

INTRODUCTION

The University of Montana was contracted by the staff of Glacier National Park and the Rocky Mountains Cooperative Ecosystem Studies Units to conduct wetland delineations at selected sites in developed areas of the park. These delineations were conducted in July, August, and September of 2001 by John DeArment, a graduate student at the University of Montana.

METHODS

Routine methodology protocols were used as outlined in the 1987 US Army Corps of Engineers Wetland Delineations Manual and as clarified in a March 1992 memo.

Vegetation methods

Vegetation protocols followed national standards (US_ACOE, 1987 & 1992), using the basic rule that in order to meet the hydrophytic criteria, more than 50% of the dominant species need to be OBL (obligate wetland species), FACW (facultative wetland species), or FAC (facultative species) excluding FAC- (facultative species indicating “slightly less frequently found in wetlands”).

Hydrology methods

Wetland hydrology was investigated by looking for indicators of such hydrology as defined by the USACOE. These indicators include inundation, saturation, water marks, drift lines, sediment deposits, drainage patterns, oxidized root channels, water stained leaves, and the FAC-neutral test.

Soil methods

Field indications of prolonged inundation or shallow groundwater during the growing season were evaluated. The morphological features used as field indicators of hydric soils were histic epipedons, sulfidic odors, aquic moisture regimes, reducing conditions, gleyed and low-chroma colors, concretions, high organic surfaces in sandy soils, and organic streaking in sandy soils.

Wetlands were identified as those areas having all three characteristics: wetland vegetation, wetland hydrology, and hydric soils.

When possible, wetland delineation boundaries and wetlands were drawn onto 1:12,000 air photos provided by the Park Service. In some instances, the areas delineated were too small to allow them to be accurately drawn onto an air photo, in which case the boundaries were drawn onto GIS maps provided by the park service and were supplemented with hand-drawn maps made in the field.

Walton

Two areas were evaluated at Walton. First, I looked in the area of the proposed parking improvements. Because two distinct plant communities can be found in this location, two field forms were completed, one in the grass dominated community (Walton #1), and another in the tree dominated community (Walton #2). A single GPS point was taken at the boundary of these two communities (UTM 0306928, 5349699). Neither location supports wetland vegetation; thus neither is a jurisdiction wetland.

The second area evaluated is the proposed trail leading from the proposed parking lot to the trailer currently used for employee housing. Data for this area can be found on field form Walton #3. The GPS point for this location is (UTM 0306954, 5349721). The area does not support wetland vegetation; thus it is not a jurisdiction wetland.

Rising Sun

A total of six sites were examined for wetlands in the Rising Sun area. Sites 1 through 4 are USFWS identified wetlands. Site 5 is a small area near the boat dock on the lake side of GTSR. And site 6 is an area to the north east of the hotel.

Sites 1-4: USFS Wetlands

Although all four of these sites were identified by USFWS as wetlands, upon closer inspection on the ground, none of them is in fact a jurisdictional wetland. None of the 4 USFWS sites supports wetland vegetation, and soils at all 4 sites are coarse alluvial materials that show no hydric characteristics.

GPS points for the 4 sites are as follow:

Site 1 (UTM 0314642, 5396457)

Site 2 (UTM 0314593, 5396336)

Site 3 (UTM 0314652, 5396288)

Site 4 (UTM 0314754, 5396100)

Site 5: Boat Dock (UTM 0314294, 5395955)

This site does not support wetland vegetation; thus it is not a jurisdictional wetland.

Site 6: Northeast of the hotel (UTM 0314952, 5396718)

A small jurisdictional wetland is located northeast of the hotel along the west bank of the creek that flows east of the hotel.

Logan Pit (UTM: 0295801, 5399615)

In this location the purpose of the delineation was to confirm that no jurisdictional wetlands are located in the non-forested areas of Logan Pit. Only 20% of the dominant plant species present in the area are considered wetland species; thus the site fails to qualify as a jurisdictional wetland.

Logan Toilet

This area was divided into two delineations: one on the terrace where the toilet is currently located (site A) and one at the bottom of the small hill to the east of the toilet (site B).

Site A (UTM: 0296278, 5399873)

This area is dominated by brome and a mix a woody species. Only 31% of the dominant plant species are classified as wetland plants in region 9; thus the site does not qualify as a jurisdictional wetland.

Site B (UTM: 0296276, 5399847)

In this area 66% of the dominant plants are FAC or wetter; wetland hydrology is present in the form of a small seep to the southeast of the toilet; and wetland soils do occur. Thus the site is a jurisdictional wetland.

Goat Haunt

A jurisdictional wetland exists along the trail between the water tower and Cleveland Creek as a result of a spring that flows along the trail. Refer to the map on the next page for location.

Two Medicine

Three areas were evaluated at Two Medicine. Site #1 is the riparian zone of the creek between the lake and the road. Site #2 is a small USFWS wetland located at the narrows between the two lakes. Site #3 is the USFS wetland located in the campground.

Site #1 does not support wetland vegetation, and is thus not a jurisdictional wetland. Soils along the creek are coarse alluvial material without hydric characteristics. Site #1 is located at (UTM 0325091, 5372766).

Both USFWS wetlands, Sites #2 and #3, are jurisdictional wetlands and have been accurately mapped by the USFWS. Site #2 is located at (UTM 0325182, 5373134), and Site #3 is located at (UTM 0325270, 5373608).

Apgar

Two areas were investigated in the vicinity of the developed areas at Apgar. Site #1 is on the west side of the road, and Site #2 is on the east side. Neither site supports wetland vegetation; thus neither is a jurisdictional wetland. Site #1 is located at (UTM 0278966, 5379044) and Site #2 is located at (UTM 0279054, 5378649).

Many Glacier

Two areas were investigated at Many Glacier. Site #1 is the wetland complex identified by USFWS behind the campground along Swiftcurrent Creek. Site #2 is a willow and cottonwood stand located below the volleyball court behind the Many Glacier hotel.

Site #1 is a jurisdictional wetland. One hundred percent of the dominant vegetation is comprised of wetland species; wetland hydrology is provided by the creek; and the soils are hydric. The wetland/non-wetland boundary is the bottom of the small hill the leads down from the campground to the creek. Site #1 is located at (UTM 0303506, 5407972). Please refer to the map labeled "Swiftcurrent" for the exact location.

Site #2 is also a jurisdictional wetland. Site #2 is located at (UTM 0305140, 5408083). Please refer to the map labeled "Many Glacier" for the exact location.

Moose Country

Two staging areas were investigated along the gravel road in Moose Country: 1) the large gravel area at the top of the hill at the end of the road, and 2) a small clearing on the west side of the gravel road.

Site #1: Gravel area at the end of the road (UTM 0290836, 5392930)

By the time the delineation was conducted, a plastic fence had been placed around this area, excluding all of the vegetation at the top of the hill that I was asked to look at. As long as all the work at this site takes place within the fence, no wetland will be disturbed. However, immediately outside of the fence at the top of the hill is a small seep that supports a jurisdictional wetland.

Site #2: Clearing on the west side of the gravel road (UTM 0290973, 5392235)

This area was dominated by upland species and thus fails to qualify as a jurisdictional wetland.

Packers Roost

Three areas were delineated in the vicinity of Packers Roost: 1) the USFWS wetland south of the cabin, 2) the non-forested area around the outhouse north of the cabin, and 3) the non-forested area near the point where the old jeep trail intersects the creek east of the cabin.

1. USFWS wetland (UTM 0295647, 5402643)

The purpose of this delineation was to verify the existence of a wetland that had previously been identified by the USFWS. The area is indeed a jurisdictional wetland, and its size extent is considerably greater than that indicated by the UFFWS. The wetland is located at the base of the small hill on the southwest side of the parking lot at Packers Roost. The delineation conducted in this study was limited to the relatively non-forested areas immediately south and west of the cabin.

2. Along jeep trail (UTM 0295712, 5402644)

This area was dominated by upland species and thus fails to qualify as a jurisdictional wetland.

3. Non-forested areas near outhouse (UTM 0295663, 5402706)

Fifty percent of the dominant plant species in this area are considered FAC or wetter in Region 9. However, no evidence of wetland hydrology or hydric soils was found and the site thus fails to qualify as a jurisdictional wetland.

Lake McDonald

Four areas were delineated in the vicinity of Lake McDonald Lodge: 1) the long, narrow forested area between the pull-in parking lots, 2) the Snyder Creek riparian zone, 3) the non-forested areas around the Charlie Russell Grill, and 4) the area around the horse corral east of GTS road.

1. Narrow area between the parking lots (UTM 0288150, 5388621)

This area was dominated by upland species and thus fails to qualify as a jurisdictional wetland.

2A and 2B. Snyder Creek riparian zone (UTM 0288072, 5388576)

Sixty-two percent of the dominant plant species in the vicinity of Site #2A are wetland species. However, Snyder Creek is largely confined to its channel by riprap and there is thus little evidence of wetland hydrology. Soils are mostly comprised of sand and fine gravel; no indicators of hydric soils were found. Thus the site is not a jurisdictional wetland.

The exception to this is a small seep located on the southern bank of Snyder Creek, west of GTSR, where all 3 wetland factors were found. A separate field form labeled 2b was completed for this site.

3. Non-forested area around the grill (UTM 0288004, 5388721)

This area is dominated by upland plant species and thus fails to qualify as a jurisdictional wetland.

4. Horse corral (UTM 0288265, 5388661)

The purpose of this delineation was to investigate rumors of a wet area north of the horse corral. To do so, I walked the area around the corrals until I found a spring to the northeast of the corral. I delineated the wetland created by this spring north of the corral, but limited my investigations to the immediate vicinity of the corrals, as delineating the entire extent of this wetland was beyond the scope of the project.

Other areas

1. The shore line of Lake McDonald was walked in the developed areas of Apgar and Lake McDonald Lodge to identify potential wetland sites that might require more formal delineation. No such sites were found. Please refer to the Lake McDonald and Apgar maps for exact locations.
2. The pull-off along GTSR was investigated visually to determine the approximate extent of the non-wetland area adjacent to the pull-off. The non-wetland area is on a relative high spot dominated by hemlock trees. Beyond this high spot, however, the area is a large wetland complex. The location of the non-wetland area is (UTM 0291820, 5394355).

References

US Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual*. US Army Corps. Washington, DC.

USDI Fish & Wildlife Service. 1988. *National List of Plant Species that Occur in Wetlands: Northwest (Region 9)*. Biol. Rpt. 88 (26.9).

USDI Fish & Wildlife Service. 1994. *Supplement to the National List of Plant Species that Occur in Wetlands: Northwest (Region 9)*. Supp. Biol. Rpt. 88.

**Wetland Delineation in Glacier National Park Developed Zone
CESU Technical Assistance Project 2000/2001**

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APPENDIX A

Appendix A – *Data Forms – Routine Wetland Determination*

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