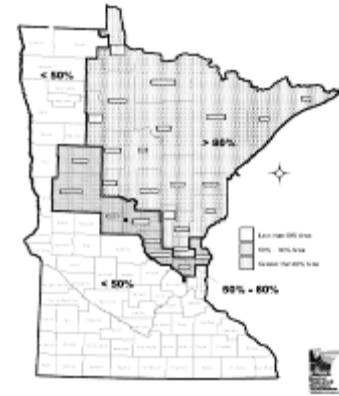# Automated, Individualized Management Classification

Using MnRAM Results

A Visual User Manual

Management Classification

A standard method for assessing MnRAM results, endorsed by the MnRAM Workgroup.

- Guides policy approaches using MnRAM wetland data.

- Two preset levels for no-fuss assessment.

- Dial-up levels allow flexibility for regional landscape or policy differences.

Management Classification, Theory and Practice

- Classification provides a basis for developing wetland management recommendations. It is the next step after gathering field data in MnRAM.

- The objective is to achieve no net loss of wetland functions and values within the management area while providing flexibility for economic development that may require wetland impacts.

- Impacts to wetlands include not only direct impacts such as filling, draining, and excavating, but also indirect impacts from stormwater inputs, changes to local surface and ground water hydrology, and pollutant loading.

- Each wetland can be classified according to a recommended level of wetland protection and acceptable hydrologic changes.

- A wetland management classification system with management standards provides certainty to land use managers and developers.

Management Classification, in Practice

Each wetland can be classified according to a recommended level of wetland protection and acceptable hydrologic changes.
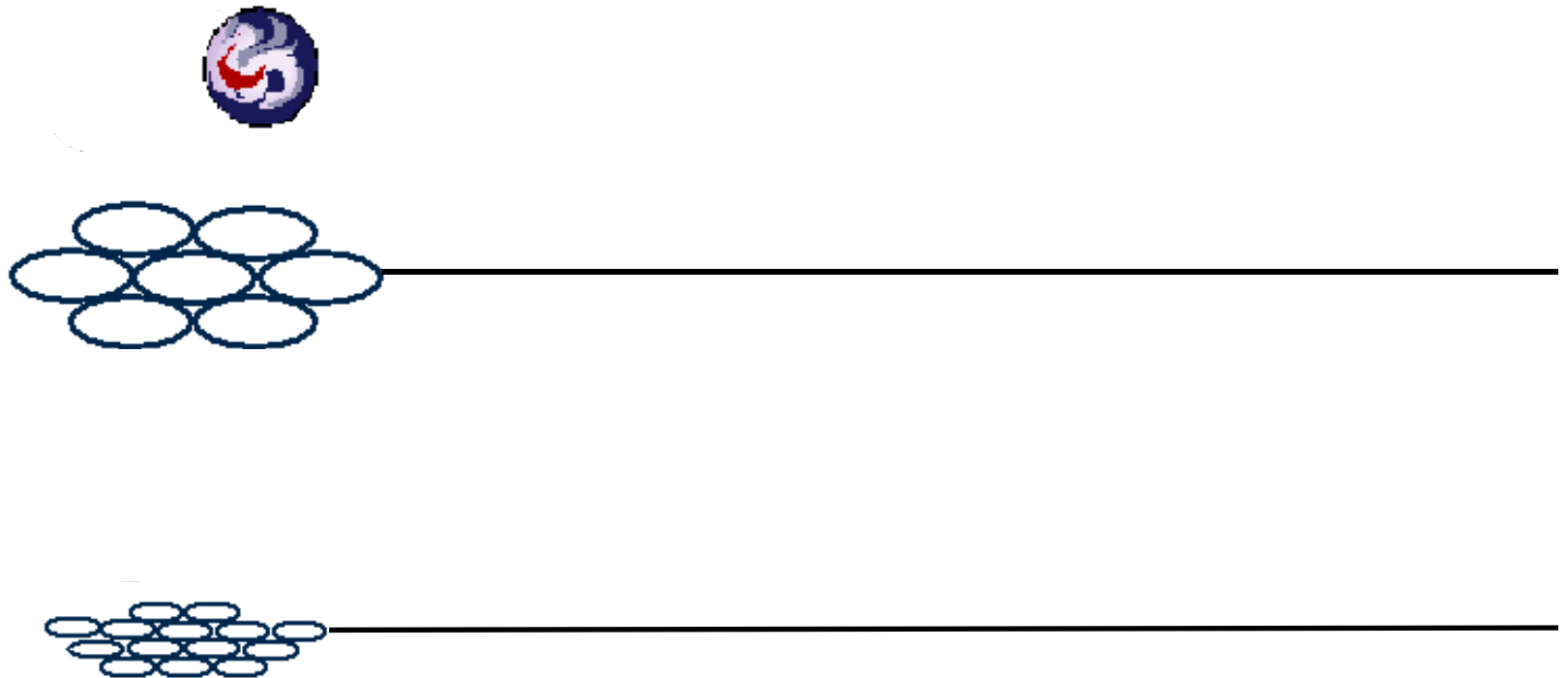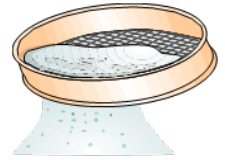
The protection level and hydrologic changes together are called Management Criteria. Each aspect addresses a known stress factor for wetlands.
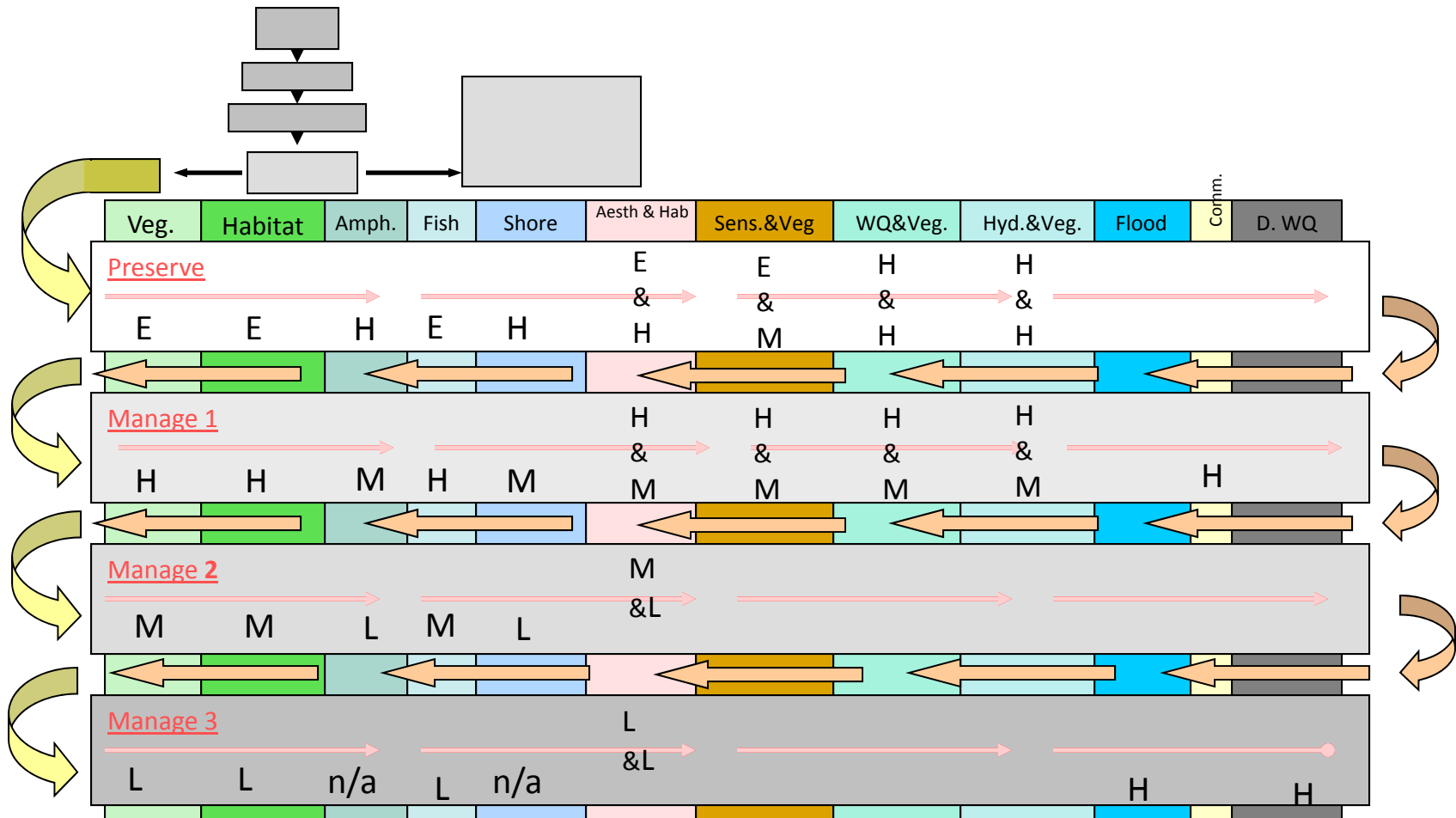
MC is a regulatory process

- Step One: apply MnRAM and look at the functional rating scores.

- Step Two: sort the wetlands into their classification levels, based on their MnRAM ratings.

- Step Three: formally adopt management criteria for each classification level.

Sorting Wetlands
(in theory)

Sorting Wetlands with the MC Flowchart

Veg.	Habitat	Amph.	Fish	Shore	Aesth & Hab	Sens.&Veg	WQ&Veg.	Hyd.&Veg.	Flood	Comm.	D. WQ
Preserve					E & H	E & M	H & H	H & H			
E	E	H	E	H	H	M	H	H			
Manage 1					H & M	H & M	H & M	H & M			
H	H	M	H	M	M	M	M	M		H	
Manage 2					M &L						
M	M	L	M	L							
Manage 3					L &L						
L	L	n/a	L	n/a					H		H

Sorting Wetlands with the MC Flowchart using MnRAM Data

Here is your wetland ➡

Example 1.1: Basic Protection Standard
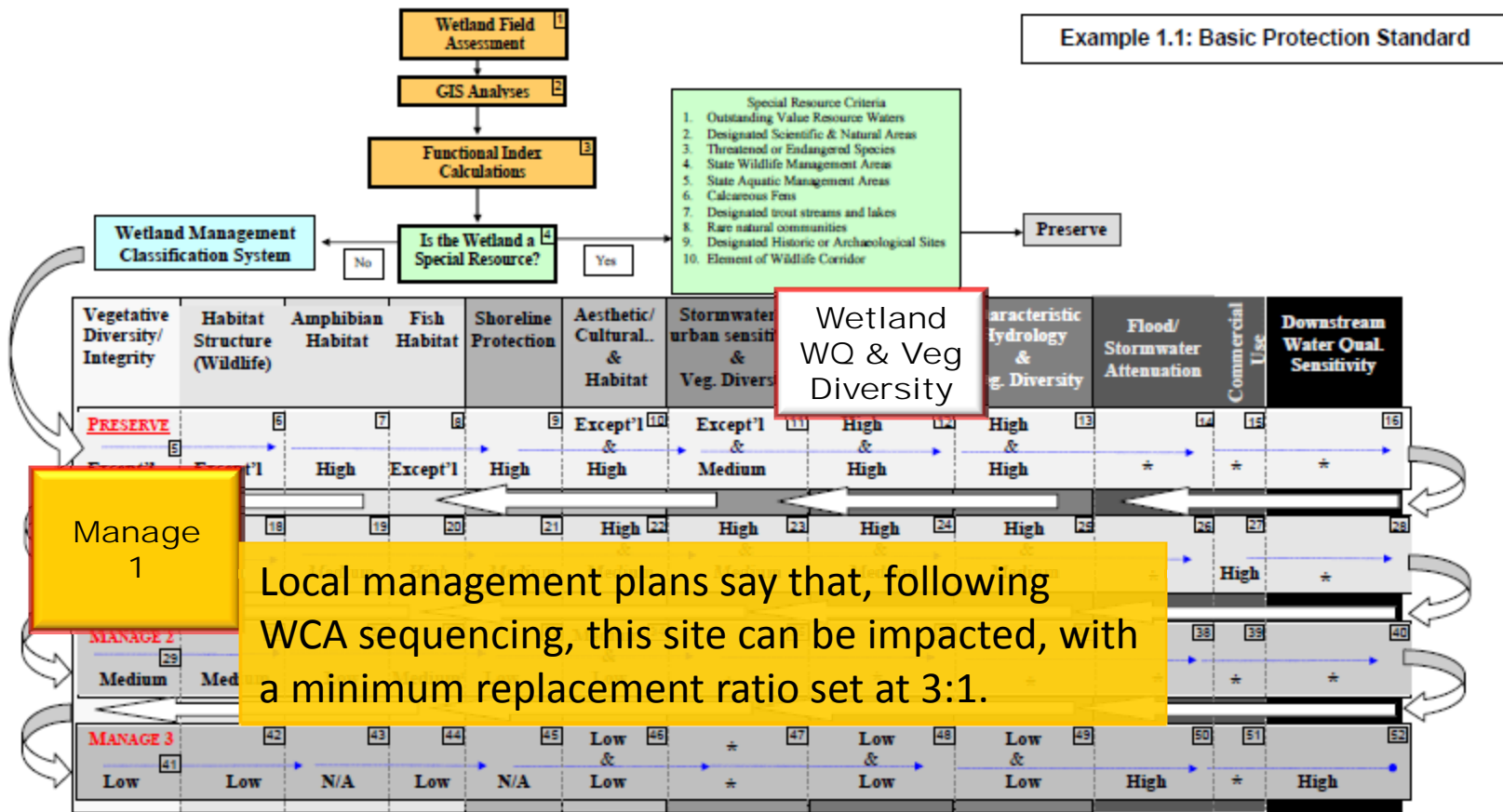
How the flowchart works for a higher-ranked wetland

1.1 Basic Protection Standard

Veg.	Habitat	Amph.	Fish	Shore	Aesth & Hab	Sens.&Veg	WQ&Veg.	Hyd.&Veg.	Flood	Comm.	D. WQ

Preserve

E & M

H & H

H & H
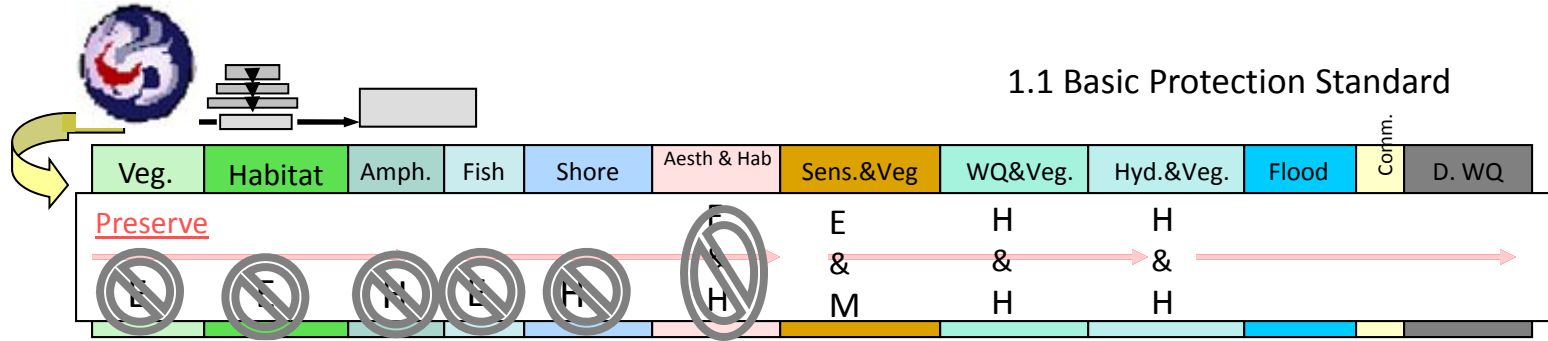
Site doesn't meet criteria for "Preserve" based on these functional rankings…

Classification: Preserve
(What does it mean to be classified as "Preserve"?)

- High quality wetlands
  - Critical value to local ecosystem
  - Sensitive wetlands—still have good vegetative quality
  - Preserve or improve to most pristine state
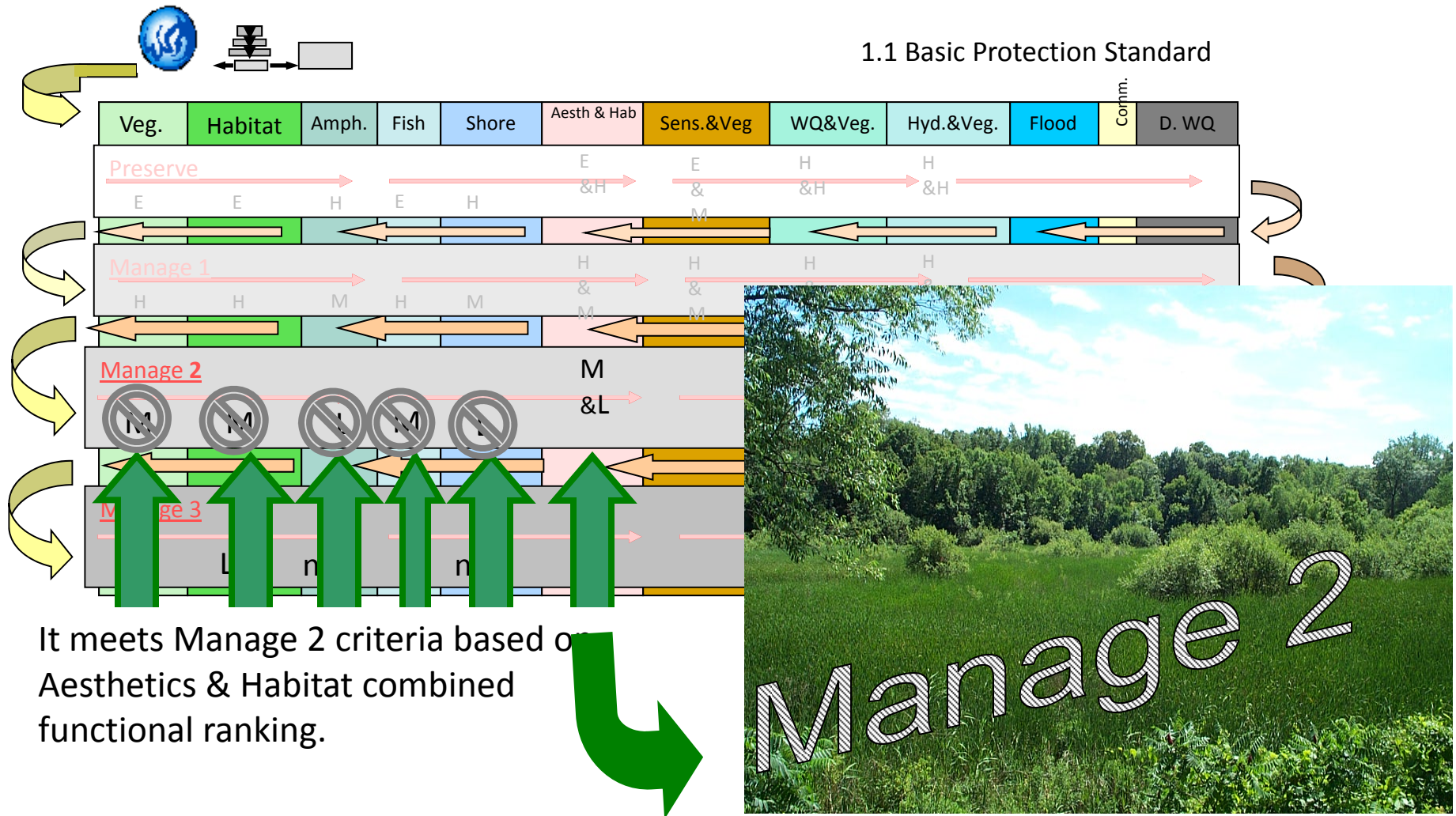- Wide, natural buffers
- Perpetual easements

Classification: Manage 1
(What does it mean to be M-1?)

- Protected from increased use
  - Including indirect effects of local development
  - Maintain natural buffers
- Replacement ratios - meet or exceed required minimums

How the flowchart works for a lower-ranked wetland

1.1 Basic Protection Standard

It meets Manage 2 criteria based on Aesthetics & Habitat combined functional ranking.

Classification: Manage 2
(what does it mean to be M-2?)

- Sediments removed from storm water inputs

- Wetland size maintained

- These are optimal sites for restoration efforts

- Must meet required mitigation ratios

Two Pre-Set Standards

- The flow chart you've been seeing is set with one "filter" for sorting wetlands.

- You could loosen the filter, to let through more wetlands.

- There are two different flow charts, one with a basic setting and one with an increased standard, which keeps more sites in the more-strict management criteria levels.

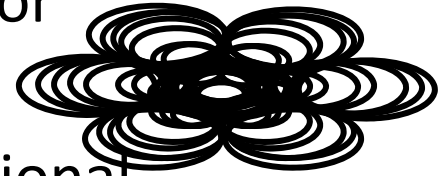# Local choice of preset options: "Basic" vs. "Increased"

Basic Protection: fewer wetlands will remain in the "Preserve" category
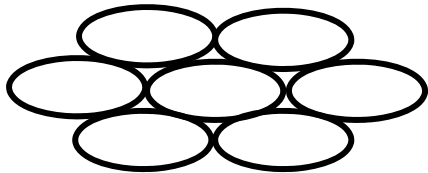
Two Standards

- **BASIC** — The minimum recommended level. Satisfies no-net-loss, protects critical resources, and allows for use of some wetlands in development zones.

- **INCREASED** — Protects less-than-pristine wetlands in areas at an increased risk for wetland impact, whether direct (outright loss by development pressures) or indirect (ecological impact from increased use or hydrologic changes).

These two options offer a starting point for regional decision-making. Any final policy will need to take into account how current and predicted pressures affect the landscape.

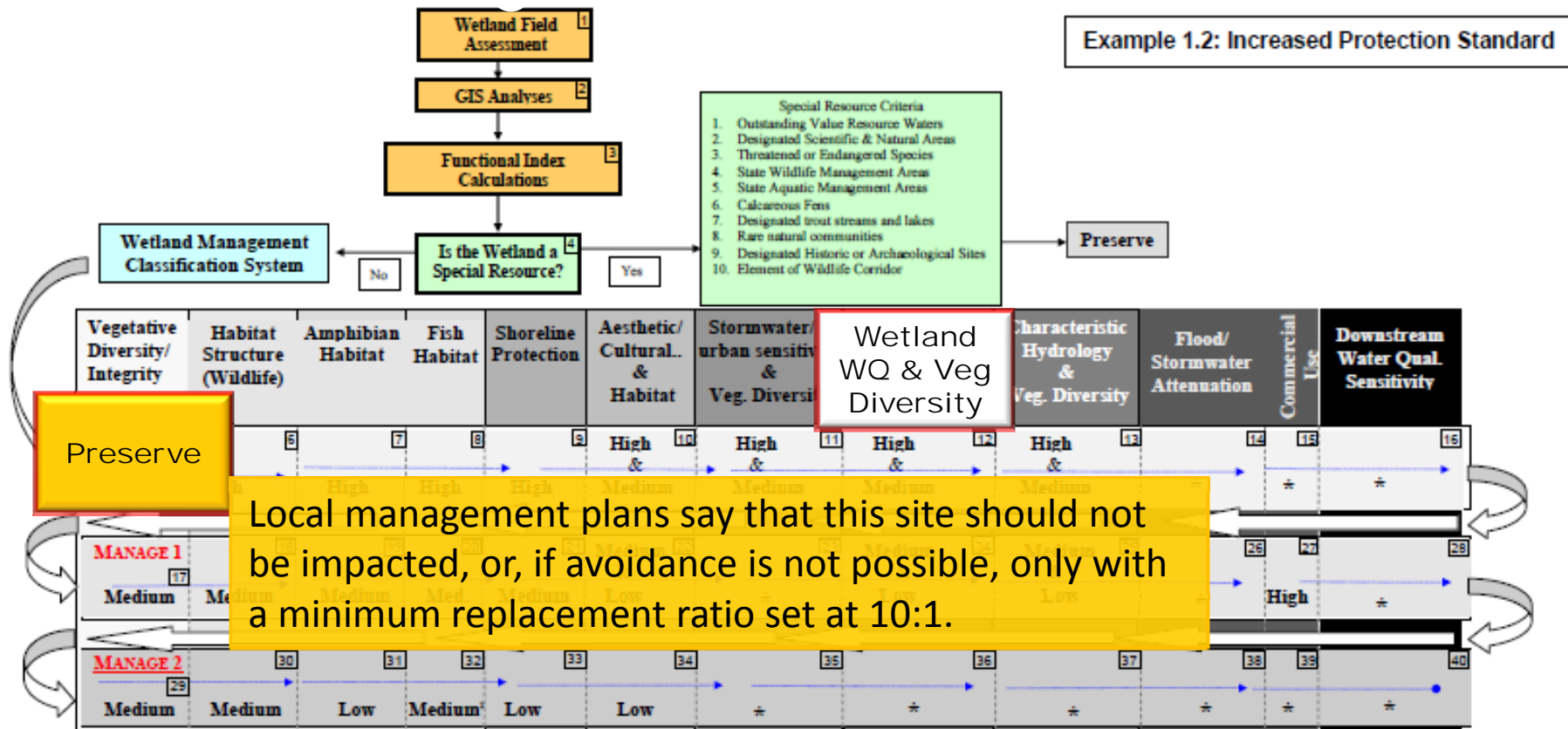# Management Classification: Basic Protection

Example 1.1: Basic Protection Standard

Wetland Field Assessment [1]

GIS Analyses [2]

Functional Index Calculations [3]

Special Resource Criteria
1. Outstanding Value Resource Waters
2. Designated Scientific & Natural Areas
3. Threatened or Endangered Species
4. State Wildlife Management Areas
5. State Aquatic Management Areas
6. Calcareous Fens
7. Designated trout streams and lakes
8. Rare natural communities
9. Designated Historic or Archaeological Sites
10. Element of Wildlife Corridor

Wetland Management Classification System

Is the Wetland a Special Resource? [4] — No / Yes

Preserve

Wetland WQ & Veg Diversity

Vegetative Diversity/ Integrity	Habitat Structure (Wildlife)	Amphibian Habitat	Fish Habitat	Shoreline Protection	Aesthetic/ Cultural.. & Habitat	Stormwater urban sensiti & Veg. Divers	Wetland WQ & Veg Diversity	Characteristic Hydrology & Veg. Diversity	Flood/ Stormwater Attenuation	Commercial Use	Downstream Water Qual. Sensitivity
PRESERVE [5] Except'l	Except'l [6]	High [7]	Except'l [8]	High [9]	Except'l [10] & High	Except'l [11] & Medium	High [12] & High	High [13] & High	* [14]	* [15]	* [16]
Manage 1 [18]	[19]	[20]	[21]	High [22]	High [23]	High [24]	High [25]	[26]	High [27]	* [28]
MANAGE 2 [29] Medium	Med								[38]	[39] *	[40] *
MANAGE 3 [41] Low	Low [42]	N/A [43]	Low [44]	N/A [45]	Low [46] & Low	* [47] *	Low [48] & Low	Low [49] & Low	High [50]	* [51]	High [52]

Local management plans say that, following WCA sequencing, this site can be impacted, with a minimum replacement ratio set at 3:1.

Management Classification: Increased Protection (same site)

Example 1.2: Increased Protection Standard

Wetland Field Assessment [1]

GIS Analyses [2]

Functional Index Calculations [3]

Wetland Management Classification System

Is the Wetland a Special Resource? [4] — No / Yes

Special Resource Criteria
1. Outstanding Value Resource Waters
2. Designated Scientific & Natural Areas
3. Threatened or Endangered Species
4. State Wildlife Management Areas
5. State Aquatic Management Areas
6. Calcareous Fens
7. Designated trout streams and lakes
8. Rare natural communities
9. Designated Historic or Archaeological Sites
10. Element of Wildlife Corridor

Preserve

Vegetative Diversity/ Integrity	Habitat Structure (Wildlife)	Amphibian Habitat	Fish Habitat	Shoreline Protection	Aesthetic/ Cultural.. & Habitat	Stormwater/ urban sensitiv & Veg. Diversi	Wetland WQ & Veg Diversity	Characteristic Hydrology & Veg. Diversity	Flood/ Stormwater Attenuation	Commercial Use	Downstream Water Qual. Sensitivity

Preserve

	[5]	[7]	[8]	[9]	High & [10]	High & [11]	High & [12]	High & [13]		[14] [15]	[16]

Local management plans say that this site should not be impacted, or, if avoidance is not possible, only with a minimum replacement ratio set at 10:1.

MANAGE 1 [17]	Medium									[26] [27]	[28]
Medium								Low		High	*

MANAGE 2 [29]	[30]	[31]	[32]	[33]	[34]	[35]	[36]	[37]	[38] [39]	[40]
Medium	Medium	Low	Medium	Low	Low	*	*	*	* *	*

Two Standards Became... Many

- MC now offers user-controlled criteria for most functional rankings.

- You control the flow chart filter, so that the "marble" wetland falls out where you want it.

- Local wetland manager can adapt an individual strategy to maximize resource protection while retaining development benefits to their community.

MC Flowchart (the old way)

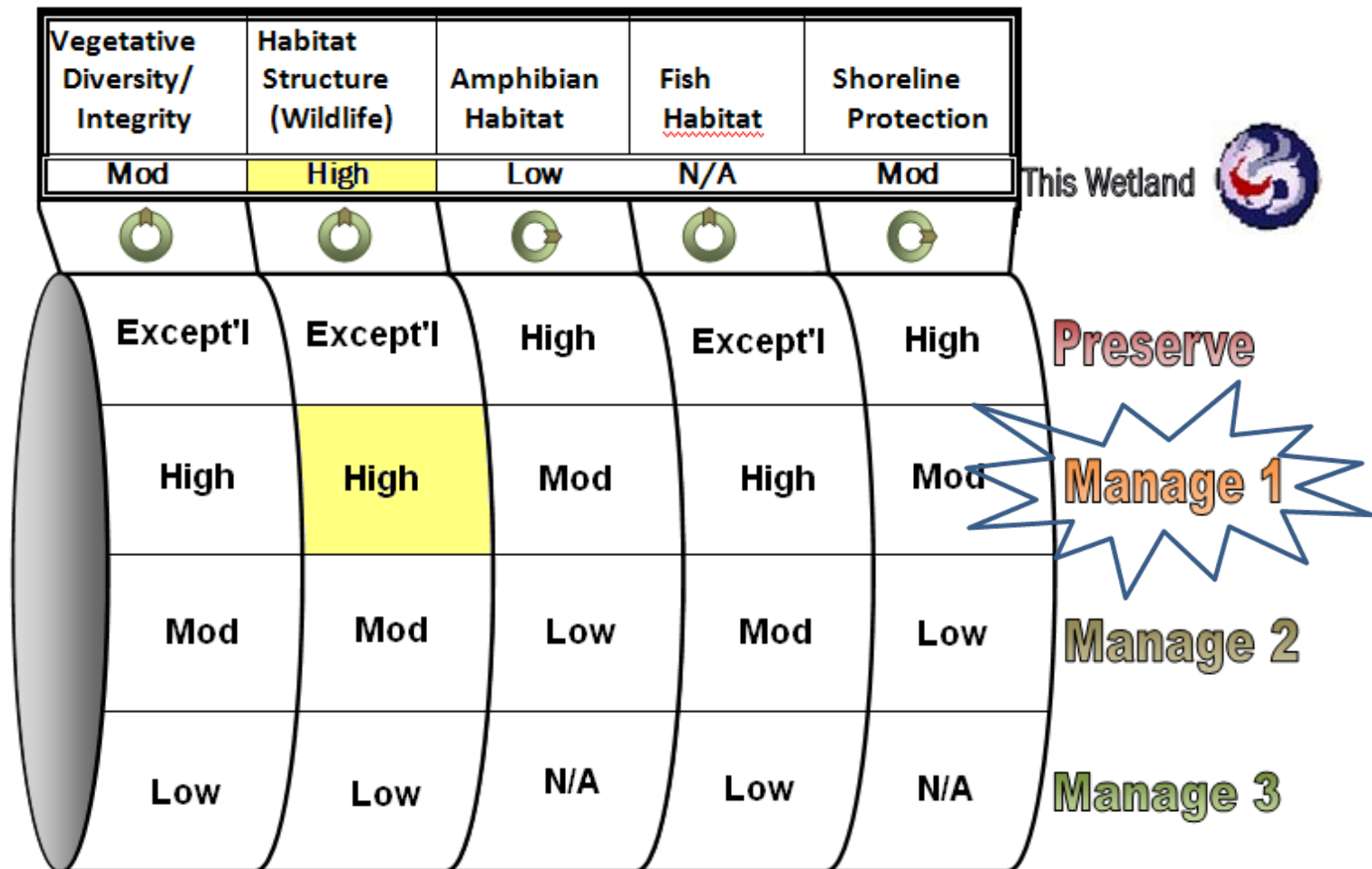1.1 Basic Protection Standard

or

1.2 Increased Protection Standard

Veg.	Habitat	Amph.	Fish	Shore	Aesth & Hab	Sens.&Veg	WQ&Veg.	Hvd.&Veg.	Flood	Comm.	D. WQ
Preserve					H & M	H & M	M & M	M & M			
H	H	M	H	M							
Manage 1					M & L	M & M	M & L	M & L			
M	M	L	M	L					M		
Manage 2					L & L						
M	L	L	M	L							
Manage 3					L &L						
L	L	n/a	L	n/a					H		H
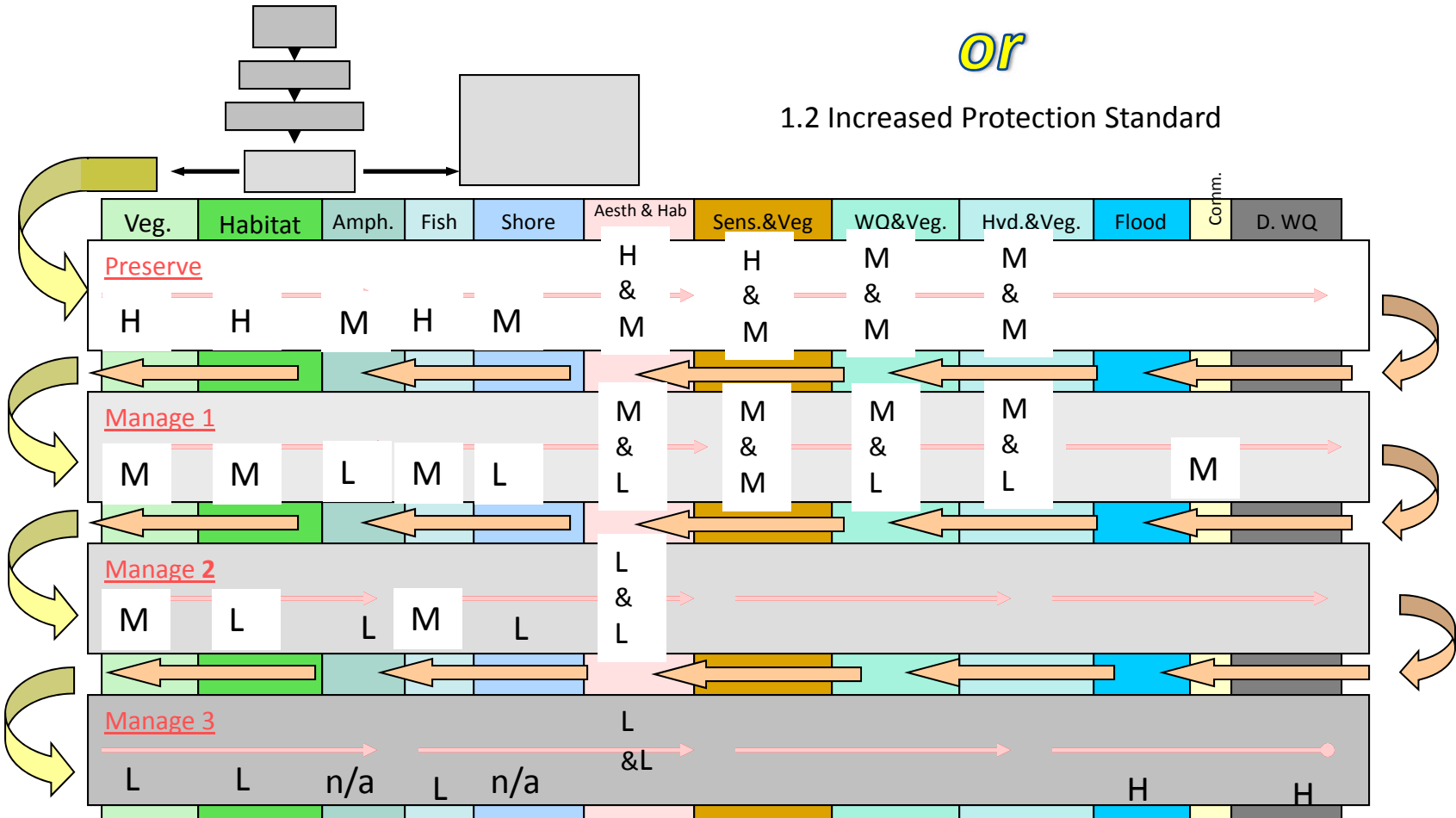
Management Classification, 2.0 (the new way)

Dial-up levels allow flexibility for regional landscape or policy differences.

Local control over output.

Vegetative Diversity/ Integrity	Habitat Structure (Wildlife)	Amphibian Habitat	Fish Habitat	Shoreline Protection	
Mod	High	Low	N/A	Mod	This Wetland
Except'l	Except'l	High	Except'l	High	Preserve
High	High	Mod	High	Mod	Manage 1
Mod	Mod	Low	Mod	Low	Manage 2
Low	Low	N/A	Low	N/A	Manage 3
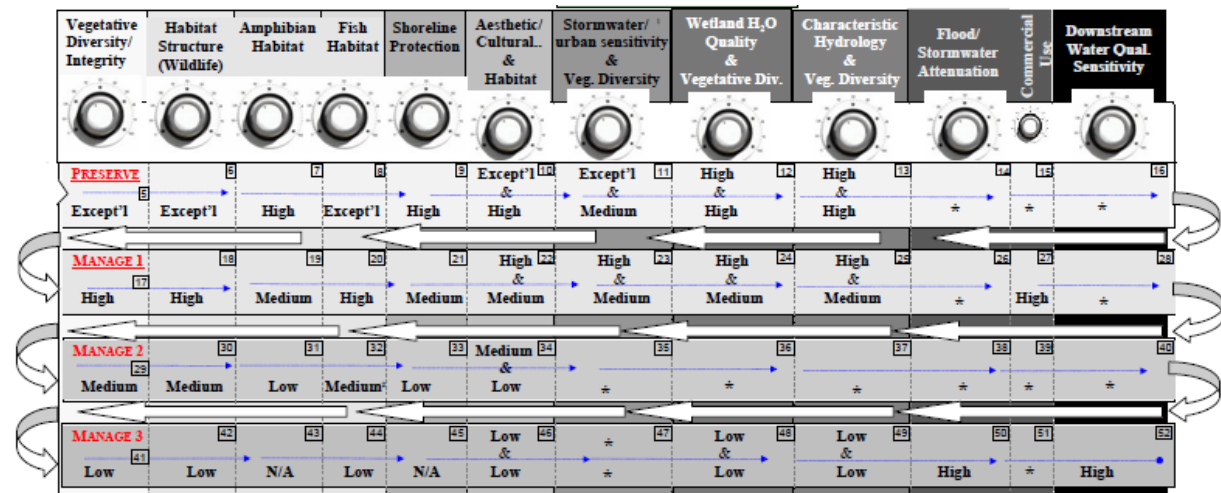
Start with Basic Protection Standard

The wetland starts out here, classified as Manage 1 under the Basic Protection Standard.

Vegetative Diversity/ Integrity	Habitat Structure (Wildlife)	Amphibian Habitat	Fish Habitat	Shoreline Protection	
Mod	High	Low	N/A	Mod	This Wetland
Except'l	Except'l	High	Except'l	High	Preserve
High	High	Mod	High	Mod	Manage 1
Mod	Mod	Low	Mod	Low	Manage 2
Low	Low	N/A	Low	N/A	Manage 3
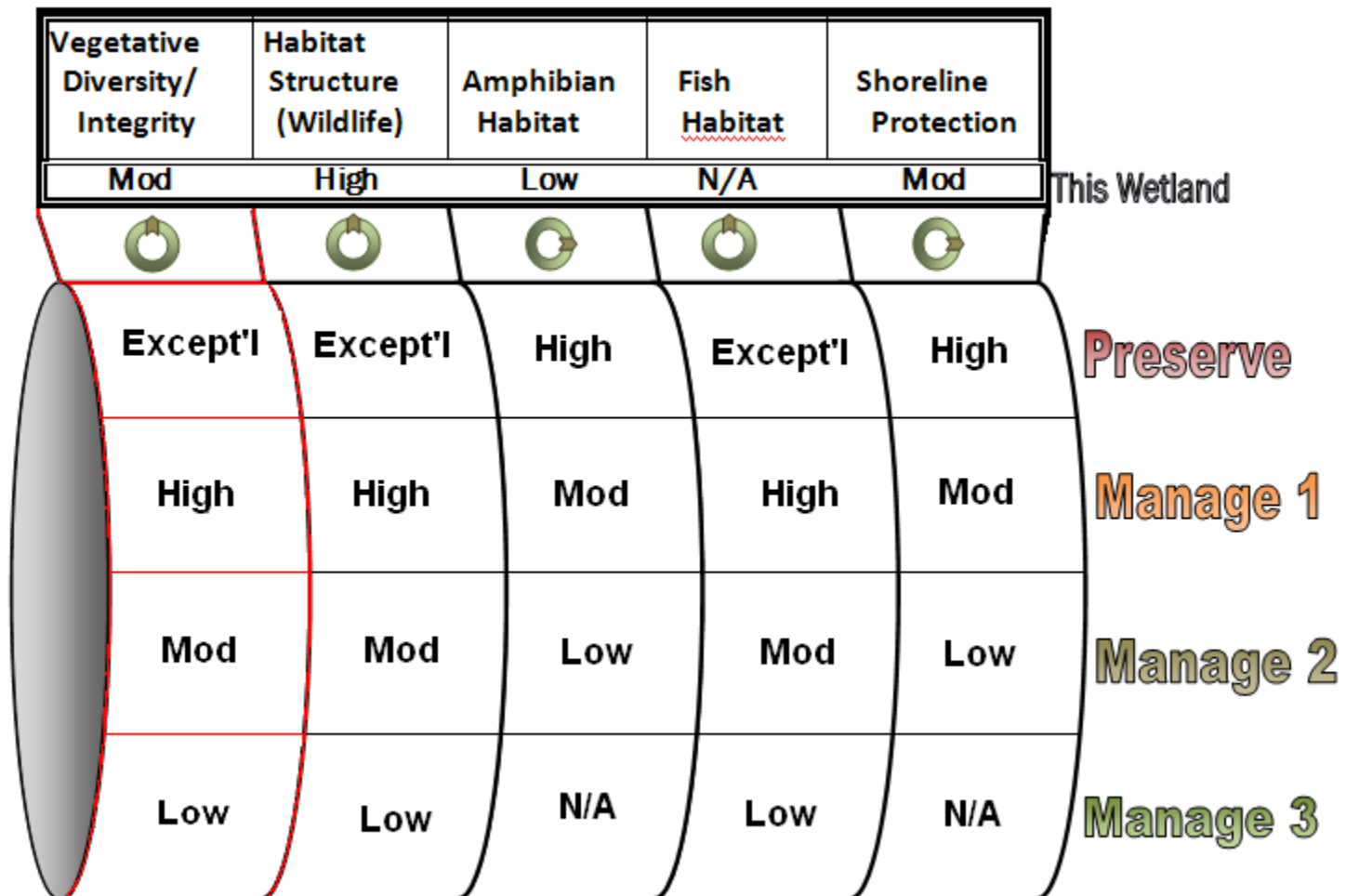
Turning the dials

Each function has a dial that is used to adjust the classification level for that function. It can rotate in only one direction.

Vegetative Diversity/ Integrity	Habitat Structure (Wildlife)	Amphibian Habitat	Fish Habitat	Shoreline Protection	
Mod	High	Low	N/A	Mod	This Wetland
High	High	High	Except'l	High	**Preserve**
Mod	Mod	Mod	High	Mod	**Manage 1**
Low	Low	Low	Mod	Low	**Manage 2**
Except'l	Except'l	N/A	Low	N/A	**Manage 3**

Modifying the Classification Functional Levels

Each function is adjusted in turn, until one matches the wetland profile. The adjustment has changed the classification of the wetland. It is the Habitat Structure (Wildlife) function that proves to be the key element in this scenario.

Vegetative Diversity/ Integrity	Habitat Structure (Wildlife)	Amphibian Habitat	Fish Habitat	Shoreline Protection	
Mod	High	Low	N/A	Mod	This Wetland
Mod	Except'l	High	Except'l	High	Preserve
Low	High	Mod	High	Mod	Manage 1
Except'l	Mod	Low	Mod	Low	Manage 2
High	Low	N/A	Low	N/A	Manage 3

Modifying to a higher classification

Because the wetland's Vegetative Functional rating is Moderate, the wetland falls into the Preserve classification after we adjust the category value.

Vegetative Diversity/ Integrity	Habitat Structure (Wildlife)	Amphibian Habitat	Fish Habitat	Shoreline Protection	
Mod	High	Low	N/A	Mod	This Wetland
High	High	High	Except'l	High	Preserve
Mod	Mod	Mod	High	Mod	Manage 1
Low	Low	Low	Mod	Low	Manage 2
Except'l	Except'l	N/A	Low	N/A	Manage 3

Adjusting Multiple Classification Settings

We now focus on the next function, Habitat Structure (for Wildlife). The setting is "dialed down" so that more wetlands will fall into the higher classification. Restricting the filter limits the fall-through rate.

Going the other way?

- Some northern counties have a glut of high-quality sites.

- Rather than increasing the standards, they need to exclude more sites from the highest management criteria levels.

- The dials don't turn lower (yet). One city solved this by choosing three functions. Any site that didn't rate High on those was pushed into the next management level.

Despite the image shown here, this process is not automated at this time.

Decreasing your management criteria

This site falls into the Preserve category based on its ratings for Wetland Water Quality and Vegetative Diversity. If that category were eliminated, the site would fall into the next level down, Manage 1.

Management Classification, Redux

- Once you set the dials, every wetland must be run through at the same setting.
- Classification provides a basis for developing wetland management recommendations. It is the next step after gathering field data in MnRAM.
- Management Criteria provide flexibility for economic development that may require wetland impacts.
- Mitigation ratios, protection from stormwater runoff, and buffer protection are adjusted for each management level: Preserve, Manage 1, Manage 2, and Manage 3.
- Management standards provide certainty to land use managers and developers.