APPENDIX F – WETLANDS FIELD DELINEATION AND HABITAT ASSESSMENT FORMS

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TVA Natural Heritage Project Routine Wetland Determination Form

Project: Bellefonte NP REQ 10389	Investigator: J. Groton, H. Hart	Normal Circumstances:	y	Sample ID:	W001
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: April 6, 2006	Problem Area:	n	Cowardin Code:	PFO1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Quercus phellos*	Tr	Facw-	9.	*Toxicodendron radicans*	WV	Fac
2.	*Quercus nigra*	Tr	Fac	10.	*Carex tribuloides*	H	Facw
3.	*Quercus pagoda*	Tr	Fac+	11.	*Ulmus americana*	Tr	Facw
4.	*Pinus taeda*	Tr	Fac	12.	*Ulmus thomasii*	Tr, Sh	Fac
5.	*Acer rubrum*	Tr	Fac	13.	*Impatiens sp.*	H	Facw
6.	*Liquidambar styraciflua*	Tr, Sh	Fac+	14.			
7.	*Ilex decidua*	Sh	Facw-	15.			
8.	*Berchemia scandens*	WV	Facw	16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 100%

Hydrology

Field Observations:

Depth of Surface Water:	0-6	(in.)
Depth to Free Water in Pit:	11	(in.)
Depth to Saturated Soil:	8	(in.)

Wetland Hydrology Indicators:

	Primary Indicators			**Secondary Indicators**
y	Inundated		Drift Lines	y Oxidized Root Channels
y	Saturated in Upper 12 in.		Water Marks	y Water Stained Leaves
	Sediment Deposits	y	Drainage Patterns	

Remarks: wet weather drainage to Town Creek embayment on Guntersville Reservoir

Soils

Soil Unit:		**Drainage class:**		**Listed hydric soil?**	**Yes**		**No**	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-2	10 YR 6/2	-	-	Loam
2-8	10 YR 6/4	-	-	Silt loam
8-12	10/YR 6/4	10 YR 6/2	Common	Silty clay loam

Hydric Soil Indicators:

	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils		Reducing Conditions
y	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks: Soil color not quite hydric (chroma is too high); lots of evidence of extensive soil disturbance in past;

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes		No	N	Is wetland mapped on NWI?	Yes		No	N

Estimated size: 2.95 acres

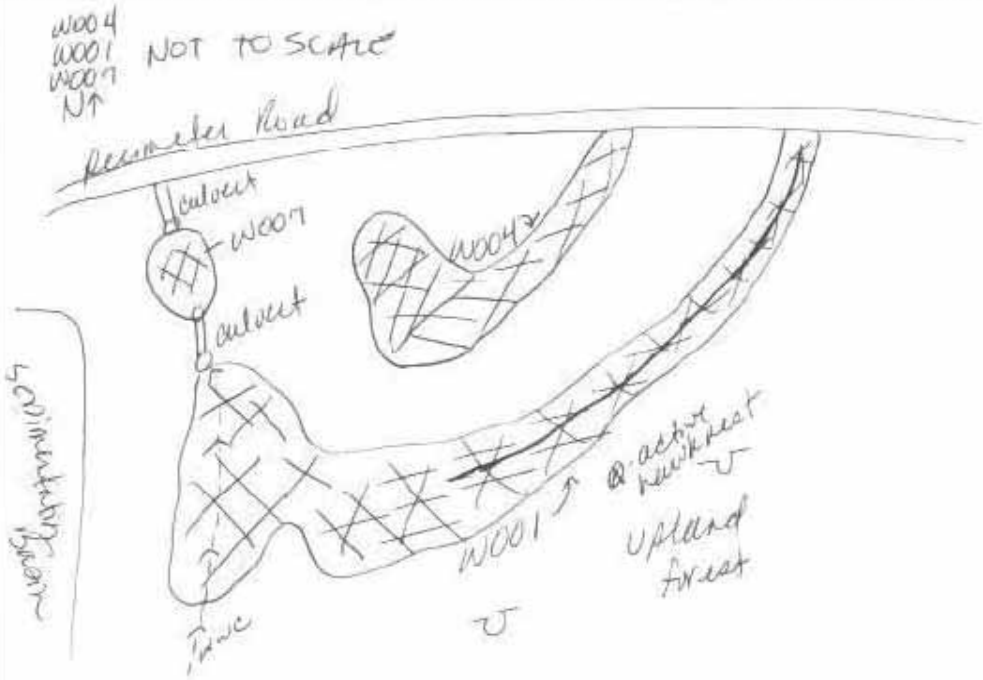
Wetland Descriptors

Sample ID: WW001	Photo ID(s): WW01-1W, WW01-2W, WW01-3W

Flagging Description: 1-29 counterclockwise from NW corner near culvert around to east; 30-70 clockwise from #1 around north side back to #29

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?	y	Yes		No	Waterbody/Watershed: Unnamed drainage (WWC) to Town Creek (Tennessee River-Guntersville Reservoir)									
Primary Water Source (If other, note in comments)		Cap. Fringe	1	Overbanking	2	Sheet Flow	3	Groundwater	4	Precipitation		Other		
TVARAM SCORE:	63.5	TVARAM CATEGORY:	Category 3											

Description of Wetland and Other Comments: **(i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)**

Flatwood forested wetland
Small perched wetland/vernal pool in center of eastern end; numerous scattered depressions with water-stained leaves
Obvious signs of soil disturbance and earth-moving in past

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Bellefonte NP REO 10389	Investigator: J. Groton, H. Hart	Normal Circumstances:	y	Sample ID:	W002
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: April 6, 2006	Problem Area:	n	Cowardin Code:	PFO1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Carpinus caroliniana*	Tr, Sh	Fac	9.	*Toxicodendron radicans*	WV	Fac
2.	*Quercus nigra*	Tr	Fac	10.	*Ulmus americana*	Tr	Facw
3.	*Quercus pagoda*	Tr	Fac	11.	*Ulmus thomasii*	Tr, Sh	Fac
4.	*Pinus taeda*	Tr	Fac	12.	*Impatiens sp.*	H	Facw
5.	*Acer rubrum*	Tr	Fac	13.			
6.	*Liquidambar styraciflua*	Tr, Sh	Fac+	14.			
7.	*Ilex decidua*	Sh	Fac	15.			
8.	*Berchemia scandens*	WV	Facw	16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 100%

Hydrology

Field Observations:

Depth of Surface Water:	0-4	(in.)
Depth to Free Water in Pit:	-	(in.)
Depth to Saturated Soil:	6	(in.)

Wetland Hydrology Indicators:

	Primary Indicators			**Secondary Indicators**
y	Inundated		Drift Lines	y Oxidized Root Channels
y	Saturated in Upper 12 in.		Water Marks	y Water Stained Leaves
	Sediment Deposits	y	Drainage Patterns	

Remarks: wet weather drainage to Town Creek embayment on Guntersville Reservoir

Soils

Soil Unit:		Drainage class:		Listed hydric soil?	Yes		No	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-2	10 YR 4/2	-	-	Silt loam
2-5	10 YR 5/2	-	-	Silt loam
5-9	10 YR 7/3	10 YR 7/2	Common	Silty clay
9-12	10 YR 7/3	10 YR 7/2	Common	Clay

Hydric Soil Indicators:

y	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
y	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils	y	Reducing Conditions
y	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes	Y	No		Is wetland mapped on NWI?	Yes		No	N

Estimated size: 4.52 acres

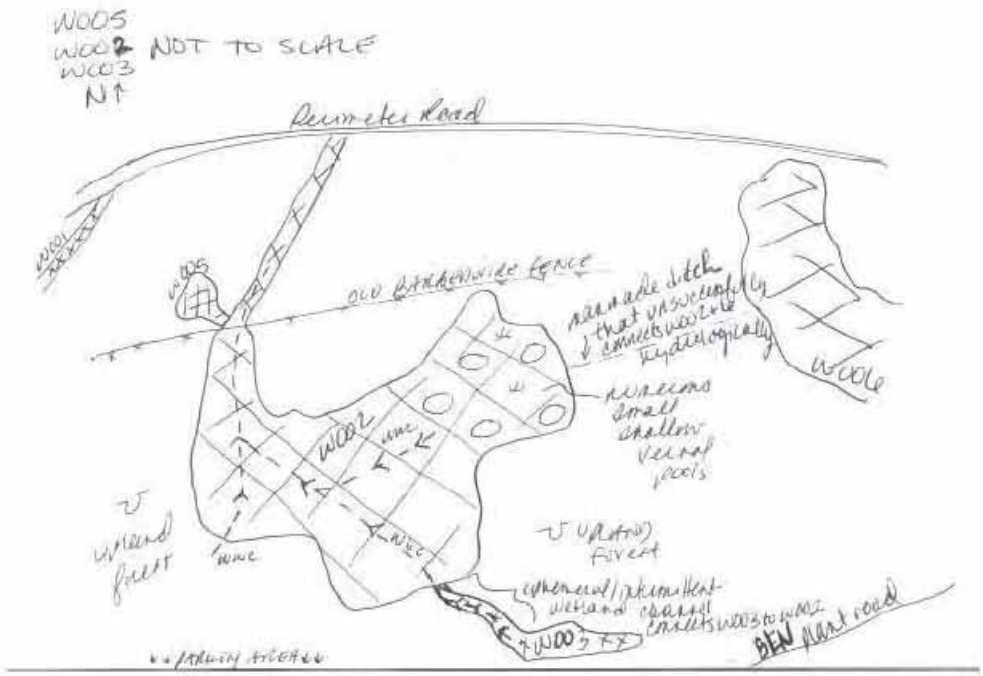
Wetland Descriptors

Sample ID: W002	**Photo ID(s):** W02-1W, W02-2W, W02-3W, W02-4W, W02-5W, W02-6W, W02-7W, W02-8W, W02-9W

Flagging Description: W2-1 to W2-16 clockwise from southern edge around to northwest corner, W2A-1 to W2A-43 clockwise from northeastern corner back to W2-1

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?	y	Yes		No	Waterbody/Watershed: Unnamed drainage (WWC) to Town Creek (Tennessee River-Guntersville Reservoir)									
Primary Water Source (If other, note in comments)		Cap. Fringe	1	Overbanking	3	Sheet Flow	2	Groundwater	4	Precipitation		Other		
TVARAM SCORE:	69	**TVARAM CATEGORY:**	Category 3											

Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)

Flatwood forested wetland
Wetland will receive stormwater runoff from construction area
Obvious signs of soil disturbance and earth-moving in past
Several perched wetlands/vernal pools scattered about northeastern lobe of wetland
Numerous large trees (18-24+ inches DBH) throughout wetland but especially in northeastern lobe
There is a ditch near the northeast corner that looks like someone attempted (unsuccessfully) to connect W02 to W06, about 100-150 feet to the north

TVA Natural Heritage Project Routine Wetland Determination Form

Project: Bellefonte NP REO 10389	Investigator: J. Groton, H. Hart	Normal Circumstances:	y	Sample ID:	W003
County: Jackson		Atypical Situation:	y	Station or Structure Number(s):	
State: AL	Date: April 6, 2006	Problem Area:	n	Cowardin Code:	PFO1B

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Ligustrum sinense*	Sh	Fac	9.	*Glyceria striata*	H	Obl
2.	*Celtis laevigata*	Tr	Facw	10.	*Ulmus thomasii*	Tr, Sh	Fac
3.	*Fraxinus pennsylvanica*	Sh, Sap	Facw	11.	*Quercus michauxii*	Tr	Facw-
4.	*Berchemia scandens*	WV	Facw	12.			
5.	*Ulmus alata*	Tr	Facu+	13.			
6.	*Carex cherokeensis*	H	Facw-	14.			
7.	*Nothoscordum bivalve*	H	Fac	15.			
8.	*Sanicula sp.*	H	Fac-Facu	16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 82%

Hydrology

Field Observations:

Depth of Surface Water:	0-1	(in.)
Depth to Free Water in Pit:	-	(in.)
Depth to Saturated Soil:	7	(in.)

Wetland Hydrology Indicators:

	Primary Indicators			**Secondary Indicators**
y	Inundated		Drift Lines	Oxidized Root Channels
y	Saturated in Upper 12 in.		Water Marks	Water Stained Leaves
	Sediment Deposits	y	Drainage Patterns	

Remarks: Headwater of unnamed drainage (WWC) to Town Creek (Tennessee River-Guntersville Reservoir); connects by drainage channel to W02

Soils

Soil Unit:		Drainage class:		Listed hydric soil?	Yes		No	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-3	10 YR 3/2	-	-	Silt loam
3-6	10 YR 5/3	10 YR 6/2	Common	Silt loam
6-12	10 YR 6/2	10 YR 6/6	Common	Silty clay

Hydric Soil Indicators:

	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils		Reducing Conditions
y	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks: Soil color not quite hydric (chroma in second horizon too high); lots of evidence of extensive soil disturbance in past;

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes		No	N	Is wetland mapped on NWI?	Yes		No	N

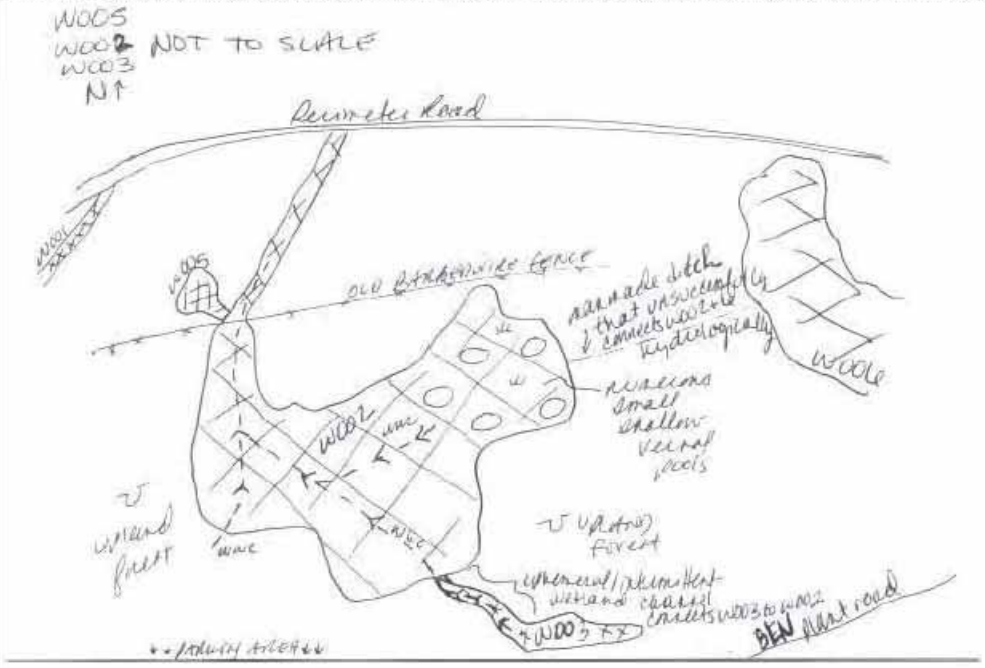
Estimated size: 0.28 acre

Wetland Descriptors

Sample ID: W003	**Photo ID(s):** W03-1W, W03-2W
Flagging Description: 1-19 counterclockwise from northwest	

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?		Yes		No	Waterbody/Watershed: Headwater of unnamed drainage (WWC) to Town Creek (Tennessee River-Guntersville Reservoir)									
Primary Water Source (If other, note in comments)		Cap. Fringe		Overbanking	2	Sheet Flow	1	Groundwater	3	Precipitation		Other		
TVARAM SCORE:	35	**TVARAM CATEGORY:**	Category 2											

Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)

Small area of forested wetland; partially intersects potential construction area (~0.25 acre inside construction footprint). It will also be affected by proposed haul road to site and module assembly areas
Wetland is connected to Wetland W02 by wet weather conveyance but higher in watershed
Possible small seep near southern edge

Project: Bellefonte NP REQ 10389	Investigator: J. Groton, B. Dimick	Normal Circumstances:	y	Sample ID:	W004
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: April 26, 2006	Problem Area:	n	Cowardin Code:	PFO1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Fraxinus pennsylvanica*	Tr, Sh, Sap	Facw	9.	*Nothoscordum bivalve*	H	Fac
2.	*Quercus phellos*	Tr, , Sap	Facw-	10.	*Galium aparine*	H	Facu
3.	*Ulmus americana*	Tr, Sh	Facw	11.	*Diospyros virginiana*	Sap	Fac
4.	*Campsis radicans*	Sap	Fac	12.	*Toxicodendron radicans*	WV, Sap	Fac
5.	*Berchemia scandens*	WV	Facw	13.	*Lycopus sp*	H	Obl
6.	*Ampelopsis arborea*	Sap	Fac+	14.	*Glyceria striata*	H	Obl
7.	*Ilex decidua*	Sh	Facw	15.	*Several unidentified Carex species*	H	
8.	*Pinus taeda*	Tr	Fac	16.	*moss*	H	

Percent of Dominant Species That are OBL, FACW, or FAC: 93%

Hydrology

Field Observations:

Depth of Surface Water:	0-12	(in.)
Depth to Free Water in Pit:	3	(in.)
Depth to Saturated Soil:	0	(in.)

Wetland Hydrology Indicators:

	Primary Indicators			**Secondary Indicators**
y	Inundated		Drift Lines	Oxidized Root Channels
y	Saturated in Upper 12 in.		Water Marks	Water Stained Leaves
	Sediment Deposits	x	Drainage Patterns	

Remarks: Unnamed drainage (WWC) to Town Creek (Tennessee River-Guntersville Reservoir)

Soils

Soil Unit:		**Drainage class:**		**Listed hydric soil?**	**Yes**		**No**	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-3	10 YR 5/3	10 YR 5/6	Common	Silty clay loam
3-10	10 YR 6/2	10 YR 5/6	Common	Silty clay loam
10-12+	10 YR 6/1	10 YR 5/6	Common	Silty clay loam

Hydric Soil Indicators:

Y	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils	Y	Reducing Conditions
Y	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes	Y	No		Is wetland mapped on NWI?	Yes		No	N

Estimated size: 1.81 acres

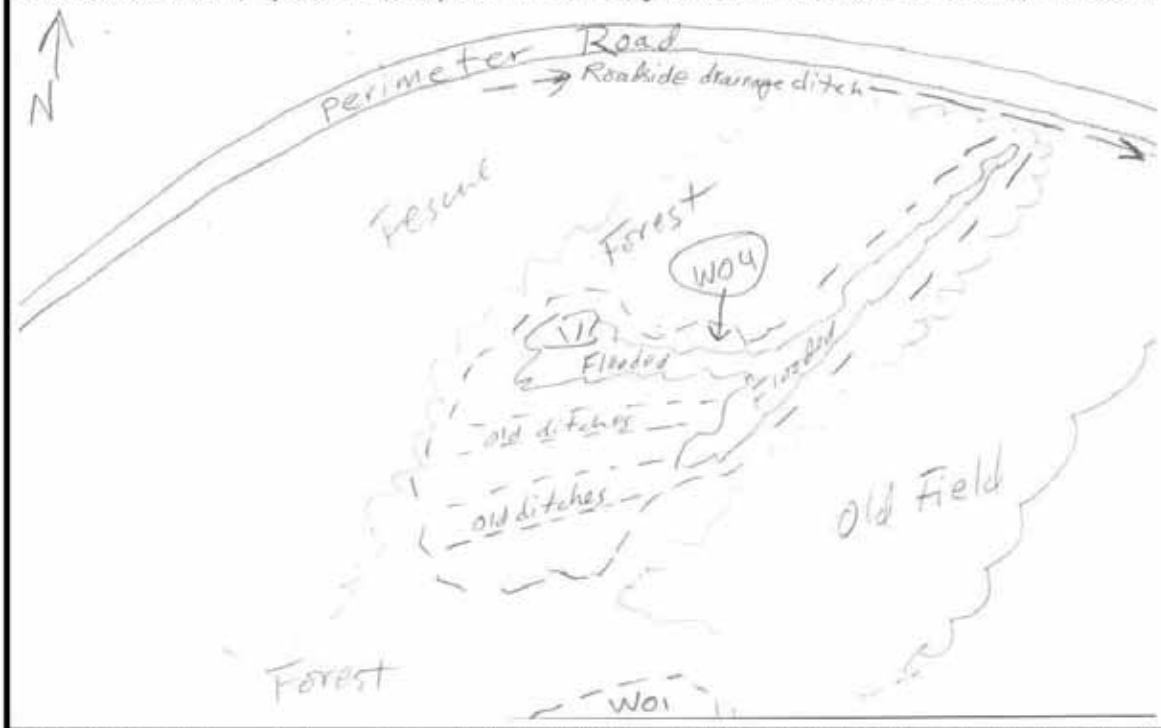
Wetland Descriptors

Sample ID: W004	**Photo ID(s):** W04-1W (northern end), W04-2W (center of wetland), W04-3W (southern end)

Flagging Description: 1-48 clockwise from northeast corner

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?	Y	Yes		No	Waterbody/Watershed: Unnamed drainage (WWC) to Town Creek (Tennessee River-Guntersville Reservoir)								
Primary Water Source (If other, note in comments)		Cap. Fringe	2	Overbanking	1	Sheet Flow		Groundwater	3	Precipitation		Other	

TVARAM SCORE:	55	**TVARAM CATEGORY:**	Category 2

Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)

Young forested wetland formed in flooded drainageway
No evidence of beaver
Wetland drains into drainage ditch beside perimeter road
Drainage is impeded where wetland W04 intersects with the roadside drainage ditch – no evidence of plugged culvert
There are several shallow, linear ditches in the upper end of W04 (southern end) that run transverse to main axis of wetland. These appear to be the result of a past attempt to drain part of the wetland?
Gray Tree Frogs

Project: Bellefonte NP REQ 10389	Investigator: J. Groton, B. Dimick	Normal Circumstances:	y	Sample ID:	W005
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: April 26, 2006	Problem Area:	n	Cowardin Code:	PFO1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Fraxinus pennsylvanica*	Tr, Sh, Sap	Facw	9.	*Ulmus alata*	Tr, Sh	Facu+
2.	*Microstegium vimineum*	H	Fac+	10.	*Rumex crispus*	H	Fac
3.	*Toxicodendron radicans*	WV, Sap	Fac	11.	*Ilex decidua*	Sh	Facw
4.	*Ulmus thomasii*	Tr, Sh	Fac	12.	*Populus deltoides*	Tr	Fac+
5.	*Carex cherokeensis*	H	Facw-	13.	*Berchemia scandens*	Sap	Facw
6.	*Senecio sp.*	H	-	14.			
7.	*Salix*	Tr, Sh	Obl	15.			
8.	*Lonicera japonica*	WV, Sap	Fac-	16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 77%

Hydrology

Field Observations:

Depth of Surface Water:	0-4	(in.)
Depth to Free Water in Pit:	>12	(in.)
Depth to Saturated Soil:	0	(in.)

Wetland Hydrology Indicators:

	Primary Indicators			**Secondary Indicators**
y	Inundated		Drift Lines	Oxidized Root Channels
y	Saturated in Upper 12 in.		Water Marks	Water Stained Leaves
	Sediment Deposits		Drainage Patterns	

Remarks: Isolated, perched wetland on terrace of WWC draining W02; ~25 feet from channel but no obvious connection to stream channel

Soils

Soil Unit:		**Drainage class:**		**Listed hydric soil?**	**Yes**		**No**	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-12+	10 YR 4/2	7.5 YR 5/6	Common	Silty clay loam

Hydric Soil Indicators:

y	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils	y	Reducing Conditions
	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes	Y	No		Is wetland mapped on NWI?	Yes		No	N

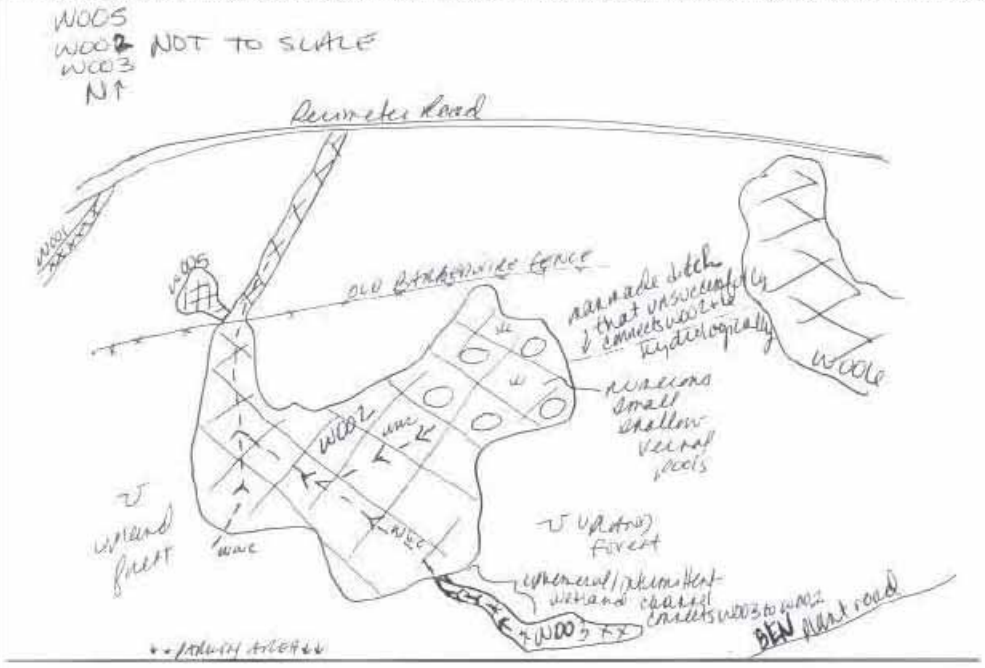
Estimated size: 0.26 acre

Wetland Descriptors

Sample ID: W005	**Photo ID(s):** W05-1W, W05-2W, W05-3W, W05-4W
Flagging Description: 1-17 clockwise from southern tip of wetland	

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?		Yes	x	No	Waterbody/Watershed:									
Primary Water Source (If other, note in comments)		Cap. Fringe		Overbanking	2	Sheet Flow		Groundwater	1	Precipitation		Other		
TVARAM SCORE:	60	**TVARAM CATEGORY:**	Category 3											

Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)

Shallow, perched wetland or vernal pool on terrace of wet weather conveyance draining Wetland W02

Wetland W05 is about 25 feet from conveyance channel with no obvious signs of a direct hydrologic connection to the stream channel, even during high flows

Project: Bellefonte NP REQ 10389	Investigator: J. Groton, B. Dimick	Normal Circumstances:	y	Sample ID:	W006
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: April 26, 2006	Problem Area:	n	Cowardin Code:	PFO1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Fraxinus pennsylvanica*	Tr	Facw	9.	*Glyceria striata*	H	Obl
2.	*Liquidambar styraciflua*	Tr	Fac+	10.	*Polygonum sp.*	H	-
3.	*Quercus phellos*	Tr	Facw-	11.	*Gratiola neglecta*	H	Obl
4.	*Ilex decidua*	Sh	Facw	12.	*Ligustrum sinense*	Sh	Fac
5.	*Berchemia scandens*	WV	Facw	13.	*Impatiens sp.*	H	Facw
6.	*Smilax glauca*	WV	Fac	14.	*Carpinus caroliniana*	Tr, Sh	Fac
7.	*Galium aparine*	H	Facu	15.	*Campsis radicans*	Sap	Fac
8.	*Celtis laevigata*	Tr	Facw	16.	*Moss*	H	-

Percent of Dominant Species That are OBL, FACW, or FAC: 88%

Hydrology

Field Observations:

Depth of Surface Water:	0-12	(in.)
Depth to Free Water in Pit:	3	(in.)
Depth to Saturated Soil:	0	(in.)

Wetland Hydrology Indicators:

Primary Indicators				Secondary Indicators	
y	Inundated		Drift Lines		Oxidized Root Channels
y	Saturated in Upper 12 in.		Water Marks		Water Stained Leaves
	Sediment Deposits	y	Drainage Patterns		

Remarks:

Soils

Soil Unit:		Drainage class:		Listed hydric soil?	Yes		No	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-4	10 YR 3/2	-	-	Silty clay loam
4-12+	10 YR 5/2	10 YR 5.6	Common	Silty clay loam

Hydric Soil Indicators:

y	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils	y	Reducing Conditions
	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes	Y	No		Is wetland mapped on NWI?	Yes		No	N

Estimated size: 2.36 acres

Wetland Descriptors

Sample ID: W006	**Photo ID(s):** W06-1W (northeastern end), W06-2W (center of wetland), W06-3W (northwestern end)

Flagging Description: 1-75 clockwise from the northwest corner

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations

Obvious Connections to Waters of the US/State?	x	Yes		No	Waterbody/Watershed: Two unnamed drainages (WWC) to Town Creek (Tennessee River-Guntersville Reservoir)									
Primary Water Source (if other, note in comments)		Cap. Fringe	1	Overbanking		Sheet Flow	2	Groundwater	3	Precipitation		Other		

TVARAM SCORE:		**TVARAM CATEGORY:**	

Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)

There is a ditch near the northeast corner that looks like someone attempted (unsuccessfully) to connect W06 to W02, about 100-150 feet to the south

Wetland W06 is fed by a wet weather conveyance that enters the wetland from the south and splits into two channels, one that flows northeast and a second that flows northwest. Both channels exit through culverts under the perimeter road. Both culverts are plugged with debris and water has ponded up at both culverts south of the perimeter road.

There appears to be some local groundwater influence (high water table) although no seeps or springs were observed

Grey tree frog, cricket frog, crayfish middens

Project: Bellefonte NP REQ 10389	Investigator: B. Dimick, K. Pilarski, L.Burton	Normal Circumstances:	y	Sample ID:	W007
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: September 1,2009	Problem Area:	n	Cowardin Code:	PFO1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Fraxinus pennsylvanica*	Tr	Facw	9.			
2.	*Celtis laevigata*	Tr	Facw	10.			
3.	*Berchemia scandens*	WV	Facw	11.			
4.	*Populus deltoides*	Tr	Fac	12.			
5.	*Ligustrum sinense*	Sh	Fac	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 100%

Hydrology

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: 0 (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators				Secondary Indicators	
n	Inundated		Drift Lines	y	Oxidized Root Channels
n	Saturated in Upper 12 in.		Water Marks		Water Stained Leaves
	Sediment Deposits	y	Drainage Patterns		

Remarks: small drainage feature between 2 culverts

Soils

Soil Unit:		Drainage class:		Listed hydric soil?	Yes		No	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-4	10 YR 3/2	-	-	Silty clay loam
4-12+	10 YR 5/2	10 YR 5/6	Common	Silty clay loam

Hydric Soil Indicators:

y	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils	y	Reducing Conditions
	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes	Y	No		Is wetland mapped on NWI?	Yes		No	N

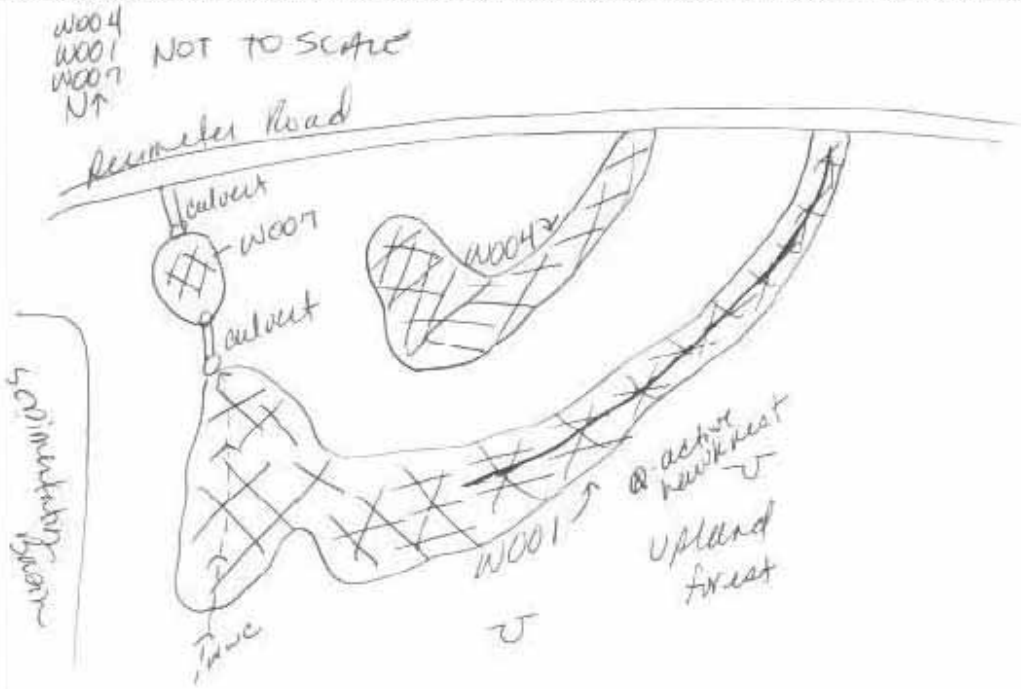
Estimated size: 0.02 acres

Wetland Descriptors

Sample ID: W007	Photo ID(s): 60-64
Flagging Description: 4 flags	

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?	x	Yes		No	Waterbody/Watershed: culverted drainage to Towns Creek									
Primary Water Source (If other, note in comments)		Cap. Fringe	1	Overbanking		Sheet Flow		Groundwater	3	Precipitation		Other		
TVARAM SCORE:	34	TVARAM CATEGORY:	2											

Description of Wetland and Other Comments: **(i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long etc)**

Crawfish burrows.

Culvert connects W007 to W001 and another culvert leaves W007 and goes beneath road towards Towns Creek.

Project: Bellefonte NP	Investigator: B. Dimick, K.Pilarski, L.Burton	Normal Circumstances:	y	Sample ID:	W008
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: Sept. 1,2009	Problem Area:	n	Cowardin Code:	PSS1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Salix nigra*	Sapling	OBL	9.			
2.	*Juncus effusus*	Herb	FACW	10.			
3.	*Festuca arundinacea*	Herb	FAC	11.			
4.	*Eupatorium serotinum*	Herb	FAC	12.			
5.				13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 100%

Hydrology

Field Observations:

Depth of Surface Water:	0	(in.)	**Wetland Hydrology Indicators:**				
Depth to Free Water in Pit:		(in.)	**Primary Indicators**				**Secondary Indicators**
Depth to Saturated Soil:	0	(in.)		Inundated		Drift Lines	Oxidized Root Channels
				Saturated in Upper 12 in.		Water Marks	Water Stained Leaves
				Sediment Deposits	y	Drainage Patterns	

Remarks:

Soils

Soil Unit:		Drainage class:		Listed hydric soil?	Yes		No	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-4	10 YR 4/4	-	-	Silt loam
4-12+	10 YR 4/3			Silt Loam

Hydric Soil Indicators:

N	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils		Reducing Conditions
	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks: Hydric soils not present

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	N	No
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes	Y	No
Hydric Soils Present?	Yes		No	N	Is wetland mapped on NWI?	Yes		No N

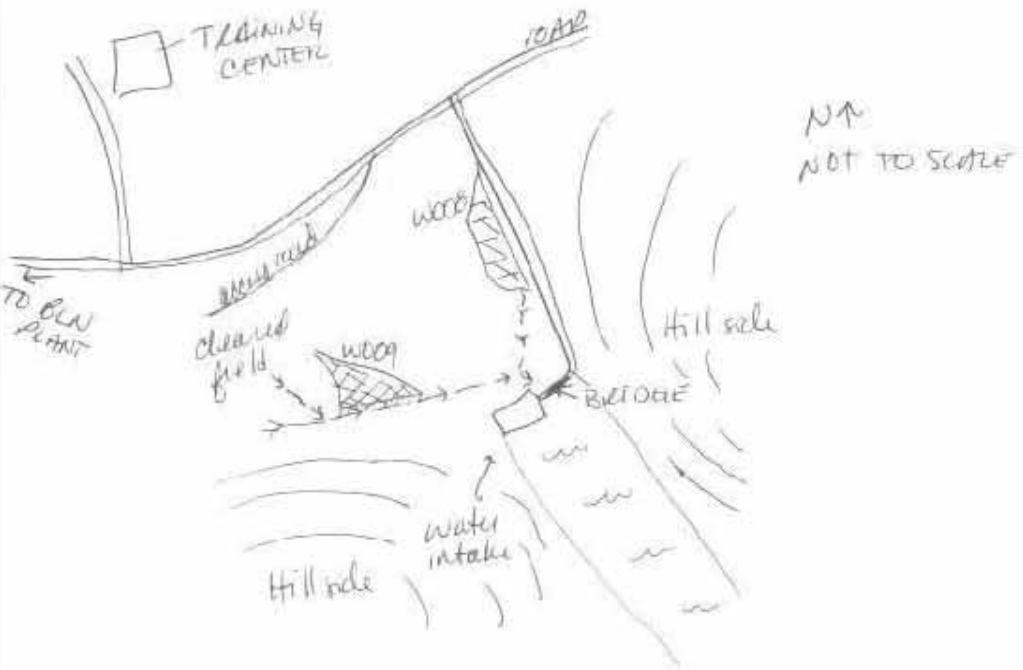
Estimated size: 0.43

Wetland Descriptors

Sample ID: W008	Photo ID(s): 38,39
Flagging Description:	

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?	x	Yes		No	Waterbody/Watershed: Ephemeral conveyance to Guntersville Reservoir									
Primary Water Source (If other, note in comments)		Cap. Fringe		Overbanking			Sheet Flow		Groundwater	3	Precipitation		Other	
TVARAM SCORE:	31	TVARAM CATEGORY:	2											

Description of Wetland and Other Comments: **(i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)**

This wetland likely formed as a result of grading nearby that created a depression near a road. This wetland does not meet the jurisdictional wetland criteria as defined by the USACE. It meest USFWS wetland definition and should be considered for impacts under NEPA and Executive Order 11990.

Project: Bellefonte NP	Investigator: B. Dimick, K.Pilarski, L.Burton	Normal Circumstances:	y	Sample ID:	W009
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: Sept. 1,2009	Problem Area:	n	Cowardin Code:	PSS1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Salix nigra*	Sapling	OBL	9.			
2.	*Juncus effusus*	Herb	FACW	10.			
3.	*Festuca arundinacea*	Herb	FAC	11.			
4.	*Cephalanthus occidentalis*	Shrub	OBL	12.			
5.	*Eupatorium serotinum*	Herb	FAC	13.			
6.				14.			
7.				15.			
8.				16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 100%

Hydrology

Field Observations:

Depth of Surface Water: 0 (in.)

Depth to Free Water in Pit: ___ (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators				Secondary Indicators
	Inundated		Drift Lines	Oxidized Root Channels
	Saturated in Upper 12 in.		Water Marks	Water Stained Leaves
	Sediment Deposits	y	Drainage Patterns	

Remarks:

Soils

Soil Unit:		Drainage class:		Listed hydric soil?	Yes		No	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-4	10 YR 4/4	-	-	Silt loam
4-12+	10 YR 4/3			Silt Loam

Hydric Soil Indicators:

N	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils		Reducing Conditions
	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks: Hydric soils not present

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	N	No
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes	Y	No
Hydric Soils Present?	Yes		No	N	Is wetland mapped on NWI?	Yes		No N

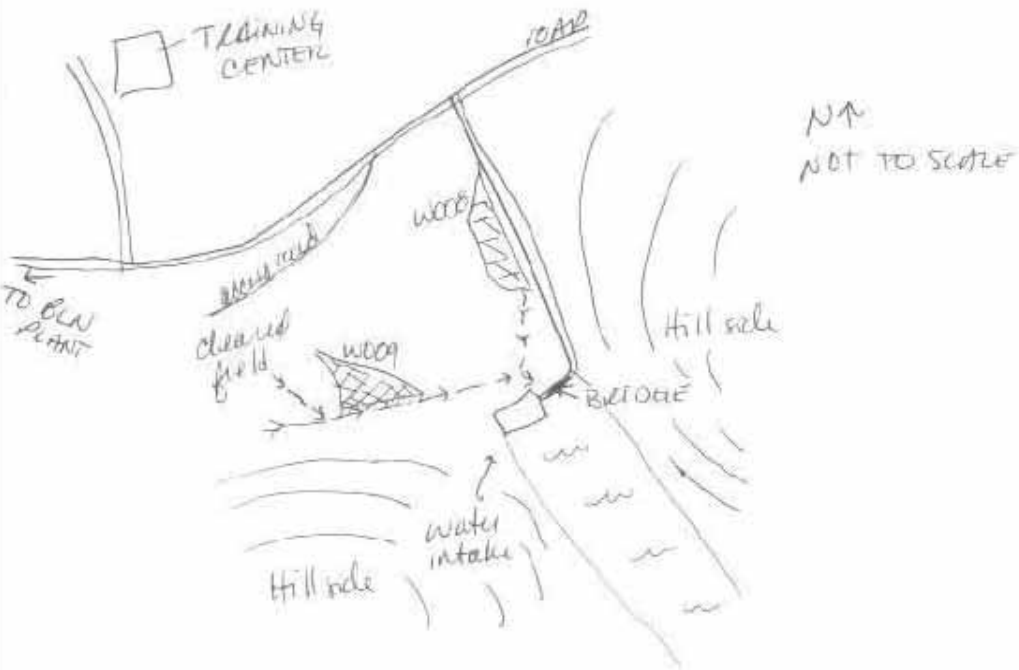
Estimated size: 0.61

Wetland Descriptors

Sample ID: W009	Photo ID(s): no photos
Flagging Description:	

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?	x	Yes		No	Waterbody/Watershed: Ephemeral conveyance to Guntersville Reservoir									
Primary Water Source (If other, note in comments)		Cap. Fringe		Overbanking			Sheet Flow		Groundwater	3	Precipitation		Other	
TVARAM SCORE:	31	TVARAM CATEGORY:	2											

Description of Wetland and Other Comments: **(i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)**

Does not have soils to meet jurisdictional wetland criteria as defined by the USACE. This wetland likely developed in a low spot left over after grading occurred. It meest USFWS wetland definition and should be considered for impacts under NEPA and Executive Order 11990.

Project: Bellefonte	Investigator: B. Dimick, K.Pilarski, L.Burton	Normal Circumstances:	y	Sample ID:	W010
County: Jackson		Atypical Situation:	n	Station or Structure Number(s):	
State: AL	Date: September 1, 2009	Problem Area:	n	Cowardin Code:	PFO1E

Vegetation

	Plant Species	Stratum	Indicator		Plant Species	Stratum	Indicator
1.	*Fraxinus pennsylvanica*	Tr	Facw	9.	*Glyceria striata*	H	Obl
2.	*Liquidambar styraciflua*	Tr	Fac+	10.	*Polygonum sp.*	H	-
3.	*Quercus phellos*	Tr	Facw-	11.	*Salix nigra*	Tr	OBL
4.	*Ilex decidua*	Sh	Facw	12.	*Ligustrum sinense*	Sh	Fac
5.	*Berchemia scandens*	WV	Facw	13.	*Saururus cernuum*	Herb	OBL
6.	*Smilax glauca*	WV	Fac	14.	*Carpinus caroliniana*	Tr, Sh	Fac
7.	*Populus deltoides*	Tr	Fac	15.	*Campsis radicans*	Sap	Fac
8.	*Celtis laevigata*	Tr	Facw	16.			

Percent of Dominant Species That are OBL, FACW, or FAC: 100

Hydrology

Field Observations:			**Wetland Hydrology Indicators:**					
Depth of Surface Water:	0	(in.)	**Primary Indicators**					**Secondary Indicators**
Depth to Free Water in Pit:	0	(in.)		Inundated		Drift Lines	Y	Oxidized Root Channels
Depth to Saturated Soil:	0	(in.)	y	Saturated in Upper 12 in.		Water Marks		Water Stained Leaves
				Sediment Deposits	y	Drainage Patterns		

Remarks:

Soils

Soil Unit:		**Drainage class:**		**Listed hydric soil?**	**Yes**		**No**	

Profile Description:

Depth (Inches)	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance	Texture
0-4	10 YR 3/1	-	-	Silty clay loam
4-12+	10 YR 5/2	10 YR 5/6	Common	Silty clay loam

Hydric Soil Indicators:

y	Gleyed or Low Chroma Colors		Histic Epipedon		Aquic Moisture Regime
	Sulfidic Odor		High Organic Cont. Surf. Layer Sandy Soils	y	Reducing Conditions
	Concretions		Organic Streaking in Sandy Soils		Other (Explain in Remarks)

Remarks:

Wetland Determination

Hydrophytic Vegetation Present?	Yes	Y	No		Is this Sampling Point Within a USACE Wetland?	Yes	Y	No	
Wetland Hydrology Present?	Yes	Y	No		Does area only meet USFWS wetland definition?	Yes		No	N
Hydric Soils Present?	Yes	Y	No		Is wetland mapped on NWI?	Yes		No	N

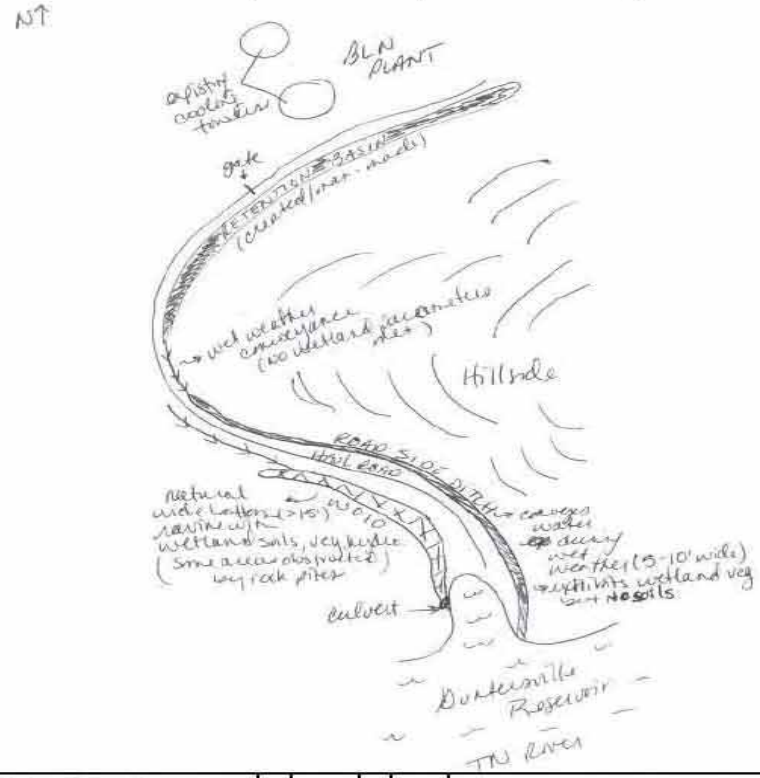
Estimated size: 0.96 acres

Wetland Descriptors

Sample ID: W010	**Photo ID(s):** 16-18,24,26,153-165
Flagging Description:	

Drawing

Please Include: North Arrow, Project Centerline, Survey Corridor Boundaries, Length of Wetland Feature, Distances from Centerline, Photo Locations



Obvious Connections to Waters of the US/State?	x	Yes		No	WaterbodyWatershed: Drains directly into Guntersville Resevoir via a culvert									
Primary Water Source (If other, note in comments)		Cap. Fringe	1	Overbanking		Sheet Flow	2	Groundwater	3	Precipitation		Other		
TVARAM SCORE:	50	**TVARAM CATEGORY:**	2											

Description of Wetland and Other Comments: (i.e. forest age class; habitat features; hydrologic regime; description of the wetland outside of or adjacent to ROW; erosion potential, existing disturbances, adjacent land use, wildlife observations, station numbers, lat-long, etc)

This drainage feature is a wide bottom, natural ravine with large wetland trees and wetland soils (although some places are rocky). The majority of the ravine contains at least minimal vegetation. The ravine empties into Guntersville Resevoir via a culvert near the shoreline.

TVARAM Field Form Quantitative Rating

Site: Bellefonte W001	Rater(s): J. Groton, H. Hart	Date: April 6, 2006

3	3
max 6 pts.	subtotal

Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [3] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [ ] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):
Aerial Photos
Field Survey

7	10
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [4] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [5] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [1] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

21	31
max 30 pts.	subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [3] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [1] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [2] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [7] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] ditch	[ ] point source (nonstormwater)
[x] tile (including culvert)	[x] filling/grading
[x] dike	[ ] road bed/RR track
[ ] weir	[ ] dredging
[x] stormwater input	[ ] other _____

13.5	44.5
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [3] Recovered (3)
- [2] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [5] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [6] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] mowing	[ ] shrub/sapling removal
[ ] grazing	[ ] herbaceous/aquatic bed removal
[ ] clearcutting	[ ] woody debris removal
[ ] selective cutting	[ ] sedimentation
[ ] farming	[ ] dredging
[ ] toxic pollutants	[ ] nutrient enrichment

44.5
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W001	Rater(s): J. Groton, H. Hart	Date: April 6, 2006

44.5
subtotal previous page

10 (max 10 pts) **54.5** (subtotal) **Metric 5. Special Wetlands**

10 raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq m, sphagnum or other moss (5); muck, organic soil layer (3)
- [x] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [x] **Vernal pool (5):** isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

9 (max 20 pts) **63.5** (subtotal) **Metric 6. Plant Communities, Interspersion, Microtopography**

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [ ] Emergent
- [ ] Shrub
- [x] Forest
- [ ] Mudflats
- [ ] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [ ] Moderate (3) [BR/CM (5)]
- [x] Moderately low (2) [BR/CM (3)]
- [ ] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [x] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

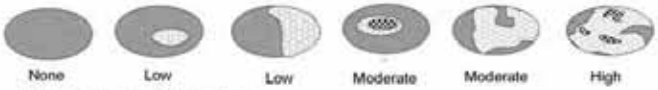
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [x] Coarse woody debris >15 cm (6 in.)
- [x] Standing dead >25 cm (10 in.) dbh
- [x] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

63.5 Category 3 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W002	Rater(s): J. Groton, H. Hart	Date: April 6, 2006

3	3
max 6 pts.	subtotal

Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.
- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [3] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [ ] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):
Aerial Photos
Field Survey

11	14
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- [7] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.
- [7] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [1] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

23	37
max 30 pts.	subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.
- [ ] High pH groundwater (5)
- [3] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.
- [ ] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [1] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.
- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.
- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.
- [ ] None or none apparent (12)
- [7] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed
- [ ] ditch
- [ ] tile (including culvert)
- [ ] dike
- [ ] weir
- [x] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other _____

14	51
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.
- [ ] None or none apparent (4)
- [3] Recovered (3)
- [2] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.
- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [4] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.
- [9] None or none apparent (9)
- [6] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed
- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] farming
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] woody debris removal
- [x] sedimentation
- [ ] dredging
- [ ] nutrient enrichment

51
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W002	Rater(s): J. Groton, H. Hart	Date: April 6, 2006

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subtotal previous page

10 (max 10 pts) **61** (subtotal)

Metric 5. Special Wetlands

20 (raw score*)

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [2] Bog, fen, wet prairie (10); acidophilic veg., **mossy substrate** >10 sq.m, sphagnum or **other moss** (5); muck, organic soil layer (3)
- [2] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); **mature >18 in. (45 cm) dbh (5)** [exclude pine plantation]
- [2] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [2] **Vernal pool (5);** isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

8 (max 20 pts) **69** (Subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [ ] Emergent
- [ ] Shrub
- [3] Forest
- [ ] Mudflats
- [ ] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [3] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [ ] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

Low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [-1] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

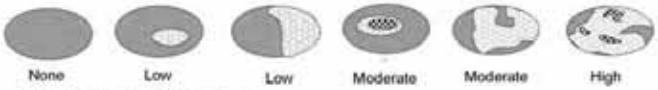
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acre) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [1] Coarse woody debris >15 cm (6 in.)
- [1] Standing dead >25 cm (10 in.) dbh
- [3] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

69 Category 3 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W003	Rater(s): J. Groton, H. Hart	Date: April 6, 2006

2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [2] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):
Aerial Photos
Field Survey

4	6
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [1] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [5] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [1] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

14	20
max 30 pts.	subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [3] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [ ] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [1] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [ ] Seasonally inundated (2) [BR/CM (4)]
- [1] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [7] Recovered (7)
- [3] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] ditch	[ ] point source (nonstormwater)
[ ] tile (including culvert)	[x] filling/grading
[ ] dike	[x] road bed/RR track
[ ] weir	[ ] dredging
[ ] stormwater input	[ ] other _____

9	29
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [3] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [3] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [ ] Recovered (6)
- [3] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] mowing	[ ] shrub/sapling removal
[ ] grazing	[ ] herbaceous/aquatic bed removal
[ ] clearcutting	[ ] woody debris removal
[ ] selective cutting	[ ] sedimentation
[ ] farming	[ ] dredging
[ ] toxic pollutants	[ ] nutrient enrichment

29
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W003	Rater(s): J. Groton, H. Hart	Date: April 6, 2006

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subtotal previous page

4 (max 10 pts) **33** (subtotal)

Metric 5. Special Wetlands

4
raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq.m; sphagnum or other moss (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [4] Vernal pool (5); **isolated, perched, or slope wetland (4)**; headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

2 (max 20 pts) **35** (subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [ ] Emergent
- [ ] Shrub
- [3] Forest
- [ ] Mudflats
- [ ] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [ ] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [1] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [-1] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

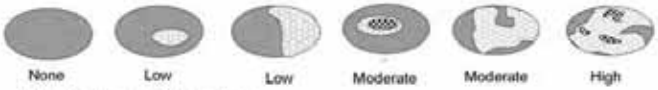
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acre) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15 cm (6 in.)
- [ ] Standing dead >25 cm (10 in.) dbh
- [ ] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

35 Category 2 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W004	Rater(s): J. Groton, B. Dimick	Date: April 26, 2006

2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [2] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):
Aerial Photos
Field Survey

5	8
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [1] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [5] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [3] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [ ] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

15	23
max 30 pts.	subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [1] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [2] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [7] Recovered (7)
- [3] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] ditch	[ ] point source (nonstormwater)
[x] tile (including culvert)	[x] filling/grading
[x] dike	[ ] road bed/RR track
[ ] weir	[ ] dredging
[x] stormwater input	[ ] other _____

11	34
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [3] Recovered (3)
- [2] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [4] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [6] Recovered (6)
- [3] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] mowing	[ ] shrub/sapling removal
[ ] grazing	[ ] herbaceous/aquatic bed removal
[ ] clearcutting	[ ] woody debris removal
[ ] selective cutting	[ ] sedimentation
[ ] farming	[ ] dredging
[ ] toxic pollutants	[ ] nutrient enrichment

34
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W004	Rater(s): J. Groton, B. Dimick	Date: April 26, 2006

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subtotal previous page

8 (max 10 pts) **42** (subtotal)

Metric 5. Special Wetlands

8 raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [2] Bog, fen, wet prairie (10); acidophilic veg., mossy **substrate >10 sq.m**, sphagnum or **other moss** (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); **mature > 18 in. (45 cm) dbh (5)** [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [ ] **Vernal pool (5);** isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [3] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

13 (max 20 pts) **55** (subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [ ] Emergent
- [3] Shrub
- [3] Forest
- [ ] Mudflats
- [3] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [3] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [ ] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [-1] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

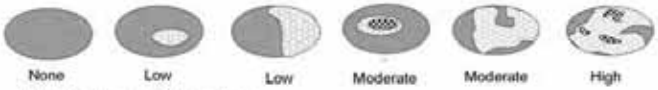
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [2] Coarse woody debris >15 cm (6 in.)
- [1] Standing dead >25 cm (10 in.) dbh
- [3] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

55 Category 2 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W005	Rater(s): J. Groton, B. Dimick	Date: April 26, 2006

2	2
max 6 pts.	subtotal

Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [2] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):
Aerial Photos
Field Survey

13	15
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [7] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [7] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [5] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [ ] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

19	34
max 30 pts.	subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [ ] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [ ] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [1] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [12] None or none apparent (12)
- [ ] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] ditch	[ ] point source (nonstormwater)
[ ] tile (including culvert)	[ ] filling/grading
[ ] dike	[ ] road bed/RR track
[ ] weir	[ ] dredging
[ ] stormwater input	[ ] other _____

14	48
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [4] None or none apparent (4)
- [ ] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [4] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [6] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] mowing	[ ] shrub/sapling removal
[ ] grazing	[ ] herbaceous/aquatic bed removal
[ ] clearcutting	[ ] woody debris removal
[ ] selective cutting	[X] sedimentation
[ ] farming	[ ] dredging
[ ] toxic pollutants	[ ] nutrient enrichment

48
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W005	Rater(s): J. Groton, B. Dimick	Date: April 26, 2006

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subtotal previous page

4 (max 10 pts) **52** (subtotal)

Metric 5. Special Wetlands

4 raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., **mossy substrate** >10 sq.m, sphagnum or **other moss** (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [x] **Vernal pool (5)**; isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

8 (max 20 pts) **60** (Subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [ ] Emergent
- [ ] Shrub
- [x] Forest
- [ ] Mudflats
- [x] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [x] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [ ] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

Low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [x] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

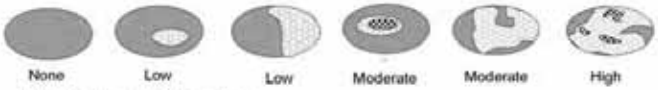
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [x] Coarse woody debris >15 cm (6 in.)
- [x] Standing dead >25 cm (10 in.) dbh
- [x] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

60Category 3 **GRAND TOTAL (max 100 pts)**

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W006	Rater(s): J. Groton, B. Dimick	Date: April 26, 2006

2 (max 6 pts.) | 2 (subtotal) Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.
- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [2] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):
Aerial Photos
Field Survey

9 (max 14 pts.) | 11 (subtotal) Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [4] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.
- [7] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [3] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [ ] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

20 (max 30 pts.) | 31 (subtotal) Metric 3. Hydrology

3a. Sources of water. Score all that apply.
- [ ] High pH groundwater (5)
- [3] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.
- [ ] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [1] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.
- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.
- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.
- [ ] None or none apparent (12)
- [7] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed
- [ ] ditch
- [x] tile (including culvert)
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [x] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other _____

12.5 (max 20 pts.) | 43.5 (subtotal) Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.
- [ ] None or none apparent (4)
- [3] Recovered (3)
- [ ] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.
- [ ] Excellent (7)
- [ ] Very good (6)
- [5] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.
- [ ] None or none apparent (9)
- [6] Recovered (6)
- [3] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed
- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] farming
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] woody debris removal
- [ ] sedimentation
- [ ] dredging
- [ ] nutrient enrichment

43.5
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte W006	Rater(s): J. Groton, B. Dimick	Date: April 26, 2006

43.5
subtotal previous page

8 (max 19 pts) | 51.5 (subtotal) Metric 5. Special Wetlands

8 raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [2] Bog, fen, wet prairie (10); acidophilic veg., **mossy substrate >10 sq.m.**, sphagnum or **other moss** (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [ ] Vernal pool (5); **isolated, perched, or slope wetland (4)**, headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [3] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

12 (max 20 pts) | 63.5 (subtotal) Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [ ] Shrub
- [3] Forest
- [ ] Mudflats
- [1] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [3] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [ ] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [-1] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

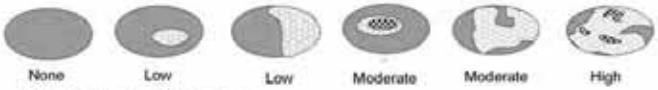
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acre) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummocks/tussocks
- [3] Coarse woody debris >15 cm (6 in.)
- [1] Standing dead >25 cm (10 in.) dbh
- [3] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

63.5 Category 3 — GRAND TOTAL (max 100 pts)

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W007	Rater(s): Britta Dimick	Date: 9/1/09

1	1
max 6 pts.	subtotal

Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.
- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [ ] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [1] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):

Field GPS data

4	5
max 14 pts.	subtotal

Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.
- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [1] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.
- [7] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [1] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

17	22
max 30 pts.	subtotal

Metric 3. Hydrology

3a. Sources of water. Score all that apply.
- [ ] High pH groundwater (5)
- [ ] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.
- [1] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.
- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.
- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.
- [ ] None or none apparent (12)
- [7] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed
- [ ] ditch
- [x] tile (including culvert)
- [ ] dike
- [ ] weir
- [ ] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [ ] road bed/RR track
- [ ] dredging
- [ ] other _____

9	31
max 20 pts.	subtotal

Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.
- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [2] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.
- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [1] Poor (1)

4c. Habitat alteration. Score one or double check and average.
- [ ] None or none apparent (9)
- [6] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed
- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] farming
- [ ] toxic pollutants
- [ ] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] woody debris removal
- [ ] sedimentation
- [ ] dredging
- [ ] nutrient enrichment

31
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W007	Rater(s): Britta Dimick	Date: 9/01/09

31
subtotal previous page

0 (max 19 pts) **31** (subtotal)

Metric 5. Special Wetlands

0 raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq m, sphagnum or other moss (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [ ] Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

3 (max 20 pts) **34** (subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [1] Shrub
- [1] Forest
- [ ] Mudflats
- [ ] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [ ] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [1] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [-1] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

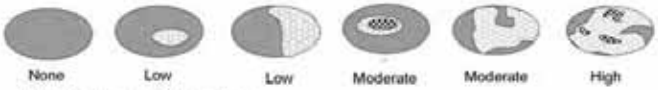
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [ ] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15 cm (6 in.)
- [ ] Standing dead >25 cm (10 in.) dbh
- [ ] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

34=Category 2 **GRAND TOTAL (max 100 pts)**

[0-29 = Category 1, low quality; 30-59 = Category 2, moderage quality; 60-100 = Category 3, superior quality]

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W008	Rater(s): Britta Dimick	Date: 9/1/09

2 (max 6 pts.) | 2 (subtotal) Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [2] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):

Field GPS data

2 (max 14 pts.) | 2 (subtotal) Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [1] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [1] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

17 (max 30 pts.) | 19 (subtotal) Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [1] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [7] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] ditch	[ ] point source (nonstormwater)
[ ] tile (including culvert)	[ ] filling/grading
[ ] dike	[x] road bed/RR track
[ ] weir	[ ] dredging
[ ] stormwater input	[ ] other _____

11 (max 20 pts.) | 30 (subtotal) Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [2] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [3] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [6] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] mowing	[ ] shrub/sapling removal
[ ] grazing	[ ] herbaceous/aquatic bed removal
[ ] clearcutting	[ ] woody debris removal
[ ] selective cutting	[ ] sedimentation
[ ] farming	[ ] dredging
[ ] toxic pollutants	[ ] nutrient enrichment

30
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W008	Rater(s): Britta Dimick	Date: 9/01/09

30
subtotal previous page

0 (max 19 pts) **30** (subtotal)

Metric 5. Special Wetlands

0 raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq m, sphagnum or other moss (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [ ] Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

1 (max 20 pts) **31** (subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [1] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [ ] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [1] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [-3] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

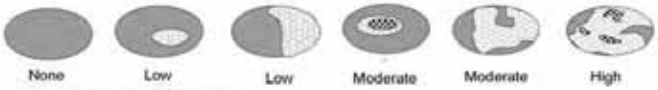
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15 cm (6 in.)
- [ ] Standing dead >25 cm (10 in.) dbh
- [ ] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

31=Category 2 **GRAND TOTAL (max 100 pts)**

[0-29 = Category 1, low quality; 30-59 = Category 2, moderage quality; 60-100 = Category 3, superior quality]

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W009	Rater(s): Britta Dimick	Date: 9/1/09

2 (max 6 pts.) | 2 (subtotal) Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [2] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):

Field GPS data

2 (max 14 pts.) | 2 (subtotal) Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [ ] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [1] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [ ] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [1] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

17 (max 30 pts.) | 19 (subtotal) Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [1] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [7] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[x] ditch	[ ] point source (nonstormwater)
[ ] tile (including culvert)	[ ] filling/grading
[ ] dike	[ ] road bed/RR track
[ ] weir	[ ] dredging
[ ] stormwater input	[ ] other _____

11 (max 20 pts.) | 30 (subtotal) Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [2] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [ ] Moderately good (4)
- [3] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [ ] None or none apparent (9)
- [6] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

[ ] mowing	[ ] shrub/sapling removal
[ ] grazing	[ ] herbaceous/aquatic bed removal
[ ] clearcutting	[ ] woody debris removal
[ ] selective cutting	[ ] sedimentation
[ ] farming	[ ] dredging
[ ] toxic pollutants	[ ] nutrient enrichment

30
subtotal this page

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W009	Rater(s): Britta Dimick	Date: 9/01/09

30
subtotal previous page

0 (max 19 pts) **30** (subtotal)

Metric 5. Special Wetlands

0
raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq m, sphagnum or other moss (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [ ] Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

1 (max 20 pts) **31** (subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [1] Shrub
- [ ] Forest
- [ ] Mudflats
- [ ] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [ ] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [1] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [-3] Moderate 25-75% cover (-3)
- [ ] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

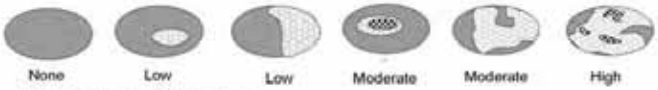
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15 cm (6 in.)
- [ ] Standing dead >25 cm (10 in.) dbh
- [ ] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

31=Category 2 **GRAND TOTAL (max 100 pts)**

[0-29 = Category 1, low quality; 30-59 = Category 2, moderage quality; 60-100 = Category 3, superior quality]

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W010	Rater(s): Britta Dimick	Date: 9/1/09

2 (max 6 pts.) | 2 (subtotal) — Metric 1. Wetland Area (size)

Notes: BR/CM = adjusted points for Blue Ridge and Cumberland Mountains. If an open water body (excluding aquatic beds and seasonal mudflats) is >20 acres (8 ha), then add only 0.5 acre (0.2 ha) of it to the wetland size for Metric 1.

Select one size class and assign score.

- [ ] >50 acres (>20.2 ha) (6 pts)
- [ ] 25 to <50 acres (10.1 to <20.2 ha) (5) [BR/CM (6)]
- [ ] 10 to <25 acres (4 to <10.1 ha) (4) [BR/CM (6)]
- [ ] 3 to <10 acres (1.2 to <4 ha) (3) [BR/CM (5)]
- [2] 0.3 to <3 acres (0.1 to <1.2 ha) (2) [BR/CM (3)]
- [ ] 0.1 to <0.3 acre (0.04 to <0.1 ha) (1) [BR/CM (2)]
- [ ] <0.1 acre (0.04 ha) (0)

Sources/assumptions for size estimate (list):

Field GPS data

7 (max 14 pts.) | 9 (subtotal) — Metric 2. Upland Buffers and Surrounding Land Use

2a. Calculate average buffer width. Select only one and assign score. Do not double check.

- [ ] WIDE. Buffers average 50 m (164 ft) or more around wetland perimeter (7)
- [4] MEDIUM. Buffers average 25 m to <50 m (82 to <164 ft) around wetland perimeter (4)
- [ ] NARROW. Buffers average 10 m to <25 m (32 ft to <82 ft) around wetland perimeter (1)
- [ ] VERY NARROW. Buffers average <10 m (<32 ft) around wetland perimeter (0)

2b. Intensity of surrounding land use. Select one or double check and average.

- [ ] VERY LOW. 2nd growth or older forest, prairie, savannah, wildlife area, etc. (7)
- [5] LOW. Old field (>10 years), shrubland, young 2nd growth forest (5)
- [ ] MODERATELY HIGH. Residential, fenced pasture, park, conservation tillage, new fallow field (3)
- [1] High. Urban, industrial, open pasture, row cropping, mining, construction (1)

17 (max 30 pts.) | 26 (subtotal) — Metric 3. Hydrology

3a. Sources of water. Score all that apply.

- [ ] High pH groundwater (5)
- [ ] Other groundwater (3) [BR/CM (5)]
- [1] Precipitation (1) [unless BR/CM primary source (5)]
- [3] Seasonal/intermittent surface water (3)
- [ ] Perennial surface water (lake or stream) (5)

3b. Connectivity. Score all that apply.

- [1] 100-year floodplain (1)
- [1] Between stream/lake and other human use (1)
- [1] Part of wetland/upland (e.g., forest), complex (1)
- [ ] Part of riparian or upland corridor (1)

3c. Maximum water depth. Select only one and assign score.

- [ ] >0.7 m (27.6 in.) (3)
- [ ] 0.4 to 0.7 m (16 to 27.6 in.) (2) [BR/CM (3)]
- [1] <0.4 m (<16 in.) (1) [BR/CM 0.15 to 0.4 m (6 to <16 in.) (2)]

3d. Duration inundation/saturation. Score one or dbl. check & avg.

- [ ] Semi- to permanently inundated/saturated (4)
- [ ] Regularly inundated/saturated (3) [BR/CM (4)]
- [2] Seasonally inundated (2) [BR/CM (4)]
- [ ] Seasonally saturated in upper 30 cm (12 in.) (1) [BR/CM (2)]

3e. Modifications to natural hydrologic regime. Score one or double check and average.

- [ ] None or none apparent (12)
- [7] Recovered (7)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [x] ditch
- [ ] tile (including culvert)
- [ ] dike
- [ ] weir
- [x] stormwater input
- [ ] point source (nonstormwater)
- [ ] filling/grading
- [x] road bed/RR track
- [ ] dredging
- [ ] other _____

18 (max 20 pts.) | 44 (subtotal) — Metric 4. Habitat Alteration and Development

4a. Substrate disturbance. Score one or double check and average.

- [ ] None or none apparent (4)
- [ ] Recovered (3)
- [2] Recovering (2)
- [ ] Recent or no recovery (1)

4b. Habitat development. Select only one and assign score.

- [ ] Excellent (7)
- [ ] Very good (6)
- [ ] Good (5)
- [4] Moderately good (4)
- [ ] Fair (3)
- [ ] Poor to fair (2)
- [ ] Poor (1)

4c. Habitat alteration. Score one or double check and average.

- [12] None or none apparent (9)
- [ ] Recovered (6)
- [ ] Recovering (3)
- [ ] Recent or no recovery (1)

Check all disturbances observed

- [ ] mowing
- [ ] grazing
- [ ] clearcutting
- [ ] selective cutting
- [ ] farming
- [ ] toxic pollutants
- [x] shrub/sapling removal
- [ ] herbaceous/aquatic bed removal
- [ ] woody debris removal
- [ ] sedimentation
- [ ] dredging
- [ ] nutrient enrichment

44 (subtotal this page)

Last revised 2005-04-29

TVARAM Field Form Quantitative Rating

Site: Bellefonte; W0010	Rater(s): Britta Dimick	Date: 9/01/09

44
subtotal previous page

0 (max 10 pts) **44** (subtotal)

Metric 5. Special Wetlands

0
raw score*

*If the documented raw score for Metric 5 is 30 points or higher, the site is automatically considered a Category 3 wetland.

Select all that apply. Where multiple values apply in row, score row as single feature with highest point value. Provide documentation for each selection (photos, checklists, maps, resource specialist concurrence, data sources, references, etc).

- [ ] Bog, fen, wet prairie (10); acidophilic veg., mossy substrate >10 sq m, sphagnum or other moss (5); muck, organic soil layer (3)
- [ ] Assoc. forest (wetl. &/or adj. upland) incl. >0.25 acre (0.1 ha); old growth (10); mature >18 in. (45 cm) dbh (5) [exclude pine plantation]
- [ ] Sensitive geologic feature such as spring/seep, sink, losing/underground stream, cave, waterfall, rock outcrop/cliff (5)
- [ ] Vernal pool (5); isolated, perched, or slope wetland (4); headwater wetland [1st order perennial or above] (3)
- [ ] Island wetland >0.1 acre (0.04 ha) in reservoir, river, or perennial water >6 ft (2 m) deep (5)
- [ ] Braided channel or floodplain/terrace depressions (floodplain pool, slough, oxbow, meander scar, etc.) (3)
- [ ] Gross morph. adapt. in >5 trees >10 in. (25 cm) dbh: buttress, multitrunk/stool, stilted, shallow roots/tip-up, or pneumatophores (3)
- [ ] Ecological community with global rank (NatureServe): G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier]
- [ ] Known occurrence state/federal threatened/endangered species (10); other rare species with global rank G1*(10), G2*(5), G3*(3) [*use higher rank where mixed rank or qualifier] [exclude records which are only "historic"]
- [ ] Superior/enhanced habitat/use: migratory songbird/waterfowl (5), in-reservoir buttonbush (4), other fish/wildlife management/designation (3)
- [ ] Cat. 1 (very low quality): <1 acre (0.4 ha) AND EITHER >80% cover of invasives OR nonvegetated on mined/excavated land (-10)

6 (max 20 pts) **50** (subtotal)

Metric 6. Plant Communities, Interspersion, Microtopography

6a. Wetland vegetation communities.
Score all present using 0 to 3 scale.

- [ ] Aquatic bed
- [1] Emergent
- [3] Shrub
- [3] Forest
- [ ] Mudflats
- [ ] Open water <20 acres (8 ha)
- [ ] Moss/lichen. Other _____

Vegetation Community Cover Scale

0 = Absent or <0.1 ha (0.25 acre) contiguous acre [For BR/CM <0.04 ha (0.1 acre)]
1 = Present and either comprises a small part of wetland's vegetation and is of moderate quality, or comprises a significant part but is of low quality
2 = Present and either comprises a significant part of wetland's vegetation and is of moderate quality, or comprises a small part and is of high quality
3 = Present and comprises a significant part or more of wetland's vegetation and is of high quality

6b. Horizontal (plan view) interspersion.
Select only one.

- [ ] High (5)
- [ ] Moderately high (4) [BR/CM (5)]
- [ ] Moderate (3) [BR/CM (5)]
- [ ] Moderately low (2) [BR/CM (3)]
- [1] Low (1) [BR/CM (2)]
- [ ] None (0)

Narrative Description of Vegetation Quality

low = Low species diversity &/or dominance of nonnative or disturbance tolerant native species
mod = Native species are dominant component of the vegetation, although nonnative &/or disturbance tolerant native species can also be present, and species diversity moderate to moderately high, but generally w/o presence of rare, threatened or endangered species
high = A predominance of native species with nonnative sp &/or disturbance tolerant native sp absent or virtually absent, and high sp diversity and often but not always, the presence of rare, threatened, or endangered species

6c. Coverage of invasive plants.
Add or deduct points for coverage.

- [ ] Extensive >75% cover (-5)
- [ ] Moderate 25-75% cover (-3)
- [-1] Sparse 5-25% cover (-1)
- [ ] Nearly absent <5% cover (0)
- [ ] Absent (1)

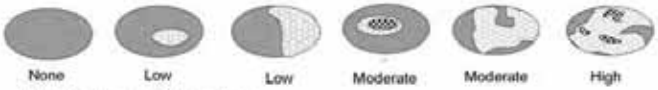
Mudflat and Open Water Class Quality

0 = Absent <0.1 ha (0.25 acres) [For BR/CM <0.04 ha (0.1 acre)]
1 = Low 0.1 to <1 ha (0.25 to 2.5 acres) [BR/CM 0.04 to <0.2 ha (0.1 to 0.5 acre)]
2 = Moderate 1 to <4 ha (2.5 to 9.9 acres) [BR/CM 0.2 to <0.2 ha (0.5 to 5 acre)]
3 = High 4 ha (9.9 acres) or more [BR/CM 2 ha (5 acres) or more]

6d. Microtopography.
Score all present using 0 to 3 scale.

- [1] Vegetated hummocks/tussocks
- [ ] Coarse woody debris >15 cm (6 in.)
- [ ] Standing dead >25 cm (10 in.) dbh
- [ ] Amphibian breeding pools

Hypothetical Wetland for Estimating Degree of Interspersion



Microtopography Cover Scale

0 = Absent
1 = Present in very small amounts or if more common of marginal quality
2 = Present in moderate amounts, but not of highest quality or in small amounts of highest quality
3 = Present in moderate or greater amounts and of highest quality

50=Category 2 **GRAND TOTAL (max 100 pts)**

[0-29 = Category 1, low quality; 30-59 = Category 2, moderage quality; 60-100 = Category 3, superior quality]

Refer to the most recent ORAM Score Calibration Report for the scoring breakpoints between wetland categories at the following address: http://www.epa.state.oh.us/dsw/401/401.html

Last revised 2005-04-29