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WETLAND USES AND FUNCTIONS AS PERCEIVED BY MID-MICHIGAN RESIDENTS: QUALITATIVE RESEARCH RESULTS

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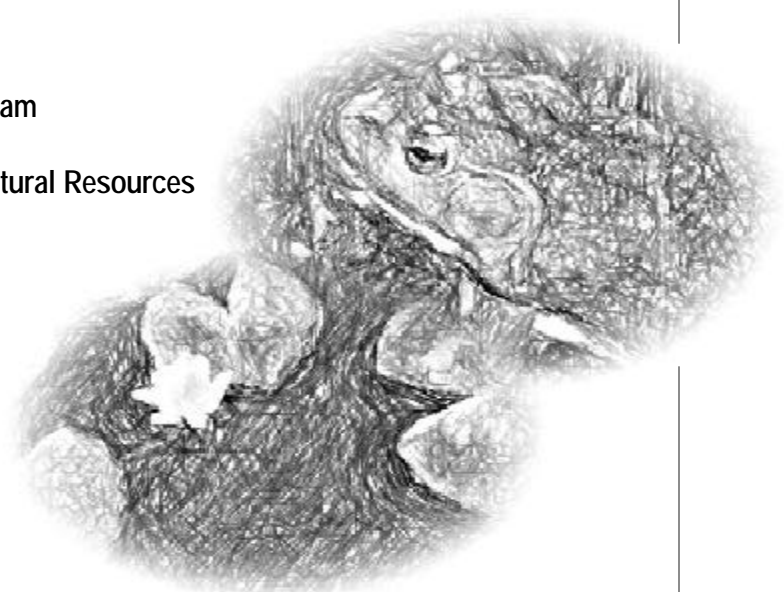
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Introduction

The following report outlines the results of focus group discussions that were conducted to help researchers learn what it is about wetlands, wetland services, and wetland characteristics that matter to people. The participants were asked questions in the areas of natural resources, their prior knowledge of wetlands, wetland types, public policies relating to wetlands, and wetland functions. The focus group discussions reported here were the first set of qualitative discussions in the research project. The purpose of the discussions was to create a basis of information concerning the respondents' perceptions and understanding of wetland uses and functions. These initial focus groups represent a first step in a larger project that will develop and test stated preference instruments for valuing ecosystem characteristics associated with freshwater wetlands. The information on respondents' uses, perceptions, and knowledge of wetland functions will be used to develop survey instruments and serve as the starting point for our wetlands research.

The specific topics of the focus groups were:

- 1) To find what natural resources were important to them.
- 2) To explore their level of prior knowledge concerning wetlands.
- 3) To gather information concerning their knowledge of wetland types.
- 4) To explore their knowledge of public policies relating to wetlands.
- 5) To find their opinions toward the importance of certain wetland functions and their opinions toward a given definition/picture/illustration of wetland functions.
- 6) To gather opinions concerning a given scenario where a wetland is going to be destroyed due to a highway development project.

The results of these three discussions will be used to create future research instruments that concentrate more specifically on what it is about wetlands and wetland services that Michigan residents value. Future research may also include participants from other areas in Michigan.

Study Methods

The discussions were held on September 7th, September 13th, and October 4th, 2000 on the campus of Michigan State University (MSU). Participants were chosen through a systematic random sample that was taken from the Lansing area phone book. Members of the sample were filtered for their level of education, occupation, and previous participation in a focus group. The recruiters attempted to include a mix of discussion members based on the information gathered through the recruiting script.

There were 14 respondents recruited for the discussion on September 7th and six attended the discussion. Similarly, there were 13 respondents recruited for the discussion on September 13th and there were five in attendance. As shown in table 1.0 the third focus group held on October 4th had 17 respondents recruited and there were 12 in attendance. However, in order to have an active discussion group only eight participants were asked

to stay for the discussion while the others were informed about how they would be paid for their attendance and were told they could leave.

While the increase in participation may stem from the method of recruiting, the format of this evaluation does not allow for statistical comparisons between focus groups. The only difference, in recruiting participants for the third focus group, was that they were recruited the week before the focus group whereas members for the first two focus groups were recruited two to three weeks prior to the discussion. A copy of the recruiting script can be found in the appendix.

Table 1 Focus Group Participation

Date	Number of participants in attendance	Number of respondents recruited	Number of absent participants
September 7 th	6	14	8*
September 13 th	5	13	8
October 4 th *	12	17	5

* Note that for the October 4th focus group only eight of the participants were asked to stay for the discussion.

The participants were sent a letter that included specific information in regard to the date and location of the discussion. All of the participants were called, one to two days prior to the focus group, to remind them of the discussion.

Summary of Major Findings

- 1) Participants identified lakes, rivers, and groundwater as natural resources that were the most important to them in their daily life. Other frequently mentioned resources were trees and open land.
- 2) Participants in general seemed to be knowledgeable about wetlands in terms of wildlife and plants. Many identified wetlands as a habitat for birds, fish, beavers, muskrats, and mosquitoes. Some of the plants participants associated with wetlands included algae, cattails, and lily pads. Also, many participants discussed various wetland functions such as flood prevention, water purification, and habitat for wildlife. Several discussion members could relate to where they have seen wetlands throughout the state.
- 3) In terms of replacing wetlands many were not sure how they could adequately be rebuilt in another location. Some of their concerns included whether or not there would be a loss of wildlife and the overall environment found in the original wetland.
- 4) Many of the participants seemed frustrated when they were asked to identify wetland types from a series of pictures since they did not have a concrete definition of a wetland. However, most of the participants identified the picture of the marsh and wet floodplain correctly as a wetland area. Many based their decision on the water and type of vegetation that they saw in the picture.

- 5) None of the participants were familiar with specific public policy in relation to wetlands, however several discussion members had ideas as to how policies can protect wetlands in terms of changes being made in a wetland area.
- 6) Participants generally rated the wetland functions shown to them through pictures and definitions as “quite important” or “extremely important”. Overall, they rated the function of habitat for plants and animals the highest, followed by water quality. In spite of this, they generally seemed to be confused by many of the phrases in the definitions and the selection of pictures representing the wetland functions.
- 7) The importance of wetlands as a habitat for plants and animals was discussed throughout the focus group in terms of their prior knowledge of wetlands, habitat as a function of wetlands, and the importance of habitat when relocating a wetland.
- 8) Members of the focus group did not have specific ideas as to how a wetland could be replaced in the scenario of the highway development project destroying a wetland. Even so, they identified many wetland functions, such as habitat for plants and animals and water quality, as functions that could or definitely should be replaced.
- 9) There were some contradictions discussed in the focus group. Some of the participants thought that wetlands kill trees which conflicts with the dominance of wooded wetlands in Michigan. Also, some of the participants thought the function of waste treatment contradicted with wetlands functioning as a habitat for plants and animals.

Findings

1) Natural resources that are important to participants

To begin the discussion, participants were asked to take a moment and list three natural resources, or things that are associated with land, water, and air, that were important to them in their daily life. The participants discussed a variety of resources. The most often mentioned natural resource focused on the area of lakes, rivers, and groundwater. Some specific concerns that were expressed include that the water needs to be clean, the beaches are drying up, and that the water is important for recreational activities such as swimming, fishing, and water sports.

Many other resources were mentioned such as trees. Some of the reasons for listing trees as an important resource were that they provide shade, beauty, a home for wildlife, a place for camping/walking/hunting, and wood products. A third resource that participants often mentioned was the importance of open land. Many were concerned about the issue of urban sprawl and the loss of land to development. Other resources that were mentioned include wildlife, gas/oil, clean air, and soil/minerals.

2) Prior knowledge of wetlands

Participants were asked several questions pertaining to their knowledge of wetlands. The researchers were attempting to find their level of knowledge concerning wetlands before coming to the focus group, so they were not given any prior facts or information pertaining to wetlands before the discussion began. However, the participants may have had a biased opinion since during recruitment they were informed that the discussion was going to be focused on natural resources. Consequently members of the focus groups may have been more interested in natural resources than the general public.

The first question asked to participants was to describe what they think of when they hear the word “wetland”. A variety of answers were given in the areas of wetland types, wetland functions, and different wildlife that you would find living in wetland areas. Some of the words used to describe wetlands include:

- Swamps, marshes, bogs
- Birds/animals/mosquitoes
- Stink/smell
- A drain/flood prevention
- Filters for water
- DNR enforcement
- Plants
- Rose Lake area
- Negative connotation
- Gunk on shoes

Participants were also asked to identify what they associate with wetlands in terms of water and other physical attributes. When asked about what they think of wetlands in terms of water, participants described it as stagnant, ashy, and muddy. Other words used to describe the water found in wetlands were muck, green scum, and that they would not want to drink the water. Many participants also associated wetlands as a refuge for wildlife including animals, birds, and insects. Some of the specific wildlife mentioned were fish, turtles, deer, bats, woodpeckers, and mosquitoes. A third area that was frequently mentioned was vegetation. Specifically, participants mentioned algae, trees that are down, dead trees, trees that won't grow, cattails, and lily pads. Other things that participants associated with wetlands include they need waders to get through them, the land is low, and humans don't need them or don't like them.

Focus group members were asked to describe how wetlands differ from each other. They described the differences in the areas of vegetation, wildlife, and soil. In terms of vegetation, participants reported that some wetlands have peat, some have dead trees, and that the type of vegetation varies such as cedar swamps in the Upper Peninsula versus the Rose Lake area in Lansing. They described differences in wildlife in terms of the types of animals found throughout the state and in terms of different percentages of wildlife. Finally, soil was brought up as something that differs in wetlands.

Participants identified several things that wetlands do or how they are important. Throughout the discussions they brought up several functions of wetlands. Some of the specific ideas they discussed include:

- Flood prevention
- Water purification
- Provide drinking water
- Outlet for rain and snow
- Habitat for wildlife
- Contain plants that clean the air
- Prevent developments such as Walmart from being built
- Pristine undisturbed area

The focus groups also discussed specific things that the participants liked or disliked about wetlands. The participants discussed the areas of wildlife, taking children to see wetlands, tranquility/quietness, and flowers as things they liked about wetlands. On the other hand, they did not like the smell, mosquitoes, and that you cannot make money with them (development).

Another topic discussed by focus group members pertained to how a wetland could be replaced and what problems they associated with recreating a wetland. Some participants had no ideas or did not understand how you could duplicate a wetland. Others expressed options such as lowering the level of the land, planned flooding, and redirecting rivers. Some problems recognized by the participants included that they did not think you could adequately replace a wetland, that it may depend on the size, and there may be a loss of wildlife. On the other hand, others thought it was appropriate to develop a wetland as long as it was adequately replaced. Below are some direct quotations concerning this topic.

- A wetlands, natural wetlands has taken maybe centuries, maybe thousands or millions of years to become a wetland...So it's awfully hard to say "we're gonna take this thing that took centuries to build, thousands of years, millions of years, and duplicate it over here in, you know, a month and a half." So I don't think you can, gosh, I just don't think you can do it.
- I don't think that there's anything intrinsically good about the way wetlands are created naturally versus man-made. There's a certain function that they serve, and if you can create that function somewhere else, in some other way and do it quicker than maybe it happened naturally, then that's fine...But if whatever the functions they serve in terms of filtering water and providing a place for wildlife and giving a place for the water to run-off and those sorts of things, if you can create that function somehow, then, I mean, that fact that it happened to happen naturally over here, and we create it over there, I don't think that there's anything good or bad about either of that.
- My concern is that they recreate it, but where they're taking it away, all (the)

- wildlife that live there, how are they gonna get it to the new place?
- All those little frogs....and seeds and you know larvae and what not and can they, can they replace it or I mean do they even bother or do they just let it get wet and wait for all of that stuff to happen...I don't know.
 - I have seen where they have taken areas that were perhaps farmland previously - brought in stumps, wetland material from other places like topsoil and I'm not sure if they go back in there and put three frogs and one turtle (laughter) one snake, you know, a couple lily pads and flood it and hope it takes off. I suppose it would probably put the generalistic information in there that it needs but it's probably only truly nature that can create such a unique environment.

Other issues discussed in relation to their knowledge of wetlands include their contact with wetlands, different names associated with wetlands, and how wetlands change throughout the seasons. Participants acknowledged areas by their homes, cabins, and off of US 27 as places they had contact with wetlands. Different names they used to describe wetland areas included swamp, bog, marsh, and protected area. Finally, they discussed that wetlands change throughout the seasons by the amount of water seen in them and in the winter you are able to walk on them.

Overall, participants seemed to be somewhat knowledgeable about certain wildlife found in wetlands. Many participants identified living things with wetlands including:

- Birds (swans, heron, cranes, eagles, ducks)
- Fish
- Beavers
- Muskrats
- Turtles
- Mosquitoes

Most of the participants could associate wetlands with something they saw by their home or driving down the road. Participants described wetlands as a place where water collects and usually the water is stagnant or murky. Specifically in terms of trees, they seemed to associate dead or leaning trees with wetlands. Additionally, they discussed some of the functions of wetlands including flood control, water quality, groundwater recharge, habitat for wildlife, and wetlands as aesthetic or undisturbed areas.

Some direct quotations relating to the topic of their prior knowledge of wetlands include:

- You get a lot of reptiles. Fish, turtles, muskrats, and you know deer, deer live in the swamp, they go in the swamp to drink the water, so you get all sorts of animals in the swamp, like bears... it's, they're kind of a refuge, for all the animals in the world.
- So, anyways, we just think of a lot of animals. We have the mosquitoes, but we don't really because we have a lot of bats. Because we have the trees we have, we also have cottonwood that's like dead, and everyone wonders why we won't

- cut it down, and my husband's like, well there's a lot of animals that live in that. A lot of bugs, a lot of woodpeckers, stuff like that.
- Well, I guess I would've thought the wetlands would be wherever the water collects, when we have lots of water around, and that could be any kind of land. Whether it's a farmer field where the tile broke, or place that's a swamp that's usually there most of the time.
 - Yeah, spongy, you know actually I think of Phil Nye the science guy you know he had a excellent demonstration of why we need wetlands. It's just that it soaks up water and so that the other lands don't get flooded and because it's sort of spongy it does soak up excess water like it served to prevent a flood in case of a flash a lot of rain you know you don't expect.
 - Well I just...because there is a lot of life in them, it's it's fun to just go, I mean you can see turtles, you can see frogs, birds, fish in the waters and yeah birds, ah so they're great just for being near.
 - Swamps have such a negative connotation. I think that most of us think of dark, dreary mosquitoey types of places and gunk on our shoes and all of that, uhm but I'm also very sensitive to the part that they play in cleaning the water that we . . . the filtering system for ground water and what our lovely results are from the work that wetlands do whether it is Lake Lansing Pond or any other, you know, any other bigger expanse of water. . .how much we depend on the wetlands to provide that.
 - Because of the kinds of plants that can grow in the wetlands, it's like a cleaning system for chemicals or other kinds of things that destroy the quality of the water. They just seem to be a very important part of everything we treasure about water.

3) Knowledge of wetland types

The participants were shown pictures of different habitats through a PowerPoint presentation shown on a projection screen. They were asked to decide whether they thought the picture shown to them was a wetland, a non-wetland, or whether they did not know. They were also given a handout where they could identify their answer and if they did think it was a wetland, they were asked to write a brief description of their reasons why they chose that answer. The opinions varied from the participants depending on the wetland type they were shown. Many of them seemed frustrated that they did not know a specific definition of a wetland and therefore had a hard time making their decisions.

Table 2.0 shows the number of responses for each wetland type shown to participants. Most of the participants varied in their decisions as to whether or not the picture shown to them was a wetland, a non-wetland, or that they did not know. However, many agreed that the picture of the marsh and wet floodplain were wetland types. On the other hand, many participants thought that the picture of the Black-eyed Susan and the flat (this was a wetland) were not wetland types. It should be noted that the first two groups were shown the same group of pictures whereas the third focus group included one additional picture of a marsh marigold (wetland) plant.

Table 2 Wetland Types

	Number of Responses		
	Wetland	Non-wetland	Don't know
Marsh (w)	13	2	1
Coastal Wetland (w)	11	5	0
Dry Wetland (w)	4	8	5
Black-eyed Susan (nw)	1	15	0
Bog (w)	4	6	5
Dry Floodplain (w)	4	11	2
Meadow (nw)	2	11	3
Marsh Marigold (w)	3	2	2
Swamp (w)	10	5	2
Forested wetland (w)	9	0	8
Flat (w)	3	12	0
Lady Slipper (w)	7	5	4
Wet Floodplain (w)	12	1	2

(w) = wetland type (nw) = non-wetland type

** The marsh marigold picture was shown only to participants in the third group.

A copy of the PowerPoint slides shown to the participants and the handout can be found in the appendix. The following summary of this section includes a description of what the participants discussed. The bulleted points represent some exact quotations pertaining to their answers.

Marsh

The first picture shown to the participants was a wetland and more specifically was a photograph of a marsh. Most of the participants agreed that it was a wetland due to the water and vegetation found in the picture. Some specific reasons they gave in the discussion include:

- Vegetation - reeds, willows, grasses.
- I put it down as (yes), because of the water and the cattails, the weeds, the lilies.
- The fact that there's stagnant water there with the lilies and the muck there on the right side.
- Yep. That almost looks exactly like what I would think of when I would think of a wetland...looks like the majority of it is under water...the vegetation is starting to grow into it some so it's not a real fast moving source of water.

A few of participants disagreed and did not think it was wetland or were not sure because they thought it was possibly a stream or a river.

- It's a stream.
- Looks kind of riverish - I could canoe in it.

Coastal Wetland

The second picture shown to the participants was of a coastal wetland. The picture was an aerial photograph, which seemed to make it somewhat more difficult for them to decipher what was in the picture. Many of the participants seemed to agree that it was a wetland because of the water seen in the picture. They also thought there appeared to be algae and lily pads growing in the water and therefore thought that it was a wetland.

- It looks like there's algae or something.
- Looks like a place where water collects.
- It looks slimy, stagnant because it looks like there's lily pads.
- Well, it looks like a lake or a flooding or maybe backwater from a dam or something and then this surrounding area really looks like wetland to me.
- It does, it reminds me of the Everglades, except you can't tell how big the trees are or if it's even trees or if it's bushes or what...In fact the bright green looks like algae growth and I don't know whether that means that it's marshy and shallow there or that there's too much algae growth in that lake but I was going to guess that it was a wetland.
- I guess I thought a wetland, because it looks like a larger body of water out there maybe. I'm not sure, but it looks like it's a place where water collects when the water level rises. And it expands and covers more territory.

Some of the participants were not sure whether or not the picture was of a wetland and thought it looked more similar to a delta, an open waterway, or they had a hard time deciding since the picture was taken from so far away. The following are a couple of points made during the discussions.

- It almost looks like peninsula areas where further out there may be an opened waterway for example like Lake Michigan up someplace, and then there's some peninsulas in there.
- Kind of like a delta. Sort of like a river that would dump into this where it opened into a larger body of water on the horizon. But it's too high to see the actual type of plant that is surrounding against the water so. . .it could be all forest.

Dry Wetland

The participants varied in their opinions as to whether the picture of the dry wetland was actually a wetland area. Many also seemed unsure as to whether there was actually water in the picture. Those that thought it was a wetland backed their decision by stating that they thought there was water in the picture, the trees looked as if they would grow in a wetland, and it looked similar to a wetland that may be drier in certain times of the year.

- It looks like something if I walked in I'd want boots. It looks like something I could walk in, like a shallow wetland.

- I think there's water there.
- Well, also when you look at the trees there's nothing short growing. I mean other than the tall grass, which would grow in a marshy area.
- Well drying up you know after the springs and lots of times sure you know I've been in areas like that hunting for mushrooms in the spring. But yet you know you go back into there like in July those trees are growing because of not (being) constantly wet. But that doesn't describe it as a non-wetland you know it's still a wetland.
- Well, you know, the way the trees grow in a wetland. They don't have a lot of branches.

Other participants thought that the picture was of a non-wetland habitat or they were not sure. Some of their reasons include they thought that the picture was of a forest, there was not enough tall vegetation, and the trees were very straight whereas they thought in a wetland area they should be leaning due to the type of soil. Those who were not sure mostly were confused because they could not tell whether or not there was actually water in the picture and because of the trees in the photograph.

- I just put down it looks more like a forest or partial clearing.
- No, I just don't think it's a wetland either. It just looks like a wooded area, you know, because I don't see enough green stuff on the ground...you know, that's high enough.
- I don't think it is primarily because of the space between the trees and the types of trees that are there. The straightness.
- Normally wetlands I think of the trees if there are trees they're leaning because of the foundation, they don't have a good surface to go into and they wouldn't be growing that straight I don't believe in a wetland area.
- That looks more like a flooded area and I don't know if those types of pine trees are typically growing in wetlands or not.
- I don't know because I can't see if it's water or not, it's a poor picture.

Black-eyed Susan

A couple of participants did think it was a wetland or were not sure because they thought there was possibly water and vegetation in the picture.

- Possibly not? Maybe not, it could be on the edge of a, of a marsh you know...as stuff grows up and the upper parts turn like meadow-like and those are meadow flowers so, maybe it used to be one and maybe right next to it there's water but I honestly can't see it there.
- Well, I thought it was. I've got a very broad definition of a wetland. But I mean there is water and vegetation and growth.

Almost all of the participants did not think that the field of black-eyed susan flowers was a wetland. They defended their decision by describing the picture as a meadow or

wildflower field.

- No, because it's a meadow.
- Yeah, with a forest in the background.
- And also the woods in the back, it looks like hardwood and you wouldn't get it growing in a swamp.
- It's more of a pretty meadow...and also those are daisies or like black-eyed susan but I wouldn't associate it with a wetland area, more so an open field or an area along...bordering a dry forest edge or someone's backyard.

Bog

Members of the focus groups did not have a strong opinion as to whether the picture of the bog was actually a wetland or a non-wetland. Those who did think that it was a picture of a wetland interpreted the picture as low land that floods easily. It was also described as ground that is squishy and mucky.

- I'd think yes, because that's what they look like. I mean it looks marshy to me.
- I think it's a wetland that's not flooded right now. I think that this is very low land, looking at the type of grasses that is there...I think that this is a land that floods easily and is...when you walk on it the moss is pushy, squishy. I think this has a muck base to it.
- This reminds me of a place I went to one time where you could see the edge of where this lake used to be and this looks like an overgrown bog to me. We actually took some samples, went down through it and went about 10 or 12 feet before we actually hit water.

Some participants thought that it was not a wetland area due to the types of trees, it looked more similar to a field, and it did not have the appropriate vegetation to be a wetland area. Others were not sure and one person thought that maybe it was a wetland that had dried up.

- I think I'd say no, because they look like pine trees in the background.
- I'd call it a field.
- You think there would be those trees in that area that are dying...I think it looks more like one that once was that is drying up.
- Due to the lack of any vegetation that I normally associate with the wetland area, the cattails, tall saw grasses, the trees, the pine trees, and other leafy trees associated with being a wetland.
- Yeah, I think I don't know. I think I'd have to walk out on it.
- It almost looks like a wetland that's dry, like a wetland in a dry year. Actually I saw some of that this year up in the UP a lot you know like it had water there last year but you know it didn't rain as much so it was sort of dark and dried out but I don't know....

Dry Floodplain

None of the members discussed that they thought the picture of the dry floodplain was a wetland however, from looking over the handout they were asked to fill out, a few of participants did think it was a wetland because it was by the side of a river.

Many of the members were not sure or did not think that it was a wetland area because they thought it looked more similar to a river with a defined shore or was a forest.

- Cause I see water over there. It looks maybe like a river.
- I said non (wetland), because it looks like a forest. It looks like there's water there, but it looks like a creek or a river. That's not a wetland.
- It's just my definition; I guess I would call it something else, just like I wouldn't call a lake a wetland if it had a clearly defined shore....
- I don't think it's a wetland, not my definition of a wetland because if you have a wetland you're not going to be driving in it.
- Uh, looks like it would be good grouse country right there but uh I don't know whether I'd consider that wetland per se because of not actually knowing what the definition of a wetland is.

Meadow

Only a couple participants thought that the picture was of a wetland because they thought there was water in the picture. Others thought that the flowers in the picture looked similar to purple loosestrife flowers and associated them with wetland areas.

- But those purple things are flowers, and they grow near water.
- It looks like the purple loosestrife stuff, or whatever it is I'm thinking.
- That grows in drainage ditches and things.

Most of the participants did not think it was a wetland because it looked more similar to a field of flowers and they did not see any water.

- I guess I know it's a field, a field of flowers.
- To me it looks like its going uphill, so to me, I guess I wouldn't consider a hill a wetland probably, not with wildflowers growing on it. Maybe the bottom part is.
- I don't see water, I see flowers.
- I'd say it looks like a prairie.
- I can't tell because I can't see any water. I can't tell if that's some type of white flower or light flower. It could be purple flowers around it or what.

Marsh Marigold

The picture of the marsh marigold plant was shown only to the participants in the third focus group. There was not a strong consensus among them as far as whether or not this

plant grew in a wetland area from reviewing the handout. However, the participants who discussed their answers out loud in the group talked about how they did think that it was a plant found in wetland areas.

- I believe that could be wetland. I've seen that kind of growth around the out sections of some wetlands. . . the big leaf. . . I believe that could very well be wetland.
- It almost looks like a lily type or buttercup or something that would grow in water. The rest of the growth around it looks like the thick leaf type stuff that uh kind of grass that you would see in a wetland.

Swamp

Most of the discussion participants felt that the swamp was a wetland. Some of them described the area as a small wetland with rotting wood. Others indicated that they consider any area that collects water a wetland.

- I'll clarify my remark. I think that anything that functions as a wetland is a wetland. A wetland performs a function, and in all of these that have water in them they appear that they're doing that. They're collecting water that's run-off...
- Now this kinda reminds me of up north. You've got the pond, or what you consider the wetland where the beavers are. And then you have something like this with the trees, and the beavers kill it all and it collects water or they drain it all into the pond to make it part of it. So I would call it a wetland.
- I think it (is) a very small wetland.
- A small bog.
- See that's what I'm looking at too, there's that rotten wood right there in the middle.

A little less than half of the participants were not sure whether or not the picture of the swamp was of a wetland. Instead of a swamp, some of the participants thought that the area was a spring or pothole. Interestingly, some of the participants who thought it was not a wetland used the same argument that the trees are dying or are rotten, as those who said it was a wetland. Also, a couple of participants thought maybe it was not a wetland at this time but could be one in the future.

- No, but it's killing the trees around it, and they're dying eventually. Over time I would think that that would become bigger and more swamp-like...
- I don't think that it is although I don't have a definition of wetlands. The other thing the trees that are down around it. . .that looks like dry rot to me, it doesn't look like wet. To me it looks like trees that become old and dry and falling over.
- There could be a little spring there, too. There's a lot of areas in the woods...we found swell holes but the same thing.
- Again I wouldn't classify this as a wetland just because of one concentrated area.

- Could that be considered wetland, I'm not sure. It depends on probably the area – how large of an area is it to be considered wetland.
- Further on down the line it is possible this could be transformed by nature into a wetland because water is still staying there, it isn't going away.

Forested Wetland

The participants were almost equally split on whether they thought the forested wetland was a wetland, or that they did not know. However, there was not a significant amount of comments by those who were not sure whether or not it was a wetland both in the discussion and on their handouts. Those who did think it was a wetland gave reasons of dead or dying trees and dead reeds. Interestingly, it was brought up a couple of times that the trees appeared to have Dutch elm disease. The source of the wetland picture described the picture as an area with Dutch elm disease and therefore it was categorized as a “dead-forested wetland”.

- I'd say it's a wetland, because the trees look like they've died.
- See it's only killed by water or Dutch Elm disease.
- That brown dried up stuff, doesn't that look like the reeds or whatever that's in marshy land? I think of bog when I see that.
- That was just like the one that dried up that I was talking about you know all the trees are dying....
- Well yeah that's definitely to me whether there's snow on the ground or not, it's marsh grass that makes that.
- It's just like the marshes in between Marsh Road and Cornell where I live at.
- It's the type of grasses that grow in the wetland. That looks like possibly to me as uh...beaver dam. That's what that looks like. Looks like if you tried walking across there you might be up to your hips in water.

Flat

The few participants that did think it was a wetland gave the reason that there was standing water in the picture on the handout however, they did not discuss this reason in the focus group.

Almost all of the members of the focus group thought that the picture of the flat wetland was not a wetland. Those who did not think it was a wetland made their decision based on their thoughts that the area was simply a farmer's field or a place that received a lot of rain.

- I think that it's a low spot in the field where a farmer's plough's kinda broken or...but once it's cultivated really most of the dry land will take over it.
- Oh, that is a farmer's field that's been rained on.
- Because there's no plants growing and no wildlife it's, it's sort of temporarily flooded....

- It looks like it's something that used to be or is supposed to be a wetland, but the farmer's trying to make it something that it's not. Like he'll have a tractor there going 24 hours a day trying to drain that water, so that someday he can turn it into farmland.
- It's just a low spot in the field where you got some rain and the corn didn't do so well there.
- Just like a heavy rain to me.

Lady Slipper

Most of the participants in the discussion thought that the picture of the lady slipper was a wetland plant. Those who did think it was a wetland plant thought it looked as if it was maybe a lily, orchid, or simply a flower that needs water to live. A few participants identified the plant correctly as a lady slipper.

- It's a lily.
- It's an orchid. Isn't it a Michigan orchid?
- The flower needs the water.
- Ladies slippers. Never been able to see one so I don't know what kind of land they grow on.

However, a couple of the participants thought it was simply a picture of a forest.

- I just say that's a forest.
- Yes, I just say that's forest upland forest or....

Wet Floodplain

Almost all of the focus group members thought that the wet floodplain picture was a wetland area. Many described the reasoning for their decision as that they saw water and trees in the photograph.

- Water and trees.
- Big-time swamp. Of course that's what it looked like when it flooded Ferguson Park in the spring.
- There's a lot of wetland in that.
- I don't know, the water and just looking at the trees, I think it's a wetland.

Others were not sure if it was a picture of a wetland. Some thought that it was simply a flooded area or that it should have cattails, lily pads, and shallow water to be a wetland. Furthermore, some thought that the trees were too big to be in a wetland area.

- I still associate, at least myself, like a wetland being where I grew up with cattails, woods, lily pads, water and high foliage area, shallow water.
- This looks like to me like the flooded area. For some reason...I look at the trees

- and they look like . . . I guess there are a few falling over. I guess. It looks like it's something that's happened more recently. It's not always been on the water.
- How would the trees have gotten that big if it had been a total wetland? They don't normally grow in the pool, the pond.
 - Like if it's only wet temporarily than maybe it isn't a wetland.

4) Public Policy

Focus group members were asked if they were familiar with any public policies that affect wetlands on a local, state, or federal level. None of the participants seemed to be familiar with a specific law or regulation; however, they did have some general ideas about policy issues dealing with wetlands. Several of the participants brought up the issue of wetland policy in relation to building or construction. Some of the issues brought up by the focus group members were that the Department of Natural Resources (DNR) has some power in protecting wetlands, you need a permit to build in certain areas, wetlands are somewhat protected from change, and sometimes they relocate wetlands when they are developed. Following are some direct quotations relating to this section.

- Well, if you're going to build you have to have (the) DNR. If there is a question the DNR comes in and determines legally if it is a wetland. I don't know if there is a minimum acreage on that or not. I think there may be a minimum acreage that is 20 square feet you don't have to worry about. A certain amount you do have to worry about. You know, the DNR by their definition, if there is a definition, of whether it is a wetland or not and you need a permit if you need (to) fill a wetland and sometimes they let you and sometimes they don't.
- Well, I was just going to say that I think local ordinance address things like run-off and things like that but they are more dominated by state laws and I am sure that there are federal laws that impact that.
- I just have the understanding that once an area has been determined to be wetland by whatever person or governmental body it does receive certain protection from change to it. Because change can kill the life in it, etc. I think you're right, I think they did because where the high school is now, it was wetland so they, they re-designated some other area, I think you're right.
- Certain percentage can't be developed, is that right?
- I know in particular areas when there are wetlands present certain portions of them have to be kept non-buildable. . . I mean like you can't build on them even though they're in that particular area and some of the property might be able to be built on. Also, restrictions about uhm even if the property is for sale and a lot of it is buildable you need to leave a certain portion of the wetland that you really can't disturb. I don't know any of the technicality of it.

Even if the participants did not know of any specific regulations they were asked to discuss the rationale for these policies. Members of the focus groups discussed several reasons for such policy such as overseeing development, preservation of nature, and protection of wetlands.

- Well, I am sure there are some regulations about preserving wetlands just so we have some left and we are using them more and more every year. So that has got to be a big reason. Also for safety reasons in terms of building and in terms of construction.
- I think that people finally realize that it's not just protecting ah wildlife that it's protecting our water and our you know the fact that our home may be flooded if we fill in that wetland. In other words it started probably people filled them in and they started getting bad effects so they started to think about maybe taking care of them.
- So developers won't take over every piece of land...is probably why.
- Have to leave something to nature.
- Or just having some type of control, overseeing the development versus a uh...I'm a firm believer too of progression and development but at the same time you need to have some guidelines in which to work in.

5) Wetland Functions

Members of the focus groups were shown pictures and definitions of eight wetland functions through both a PowerPoint presentation shown on a projection screen and through actual color handouts. The participants were asked to discuss what it was about the function that made it important or not important to them and about their understanding, awareness, and experiences with each function. Furthermore, they were asked for feedback on the picture and definition of each function.

Participants were also asked to rate the importance of each function on a scale from 1 (not important) to 5 (extremely important) on a handout. Written ratings were received from 17 of the 19 participants as two of them took the handout as they left the discussion. The table below shows that most of the participants rated the functions as “quite important” or “extremely important”. A copy of the slides and the handout can be found in the appendix.

Table 3 Wetland Function Ratings

	Number of Responses				
	Not Important	Somewhat Important	Important	Quite Important	Extremely Important
Flood Control	0	0	0	7	10
Groundwater Recharge	0	1	2	3	9
Habitat for Plants & Animals	1	0	1	1	14
Pollution Interception	0	1	0	8	8
Shoreline Erosion	0	2	1	7	7
Sediment Stabilization	0	2	1	3	10
Waste Treatment	1	0	2	7	7
Water Quality	0	1	1	3	12

N=17

The order of the pictures was rearranged for the third focus group. Therefore, in the analysis below the comments from participants that attended the October 4th focus group are separated. The bulleted points represent direct quotations from discussion members.

Flood Control

Members of the focus group seemed to refer to flood control as a function of wetlands throughout previous sections of the discussions and rated it as a “quite important” or “extremely important” function. Many of the participants seemed to have a story to share about when they experienced or saw a flood. Several of them related their story to how developed wetlands lead to flooding and damaged homes.

- Protects property & other things from being flooded – damage. Protects wildlife.
- Used to live by a golf course that filled up a swamp. There was severe flooding.
- I remember when East Lansing used to be flooded quite regularly during the late 40's and 50's. Michigan State was building all kinds of things and I think a few things in consideration they pretty much filled all the wetlands they wanted filled out here.
- I used to live in Okemos in Indian Hills right behind the golf course and when we first moved in there was a swamp behind us and evidently from changes they made around the golf course changed that swamp to a non-swamp. We were there the year that there was a really bad flood and I remember that we were on top of the hill...we went down the hill with the canoe to the house that was the closest to the golf course...the two houses that were totally flooded and helped them get all of their things out of the basement and stuff out.

October 4th discussion comments

The participants in the October 4th focus group talked more about the picture and definition than their perceived importance or experience with flood control. From their comments, it seems as if there was confusion in the definition, as some of the participants did not understand what was meant by the terms “controlled flooding” and “storing and releasing water over a long period of time”. The members of the third focus group also did not think that the picture accurately represented flood control. The comments included that the picture showed a man-made way of dealing with flooding and that they did not know of a picture that would accurately represent flood control.

- I'm not quite sure what they're trying to say here but I know that I have seen the wetland areas that I know of here in the state of Michigan that are controlled... you know if you go up 27 there and the one there around Maple Rapids area...if you go up there in the summer and they have let water out of those areas where it almost dries up and then they flood it back in. Now, is that what they're stating by controlled flooding of the wetland itself? Or flooding a city? But I know that the wetlands are controlled by flooding. . .the one around Houghton Lake is

- controlled that way.
- Uhm, so it's a lack of data indicating that a wetland is effective in storing and releasing water along this period of time is what I don't know about it.
 - This picture shows a man-made way of stopping flood not the way that a wetland would do it. I see sand bags piled up there and to me that doesn't show why a wetland would have an impact. I don't think the picture is right.
 - I can't imagine what picture they could get that would show the wetlands preventing flooding because it won't look like a flood. (Laughter)

Groundwater Recharge

Participants rated the item of groundwater recharge highly however, at the same time it was rated lower than some of the other functions as shown in table 2.0. They did not discuss their reasons why they thought it was an important function or their experiences with groundwater recharge. Instead they seemed to be confused by both the definition and the picture. Words in the definition such as "recharge" and "aquifer" seemed to confuse several of the participants. Also, in terms of the picture they did not understand how it accurately represented a wetland functioning as a way to recharge groundwater.

- Do you mean to supply more water for - to compensate for what evaporates off? To keep it I don't know. Is that what recharge means?
- Is an aquifer, like that they tap into to get your well water?
- Recharge. What do they mean by recharge the aquifers? Fill it with water again?
- They have to fill this place up with water and see how fast it drains down through the soil in a certain area of a new home that they're building...That's it, perk yeah perk the fields and just how far it goes down so that's....
- In the picture, I'm not sure which side, see they have a high rate and a moderate rate which side is the....

October 4th discussion comments

The October focus group also found groundwater recharge as an important function of wetlands. Similarly, they found both the definition and picture confusing.

- It seems more scientific and like some colleges or something would understand. I kind of grasp what it's trying to do...but uhm it seemed confusing to me.
- Because it's going to be. . . uh I guess my ideal way to see this would be a marshy bog depression and not having a water table below it versus having a mound on one side and slope on the other.
- I agree with...we look at wetlands more as I think the word bogs...marshes where you don't find...the picture here shows rock base, gravel, a sand base, maybe it's some clay down in here those sorts of things uh gravel base type filtering system as opposed to what we're thinking of wetlands being more marshy uh...

Habitat for Plants & Animals

Most of the participants rated the function of habitat in wetlands as extremely important. Also, many participants talked about this function in previous sections of the discussion.

- Extremely important.
- Well, that top one is a sundew, isn't it. I think we've got marsh marigolds, opossum, a bass, grouse and deer.
- I'm not sure you'd find a bass in what I would think of as a wetland but...
- I think it needs a picture of a turtle here.
- Turtles are real important.
- The other ones are marsh marigolds, you see them in the spring, and they just grow in clumps through the swamp.

October 4th discussion comments

The participants in the October focus group shared similar feelings with the members of previous discussions.

- I'd say it's certainly important for you know the wildflower, birds, fish and animals that survive in wildlife areas it's certainly important to them.
- I think the explanation probably matches the picture as well as any we've had so far.

Pollution Interception/Toxic Residue Processing

Members of the focus group rated pollution interception as mostly either a "quite important" or "extremely important" wetland function. However, they were unsure of terms in the definition such as "neutralized and buried". Also, they were confused as to how the picture related to the function.

- Pollution interception, toxic residue processing? It sounds like a researcher
- It sounds a little bit bureaucratic....
- Yeah, it sounds pretty wordy doesn't it?
- Academic words....
- I guess it makes sense too, depending on who the audience of this is and the average person gets this they'll probably look at it as a survey that says pollution interception, toxic residue processing and they'll probably just go...
- Maybe instead of processing you know say filtering....
- Or removal even, that's expressly removal.
- I know this doesn't well not quite on the subject but does that also mean that the toxic residues can be neutralized in wetland soils? Does that mean that in the sediment stabilization that pesticides and heavy metals are neutralized in wetland soils?

October 4th discussion comments

Once again participants in the third focus group had similar discussions as those in the first two focus groups. Most of the participants thought it was an important function yet questioned the description of the function and picture.

- I think the pictures give good examples to people of uh what ends up in our water.
- I don't know what to think of this.
- Well, it means I come from a...standpoint I guess I have a problem with toxic residues may be buried and neutralized...I'm not so sure that's a correct statement. There's too many of these that cannot be neutralized in the soil and in the water so I have a problem with that. It should be prohibited from getting into the water in the first place so uhm I have a little different view on it because of that.
- I guess I didn't read it quite that way. Maybe. . . my interpretation was just that if we can learn from the wetland plants how to use that ability to filter to fix some of the problems...with or power plants and our pesticides and whatever and develop those plants from that habitat, bring them in and then filter some way. I'm not sure the picture tells what the definition says so that's not a very good connection but...

Shoreline Erosion

Some members of the focus group did have some experience with shoreline erosion either by their cabin or at a state park and thought it was an important function. Without the presence of wetlands in the picture they seemed to be confused as to the meaning of the picture and how it related to this wetland function.

- The Soil Conservation Board gives plants to residents in Mason and Manistee counties so they will plant them along the bluff to help stop erosion of the shoreline.
- At the Sleeping Bear Dunes there are sections blocked off so people do not walk on the grass.
- There are now codes which prevent people from building too close to shorelines.
- And in a way this, this may be true of wetlands but it's also true of dry land. In other words the sand dunes, to me the sand dunes aren't wetlands.
- Yes, it's a bad picture.
- Because where there's a lake and a, and a sandy beach, how, where would there be a wetland anyway and so how would a wetland have helped that? Maybe it couldn't have helped that but if there were a shore that was gradual and marshy and you know....

October 4th discussion comments

The participants in the October focus group also felt that there were problems with the photograph illustrating erosion control, as there did not appear to be a wetland in the picture. Furthermore, they also raised issues with the definition as far as whether or not wetlands anchor soil.

- Uhm, based on the composition of the area with a lot of its sand which does erode very quickly uhm it needs some protection from eroding uhm I've seen and heard stories in my background that uhm because of a certain type of grass in some protected zone like all along the waterfront but I don't associate wetland plants along the Great Lake or large lake.
- I disagree with it. I personally disagree with the definition that a wetland actually anchors soil.
- I guess that goes back to the differences of opinion of what a wetland is because then when we saw the earlier slides I didn't consider some of those wetlands uhm I know when in the proximity of water but to me this shoreline here looks to me more like a goey type area that needs some vegetation yes to hold but I don't consider it a wetland.
- The way I read this is the capacity for a wetland to control erosion through roots of wetland plants holding the soil in place. If, in fact, there is a way to use plants from wetland areas. . .if they could be reproduced or replanted or to control any kind of erosion I think that would be of benefit to our state and to our nation. I don't know that it can be . . .whether we can take and transplant plants that require or thrive on a lot of water and put them into a sandy area like on whether they would thrive or not.
- I agree with you on the end result in terms of preserving the shoreline but I still have a problem with the shoreline and the wetland in the same sentence.
- Well, I didn't feel this picture reflected the statement.

Sediment Stabilization

There were some varied opinions regarding sediment stabilization. Some participants thought it seemed to be an important use of wetlands whereas others thought that wetlands should not be expected to trap pesticides and heavy metals. They were also concerned as to what these toxins do to the wildlife in the wetlands. Furthermore, they did not think that the picture adequately described the function since there were not enough plants and it looked similar to a mud hole.

- With the words "pesticides" and "heavy metals" everyone will think it is important.
- It is a poor use of wetlands - to expect them to do this.
- And keeps them from going into you know the well water and what not. The other thing is just think of all the nasty toxins that are being kept in the wetlands....

- What's it doing to the frogs? Are you gonna get five legged frogs out of this or....
- It's not a real accurate picture either, I mean that could be a mud hole in the driveway really.
- There's not enough plants....
- This, looks like some place that's been denuded of plants. In other words it's like a bad example of what is not going to help, ah so I'd but I do I understand the definition and it makes good sense.

October 4th discussion comments

There was only one comment given from the October discussion since the time was running out and the moderator was trying to get through all of the sections of the discussion. The comment made referred to all of the wetland functions in that we need to learn from what they do naturally.

- I guess the more I look at these the more I agree with Cindy that slides always showing the alternative of what man has done and the message is saying that we can learn from the wetland how to trap the sediment, how to use that . . .whatever nature is doing to help stabilize it naturally that's what we need to do and I guess they don't bother me as much now because I'm looking at it that way.

Waste Treatment

Some of the participants seemed to think waste treatment was a good function of wetlands. However, they seemed to be confused as to how a wetland would actually treat human and animal wastes. Also, some expressed concerns of whether or not it was an appropriate use of wetlands and that they would not like to see waste in the wetlands they are in contact with. In terms of the picture several participants indicated that they did not understand how the picture related to the function. Furthermore, one person did not understand what was meant by "certain wetlands" in the definition.

- This is extremely important with the amount of waste we have today.
- See my problem is that's what people have done for years. Dumping their waste, industrial waste, human waste and stuff into wetlands saying that is going to take care of it.
- Is there really sand, medium gravel, marsh gravel....It's like a manmade function....
- Are we gonna pump human waste into a, a natural wetland? It almost looks like they built the wetland and maybe there are certain water treatment plants that have such a purposely made wetland area for that purpose. It sounds like a good idea....
- What do they mean certain types?
- Does it mean manmade wetlands or are they talking about using an existing one, ugh.... That doesn't sound good does it? It sounds like a great idea, it seems like you would have to have a huge wetland to ah be very useful for very you know

- very many humans you know.
- I'm not sure I'd like the Lake Lansing and trails to be smelling like that, not quite like that but....

October 4th discussion comments

Members of the October focus group discussed that waste treatment was another important function. However, some of the participants did not understand the definition and thought that it did not correlate with the picture.

- It's the definition...the statement is very cumbersome. It's not very clear in my mind. But what the heck are they saying?
- What I was grasping from the statement although it's convoluted is uhm it's an alternative means to break down waste by a couple of different in terms of filtering natural filtration.
- Well, I agree. I think that the function is obviously very important and the definition I think is O.K. too. The two don't fit. . . it's really hard to go from one to the other...to the picture. If you go back to your scientific explanation from the first one this is the same idea here.

Water Quality

Several of the focus group participants agreed that water quality is a very important function of wetlands. Interestingly, they seemed to link water quality to other functions that were mentioned previously such as sediment stabilization.

- Well whenever you are improving the water quality I think it is going to be very important. So it would be a very important guess that this would be an important function.
- Is there a big difference between this one and the sediment stabilization?
- I think you're right, they're similar, you're right. Trap sediments, higher quality....
- Because it's retaining the you know the heavy metals in the sediment.
- Well one is sort of, it does this and water quality is sort of the result I guess, they're real closely linked.

October 4th discussion comments

Attendees of the October discussion felt that that water quality was once again an important function. However, some of the participants felt that the definition was too broad and the picture did not illustrate a wetland itself but the end result of a wetland function.

- I think they're extremely important. You get the quality of water you want the best quality of water you can buy.

- Too broad (definition.)
- I interpreted it as being a picture of the downstream water and not a wetland but the good results of...the good results of the wetland but not the wetland itself.

Ranking of the “most important” and “least important” function

Participants were asked to choose one function as the “most” important and another function as the “least” important. As shown in table 3.0 below, the most frequently ranked items as “most important” were water quality, groundwater recharge, and habitat for plants and animals. Shoreline erosion and waste treatment were most frequently ranked as “least important”.

Table 4 Wetland Function Ranking

	Number of Responses	
	Most Important	Least Important
Flood Control	2	2
Groundwater Recharge	4	0
Habitat for Plants & Animals	4	2
Pollution Interception	1	0
Shoreline Erosion	0	6
Sediment Stabilization	1	1
Water Quality	5	0
Waste Treatment	1	4

N=17

* One of the participants chose more than one function as the “most important”.

6) Scenario

The participants were given a scenario where they were a part of a panel that was hired to give advice to decision-makers on a highway development project. In the scenario the highway was going to be built through a wetland thus resulting in the destruction of the wetland and its wetland functions. However, the developers planned on rebuilding the wetland in another area.

First, the participants were asked to discuss what wetland functions should be replaced. Some specific functions that participants thought could be replaced include groundwater recharge and wastewater treatment since they could be man-made. One specific function mentioned that they thought could not be replaced was habitat for plants and animals. Another point brought up by a couple of the participants was that by simply replacing the top layer of soil the newly created wetland would not have the right type of soil to adequately soak up and filter water as the original wetland. Following are some specific quotes from participants:

- I think the recharge system could be manmade.
- It seems like most of them except for the habitat.
- I mean I'm sure that could even be created but I don't really think like we were talking earlier that it would truly replace and get back all of the things that we lost.
- One thing that I, that I question too is that you know it's good for flood control because it absorbs a lot of water, it's not just plain dirt that's under there. There's, there's a deep, long layer of spongy broken down materials including stuff like peat moss, if you're in a really old area....
- Maybe you could get the plants and the animals and stuff to come back and have it look the same on the top but does it function as well for, for flood prevention and then I would also question if it doesn't have that deep spongy stuff is it going to purify the water as well?

Members of the focus groups were then asked to discuss in which ways the wetland could be replaced. It seemed most of the participants did not have a strong opinion on how to replace a wetland. Some suggested alternative solutions of building a bridge across the wetland or rerouting the highway. Others were still not sure if a wetland could actually be replaced.

- It would be almost easier to build the road over the wetland.
- Yeah, you know I'm thinking to make the habitat the same you know being a gardener I'm thinking okay, you'd have to ah collect the seeds and some soil from that area before you bulldozed it you know. And you would have to maybe identify at least the animal life that's there or take some out and you know and save it or go to a nearby wetland with the same form and flora and after your new wetland is there, take samples of stuff and plant it and start it. You know if you don't start it, it will take a long time to get there and it seems like that.
- But you can't, I just don't think you can replace anything manmade with what has been done by nature.
- Maybe you can reroute it. I mean, you know, maybe you could go ahead and build your highway and you can reroute it and you're not changing anything except for the route of it. Perhaps you can trench it, the same water that you have flowing into another direction and then you're not really disturbing it that much.

Finally, participants were asked which functions should definitely be replaced. Some functions that were mentioned include habitat for plants and animals, and water purification. Others thought that which functions should be replaced was dependant on the location of the wetland. For example, one participant thought it would depend on if the area was prone to flooding. Some other points that came out of the final discussion were that if the wetlands could be recreated successfully they should do it and therefore help traffic around cities, create jobs, and help the economy. Others disagreed and still did not think wetlands could adequately be replaced.

- I'd pick habitat for plants and animals as one of the things for us.

- And then I'd say water purification because you know what else are we going to do to protect our water. I mean that's you know you can live through a flood but you can't live if you don't have water.
- It would depend on if it was an area that had shoreline and if it doesn't it's no point in doing that.
- Which is the bigger problem . . .are you going to worry about the city that can't commute through its main traffic arteries or are you going to worry about the wetland and its eco-system?
- I, I have a problem with uh someone saying that you can create uh that man can create wetland. I have a problem with that. There's only one person that could create a wetland like a wetland is without the little bugs and just all kinds of things that are in that wetland. We can't do it. I just don't believe man can do it.
- But the fact that we decided that we can build a highway on a wetland. . . there are examples of you know wetlands that have been replaced that have been recreated...I say yes, you know, let's go for it. If this is going to help the economy...let's do it. There's evidence that it you know can replace the wetlands that have been very successful why not do it.
- I'm not so sure that it has been proven that effective. And I don't believe that. It's never been proven that a man made uh wetland has been effective as nature and I think that probably what is the most important thing in my mind that there is pollution interception. I think that that's probably number one on that list as what man can do to protect our environment.
- I haven't been aware of the uh promoted functions of a wetland such as it does have the ability to prevent waste and contamination uhm it has the ability to flood control, etc. I think these other functions, if in fact, they do exist in the wetland should certainly be promoted in public awareness.

Conclusions

These initial focus groups sought to find the awareness of Lansing area residents toward wetlands. The participants were asked questions in the areas of natural resources, their prior knowledge of wetlands, wetland types, public policies relating to wetlands, and wetland functions. In terms of natural resources that are important to them in their daily life, many participants identified lakes, rivers, and groundwater. Many of the focus group members seemed to be knowledgeable as to animals and plants found in wetland areas and could relate to where they have seen wetlands in Michigan. When the participants were shown wetland types they seemed to identify the areas as a wetland by the water and types of vegetation in the pictures. The focus group members generally rated the wetland functions described to them as "quite important" or "extremely important". Furthermore, they were not aware of any specific public policy in relation to wetlands and did not have a specific idea as to how a wetland could be replaced in another location.

The findings from these initial focus groups will serve as a basis for future research. This is an important step in the research process as the wording and concepts presented in the

survey instruments need to be understandable by the general public. Also, results from the focus group discussions will help the researchers in finding out what people value about wetlands. Consequently, these findings will assist the researchers in choosing which specific wetland functions and services to incorporate in upcoming research efforts.

APPENDIX

DEFINITIONS

- Rose Lake: This is a State Wildlife Research area with wetlands and is located on the northeast side of Lansing, MI.
- Walmart: The possible construction of a Walmart is an issue within a local township.
- US 27: This highway goes north out of Lansing. There is a prominent wetland located near the highway.
- Lake Lansing Park: A park located in Haslett, which is northeast of Lansing.
- Maple Rapids: A city located about 40 miles north of Lansing.
- Houghton Lake: A city located about 125 north of Lansing.

RECRUITING SCREENER

Interviewer: _____ Date: _____

Respondent Name: _____ Ph

Address: _____ Gender: Male 1
 City: _____ Zip: _____ Female 2

Hello. I'm calling from *Michigan State University*. I would like to talk to the male or female head of your household...

We want to get your opinion about *Michigan's land and water resources*. Just so you know, this is not a sales call. Your opinion is essential for *our research* on Michigan's natural resources. Any information you give me will be strictly confidential.

Would it be alright if I asked you some questions?

If a person has questions about the purpose of the call you may give them the following additional information
 (We're looking for people who are willing to participate in a paid discussion of Michigan's natural resources. I would like to ask you some initial questions. If you're selected, you'll be asked to participate. May I ask you a few questions?)

CONTINUE – Yes 1
 ASK TO SPEAK TO HEAD OF HOUSEHOLD – No 2
 ASK TO SPEAK TO HEAD OF HOUSEHOLD – DK/REF 9.

1. If you don't mind may I ask your age?
IF RELUCTANT TO GIVE EXACT AGE, ASK – Are you:
- | | |
|--------------------------------|---|
| THANK AND TERMINATE – Under 18 | 1 |
| 18-21 | 2 |
| 22-29 | 3 |
| 30-39 | 4 |
| 40-49 | 5 |
| 50-59 | 6 |
| 60-65 | 7 |
| Over 65 | 8 |
| DK/REF | 9 |

RECRUIT A MIX, BUT NO MORE THAN ONE 18-21

2. Was the last year in school that you completed _____?
- | | |
|-----------------------------------------------|---|
| Less than high school | 1 |
| High school | 2 |
| Some college, technical, or vocational school | 3 |
| Four-year college degree (Specify) _____ | |
| Some post graduate degree (Specify) _____ | |
| Post graduate degree (Specify) _____ | |

THANK AND TERMINATE ENGINEERING, SCIENCES, MEDICINE, DENTISTRY, LAW (Ms, PhD, JD, MD). RECRUIT A MIX OF OTHERS, BUT NO MORE THAN 1 WITH LESS THAN A HIGH SCHOOL DEGREE.

3. What is your occupation?

PROBE. THANK AND TERMINATE ENGINEERS, SCIENTISTS, DOCTORS, LAWYERS, UNIVERSITY PROFESSORS and HIGHLY TECHNICAL JOBS. RECRUIT A MIX OF OTHER OCCUPATIONS. IF THEY WORK FOR A GOVERNMENT AGENCY PROBE AND TERMINATE THOSE THAT WORK IN RELATION TO LAND & WATER MANAGEMENT, REGULATION, LAW AND TRANSPORTATION PLANNING.

4. Are you employed full time, part time, or are you not currently employed?
- | | |
|--------------|---|
| Full time | 1 |
| Part time | 2 |
| Not employed | 3 |
| Retired | 4 |
| DK/REF | 9 |

RECRUIT A MIX, WITH MOST EMPLOYED FULL TIME

5. Are you either an employee of Michigan State University or a current student at Michigan State University?
- THANK AND TERMINATE – Yes 1
CONTINUE – No 2

6. Are you an officer or employee of any community or environmental organization? **PROBE IF NECESSARY**
– For example, do you hold an office such as president, secretary, treasurer, or board member?
- THANK AND TERMINATE – Yes 1
CONTINUE – No 2
CONTINUE – DK/REF 9

7. Have you ever participated in a discussion group for research purposes for which you were paid for your time?
- THANK AND TERMINATE – Yes 1
PROBE: If they have participated in more than one focus group thank and terminate
CONTINUE – No 2
THANK AND TERMINATE – DK/REF 9

INVITATION

As part of a Michigan State University research project, we are inviting a small number of people to participate in an informal, on-campus discussion of Michigan’s natural resources. The private discussion will involve a small group of about 8-10 people. What is very important for you to understand is that there are no right or wrong answers in this discussion. We simply want to find the opinions of the general public in relation to these issues. Your contribution is essential to our better understanding of this topic and we feel that you are suited to help us.

Once again, our work is *not* related to any political or sales campaign and all names will be kept strictly confidential.

The discussion will be held on the evening of **Wednesday October 4th** in the Communication Arts building on MSU Campus and will last approximately two hours. We realize you would be taking time out of your schedule so we are offering a \$40.00 honorarium to those who participate.

Will you be available on **October 4th at 7:00 pm?**

CONTINUE – Yes 1

THANK AND TERMINATE – No 2

If respondent cannot make it to the focus group due to the date ask if they would be willing to be put on a list so we can ask them to participate in future discussions relating to this project.

SAVE – DK/REF 9

May I please have your name and address so that I can mail you a letter including directions to the discussion and a confirmation of this telephone conversation? **PLEASE RECORD ON FRONT PAGE AND VERIFY PHONE.**

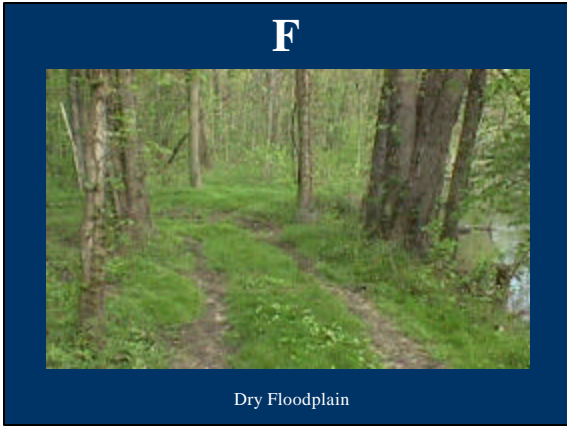
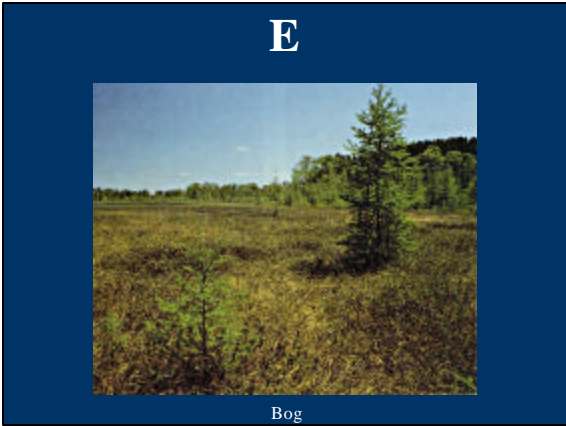
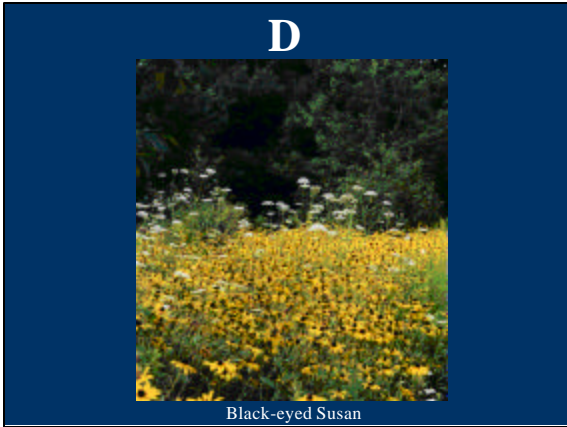
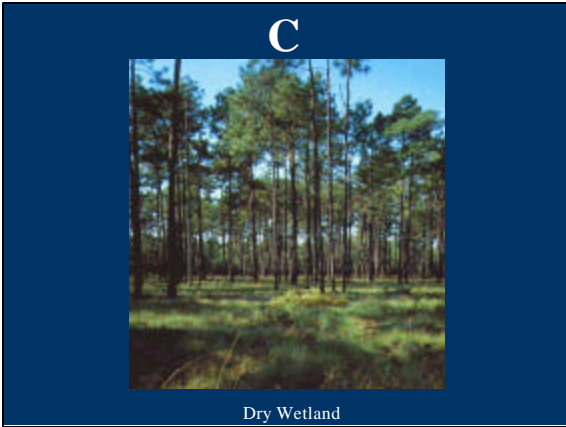
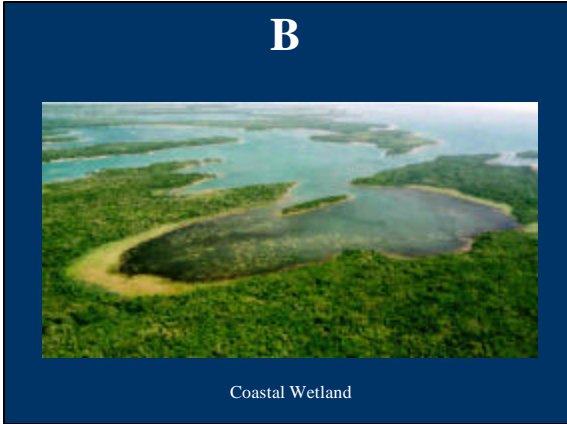
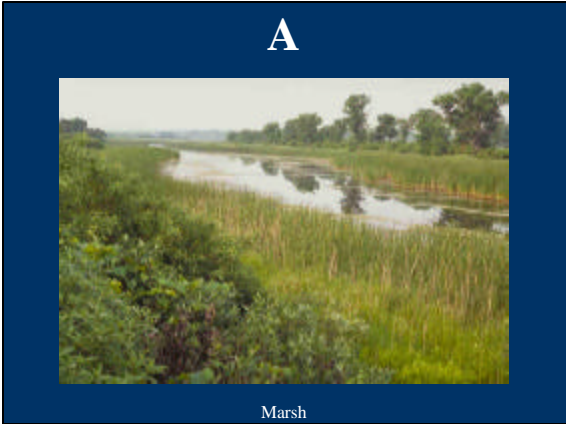
Right now I would like to take a moment to do my best at answering any questions that you have.

WETLAND TYPES

Place an "X" in the appropriate column to identify the picture as either a wetland or a non-wetland.

Letter	Wetland	Non-Wetland	Don't Know	Why
A				
B				
C				
D				
E				
F				
G				
H				
I				
J				
K				
L				
M				

WETLAND TYPES PRESENTATION



G



Meadow

H



Marsh Marigold

Note slide H was only shown to participants in the third focus group

I



Swamp

J



Forested Wetland

K



Flat

L



Lady Slipper

M



Wet Floodplain

WETLAND FUNCTIONS

Please rate the importance of the following wetland functions by circling your response.

	Not Important 1	Somewhat Important 2	Important 3	Quite Important 4	Extremely Important 5
A. Water Quality	1	2	3	4	5
B. Shoreline Erosion	1	2	3	4	5
C. Pollution Interception	1	2	3	4	5
D. Groundwater Recharge	1	2	3	4	5
E. Habitat for plants & Animals	1	2	3	4	5
F. Waste Treatment	1	2	3	4	5
G. Flood Control	1	2	3	4	5
H. Sediment Stabilization	1	2	3	4	5

WETLAND FUNCTIONS PRESENTATION

Water Quality

- ♦ The capacity of a wetland to retain and process materials for the benefit of downstream water quality.



Shoreline Bank Erosion Control

- ♦ The capacity of a wetland to control erosion through the roots of wetland plants holding soil in place along shorelines, thus reducing the energy of waves and wind.



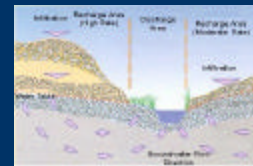
Pollution Interception/ Toxic Residue Processing

- ♦ Pollution such as industrial effluents, fertilizers, sewages and city storm runoff may be filtered through plants found in wetlands. Toxic residues may be buried and neutralized in wetland soils or taken up by wetland plants.



Groundwater Recharge

- ♦ Wetlands can serve as a way to recharge aquifers depending on the rate of which the water can pass through the soil.



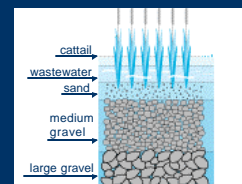
Habitat for Plants & Animals

- ♦ Wetlands are utilized by plants and animals for food, shelter, spawning or nesting. They also meet the food, reproductive and water quality requirements for certain fish.



Waste Treatment

- ♦ Certain types of wetlands have been effectively used to treat controlled amounts of human and animal wastes through biological activities that lead to consuming waste, sediments that bury waste and bacterial activities that break down and neutralize waste.



Flood Control

- ♦ The capacity of a wetland to help in the control of flooding by storing and releasing water over a long period of time.



Sediment Stabilization

- ♦ Wetlands can effectively trap sediments in slow moving water. This results in higher quality water since pesticides, heavy metals and other residues are buried in wetland soil.



Wetland Functions

- ♦ Water Quality
- ♦ Shoreline Bank Erosion Control
- ♦ Pollution Interception/Toxic Residue Processing
- ♦ Groundwater Recharge
- ♦ Habitat for Plants & Animals
- ♦ Waste Treatment
- ♦ Flood Control
- ♦ Sediment Stabilization