Attoyac Bayou

Physical Description of Site Attoyac 1

Attoyac Bayou at site Attoyac 1 was surveyed on July 21 and August 24, 2012. The site is accessible from the Farm to Market (FM) 95 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned. Stream channel access is moderately difficult due to the steep access points from FM 95. During both surveys, the stream channel was completely dry, providing no opportunity for recreational activities. Staff from SFASU and CES were unable to access a 300 meter reach of the stream channel due to excessively dense vegetation which covered the dry stream bed. Photogroup 4-1 illustrates the appearance of the stream at site Attoyac 1.

Physical Description of Site Attoyac 2

Attoyac Bayou at site Attoyac 2 was surveyed on July 21 and August 24, 2012. This site is accessible from the County Road (CR) 3122 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned. Stream channel access was moderately easy due to a gently sloping area near the CR crossing, despite thick ground vegetation. During Survey 1, substantial pools were present within the stream channel. Portions of dry, exposed stream bed were visible, and no flow was present. Survey 2 found the stream channel completely dry. The banks along the stream channel were relatively steep and denuded with large tree roots exposed, as illustrated by photographs in Photogroup 4-2. During Survey 1, SFASU and CES staff observed a slight presence of snakes (water moccasins) and a moderate presence of feral hogs in the form of wallows and tracks in the stream channel, as described in Table 4-6.

This sight is evidently used for illegal dumping as the stream channel is riddled with bags of household garbage, appliances, tires, and a variety of other items. A selection of these illegally discarded items is displayed in Photogroup 4-2. These items were abundant throughout the 300 meter reach of the survey.

The left bank of the stream had recently been harvested for timber, leaving no SMZ. Large branches and several trees were found across the stream channel.

No signs of recreational use or further access points were evident within the 300 meter reach of the survey. Even if stream flow were present, it is doubtful that individuals would use the site for primary contact recreation or secondary contact recreation 1 as a result of the privately owned banks and illegal dumping in the channel.

Physical Description of Site Attoyac 3

Attoyac Bayou at site Attoyac 3 was surveyed on July 21 and August 25, 2012. This site is accessible from the County Road (CR) 3181 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned. Stream channel access was difficult due to the steep, eroded bank adjacent to the CR crossing and the poison ivy which covered the bank.

Litter in the form of bottles, appliances, and general household refuse was abundant in the stream channel during survey 2. It is possible that a portion of the litter was submerged during Survey 1, while some had been deposited since the initial survey. During Survey 1, the 300 meter reach was wadeable, although quite low with an average depth at thalweg of 0.367 and a total discharge of 0.2 cfs. During Survey 2, the stream was dry with no substantial pools. Large woody debris and thick vegetation was prevalent in the stream channel and along the adjacent banks, making it difficult for anyone to access from the adjacent privately owned lands.

No signs of recreational use were evident within the 300 meter reach of the survey.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel, potential bank access, and water surface characteristics of site Attoyac 3 is illustrated in Photogroup 4-3.

Physical Description of Site Attoyac 4

Attoyac Bayou at site Attoyac 4 was surveyed on July 21 and August 25, 2012. This site is accessible from the Farm to Market (FM) 1971public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

Stream channel access was moderately easy due to the gently sloping bank that extends from the FM 1971 crossing to the stream channel. A substantial pool was located directly under the FM 1971 bridge, and another was located approximately 30 meters upstream. Large portions of dry stream bed were exposed, and no flow was present. The bottom deposits of the pools were sludge, and odor was common. A beaver dam which retained a large pool of stagnant water was also present at approximately 40 meters upstream. Staff from CES and SFASU made the decision not to traverse the entire 300 meters due to the minute possibility that the area past the beaver dam was used recreationally, and because of safety concerns. Multiple water moccasins were seen in the stream channel and within the debris of the beaver dam.

A crocheted blanket which was not present during Survey 1 was spread out on the stream bank next to the County Road (CR) 1971 bridge crossing with an animal carcass lying on top of it during Survey 2 in August 2012. Photogroup 5-7 documents these indications of possible recreational activity.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 4 is illustrated in Photogroup 4-4.

Physical Description of Site Attoyac 5

Attoyac Bayou at site Attoyac 5 was surveyed on July 21 and August 25, 2012. This site is accessible from the US Highway 84 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

Stream channel access was difficult due to extremely dense vegetation lining both left and right banks at the downstream access point. Further downstream, vegetation was less thick in certain areas, and gently sloping banks provided relatively easy access to the stream channel. Woody debris (large and small) was prevalent under the water surface as well as on the surface of the stream channel. The amount of woody debris under the water surface made walking the required 300 meter survey length difficult. Dense layers of organic material from the canopy along the water's edge also made walking difficult as surveyors commonly sunk up to their knees in debris. Furthermore, the upstream portion of the stream channel accessible from US Highway 84 is fenced with high irrigation fencing, preventing anyone from venturing upstream. No flow was present during either survey in July or August. Despite the lack of flow, the stream was wadeable and there was enough water present to support primary contact recreation during both surveys.

No signs of recreational use or further access points were evident within the 300 meter reach of the survey.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 5 is illustrated in Photogroup 4-5.

Physical Description of Site Attoyac 6

Attoyac Bayou at site Attoyac 6 was surveyed on July 21 and August 25, 2012. This site is accessible from the County Road (CR) 4760 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

Access to the stream channel was moderately difficult due to the steep, eroded nature of the upstream left and right banks adjacent to the CR crossing. In many areas, the banks were gently sloping but covered by dense vegetation or woody debris, making potential channel access difficult. Woody debris under the water surface and in the stream channel was prevalent. Near the 300 meter point of the study area, the right bank opens up to pastureland, and portions of the bank are eroded due to heavy cattle use. The access point used by livestock is illustrated in photogroup 4-6. Total discharge during Survey 1 was 0.18 cfs, and no flow was present during Survey 2. The stream channel was composed of three substantial pools and large portions of dry, exposed stream bed during Survey 2. During both surveys, the stream channel was wadeable and there was sufficient water to support contact recreation.

There were no signs of recreational use or further human access within the 300 meter reach of the survey area.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6,

correspondingly. The general appearance of the stream channel of site Attoyac 6 is illustrated in Photogroup 4-6.

Physical Description of Site Attoyac 7

Attoyac Bayou at site Attoyac 7 was surveyed on July 21 and August 25, 2012. This site is accessible from the US Highway 59 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

Access to the stream bank is moderately easy due to the gently sloping nature of the bank which leads to the stream channel and the availability of a small, unmarked road directly off of Hwy 59 which individuals use to access the stream bank.

The reach of the survey area was unwadeable due to excessive depth of well over 1 meter. In accordance with RUAA procedure regarding unwadeable streams, average widths of the stream channel were taken at 30 meter transects over the 300 meter survey reach. The widths are documented in Table 4-5. Flow was also unmeasurable due to excessive depth.

It is obvious that individuals use this site for recreation, as the stream bank is littered with food wrappers as well as beer/soda bottles. Also present are signs of fishing (secondary contact recreation) in the form of old fishing lines, fish carcasses, and fish bait containers. Also present is a well-established foot path that leads from the Hwy 59 crossing to further upstream along the stream bank. Several areas along this path contain concentrations of indicators of human use in the form of litter. Photogroup 5-8 documents these indications of recreational activity.

The stream channel banks are very steep in most areas along the foot path, making it difficult to physically access the stream; however, in at least one spot, the bank gently slopes in a manner which makes physical access to the water much easier.

At approximately 150 meters, the foot path ends at a deep secondary channel which branches off the primary channel of the Attoyac. Across the ravine, the bank opens into pastureland and heavy livestock use is evident. Staff from SFASU and CES walked along the ravine in an attempt to find an accessible point at which to cross, but were unable to do so as the ravine banks were very steep. Cattle access the water present in the channel, and fecal matter was present along the stream bank.

Hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyc 7 is illustrated in Photogroup 4-7.

Physical Description of Site Attoyac 8

Attoyac Bayou at site Attoyac 8 was surveyed on July 21 and August 25, 2012. This site is not publicly accessible as County Road 294 is now defunct, and what was once a public road is now fenced and gated. In order to access the Attoyac Bayou stream channel, SFASU and CES staff

obtained landowner permission and passed through three separate gates. The land surrounding the access point is fenced and privately managed for livestock grazing. An accessible public road is no longer maintained by the county.

The banks of the stream channel were very steep and covered with thick vegetation throughout the survey reach. The total discharge during Survey 1 was 1.38 cfs, and there was no measurable flow during Survey 2. During Survey 2, the stream channel was composed of substantial pools with portions of dry streambed exposed. Woody debris was present under the surface of the water as well as across the stream channel. The stretch of the survey area was wadeable and maintained sufficient water to support primary contact recreation.

At approximately 150 meters, the stream bank opens up to pastureland and a camp house is present on the bank. The house appears to be used only seasonally, and is not for year round residence. Despite the presence of the camp house and pastureland, there was no evidence of human or livestock use in the actual stream channel, most likely due to the steep nature of the banks which inhibit access.

Near the 300 meter point of the survey area, CES and SFASU staff encountered an extensive log jam which prohibited further safe access downstream. Due to the steep nature of the left bank, the densely vegetated nature of the right bank, and safety concerns regarding traversing the extensive log jam, the survey crew made the decision to end the stream survey at that point. Photos of the log jam are presented in Photogroup 4-8.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 8 is illustrated in Photogroup 4-8.

Physical Description of Site Attoyac 9

Attoyac Bayou at site Attoyac 9 was surveyed on July 21 and August 25, 2012. This site is not publicly accessible, and requires a 15-20 minute hike through densely wooded, gated, private property to access the Attoyac Bayou stream channel.

The channel banks range from very steep to gently sloping, with a heavily forested riparian zone on both banks throughout the survey area. The stream is wadeable throughout the 300 meter reach. The total discharge during Survey 1 was too insignificant to register data using the Marsh McBirney flow meter. During Survey 2, there were substantial pools present with no flow and portions of dry stream bed exposed. Large woody debris are present throughout the stream channel as are signs of feral hog use in the form of tracks and wallows.

No signs of recreational use or access points were present within the 300 meter survey reach.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6,

correspondingly. The general appearance of the stream channel of site Attoyac 9 is illustrated in Photogroup 4-9.

Physical Description of Site Attoyac 10

Staff of SFASU and CES were unable to conduct a RUAA survey at Attoyac Bayou site 10. The landowner who owns all adjacent banks withdrew previously granted permission and expressed the desire to not have the survey conducted near his property.

Physical Description of Site Attoyac 11

Attoyac Bayou at site Attoyac 11 was surveyed on August 24, 2012. Staff from SFASU and CES were unable to obtain permission from the landowner prior to the initial survey in July. This site is not publicly accessible, and is located on gated and fenced property that is managed for grazing livestock. To access the survey site, staff from CES and SFASU crossed through a locked gate and drove approximately .5 miles through open pastureland to reach the stream. Once at the streamside, staff had to cross through a barbed wire fence constructed by the landowner in order to prevent cattle from denuding the stream bank.

The survey reach was wadeable due to its composition of substantial pools; no flow was present.

The banks within the survey reach are densely vegetated and range from steep to a gently sloping incline. The banks at the water's edge are extremely difficult to walk along due to the primary substrate of organic matter that is sludge-like. A foul odor was common throughout the survey. There is a heavy presence of large woody debris across and within the stream channel as well as along the stream banks. In one area of the survey stretch, a large amount of small litter had collected at a log jam. Two large items of litter (a TV and a bucket) were also present in the channel. It appears that much of the litter likely washed in from upstream.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 11 is illustrated in Photogroup 4-10.

Physical Description of Site Attoyac 12

Attoyac Bayou at site Attoyac 12 was surveyed on July 22 and August 24, 2012. This site is accessible from the Farm to Market (FM) 138 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

Bank access is difficult due to the steep nature of the banks at the access point. The stream banks within the survey reach are densely vegetated and range from steep to gently sloping in nature. Thick layers of organic matter from the canopy composed the substrate along the water's edge, making it difficult to walk and producing a foul odor. A few large items (tire, kitchen sink) have been dumped from the FM 138 bridge crossing. Large woody debris in the stream channel is

common. During Survey 1, the total discharge was 1.18 cfs. During Survey 2, the stream channel was composed of substantial perennial pools with dry portions of the stream bed exposed.

One set of human footprints were found on the right bank under the FM 138 bridge crossing during Survey 2. Graffiti was also present under the bridge. These items are depicted in Photogroup 4-12.There did not appear to be any additional human access points past the FM 138 crossing. Human foot prints were observed along the stream bank underneath the highway bridge crossing. Photogroup 5-9 documents these indications of potential recreational activity.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 12 is illustrated in Photogroup 4-11.

Physical Description of Site Attoyac 13

Attoyac Bayou at site Attoyac 13 was surveyed on July 22 and August 25, 2012. This site is not publicly accessible, and is located on gated and fenced property. Access to the stream is over 1.0 mile away from the primary gated access point.

Access to the stream channel is moderately easy as there is a mowed corridor used by the landowners near the stream and a portion of the bank which slopes gently to the stream bed. Within the survey range, the stream banks range from gently sloping to very steep. Large woody debris across and within the stream channel is common. Major portions of the channel within the stream reach are composed denuded banks and exposed tree roots. During Survey 1, the stream was wadeable and contained at least one substantially deep pool within the contiguous stream; the total discharge was 1.976 cfs. During Survey 2, the stream was wadeable but composed of substantial pools with no flow and portions of exposed stream bed were present. During Survey 2, signs of feral hog use within the stream channel were also more prevalent.

No other access points were present within the 300 meter reach. According to the landowner, he and his two children occasionally don their rain boots and walk or wade down the streambed, but they do not swim or immerse their bodies in the water.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyc 13 is illustrated in Photogroup 4-12.

Physical Description of Site Attoyac 14

Attoyac Bayou at site Attoyac 14 was surveyed on July 22 and August 25, 2012. This site is not publicly accessible, and is located on gated and fenced property. Access to the stream is over 1.0 miles away from the primary gated access point.

Access to the stream channel is difficult due to the dense vegetation and precipitously steep nature of the banks. Furthermore, CES and SFASU staff made the decision to not physically access the stream channel due to the known presence of an alligator within the survey reach. Photos of said alligator taken by the landowner are provided in Photogroup 4-13.

During Survey 1, no exact stream depth measurements were taken, but the stream did contain enough water to support primary contact recreation and appeared wadeable in most portions of the survey reach. The total discharge was 1.35 cfs. Stream width measurements were estimated at each 30 meter transect of the 300 meter reach. During Survey 2, the stream channel was composed of substantial perennial pools with no flow. A film was present on the water surface. Large woody debris within the stream channel was prevalent during both surveys.

There was no evidence of recreational use or human access points present during either survey.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 14 is illustrated in Photogroup 4-13.

Physical Description of Site Attoyac 15

Attoyac Bayou at site Attoyac 15 was surveyed on July 20 and August 24, 2012. This site is accessible from the Texas State Highway 7 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

Access to the stream channel is moderately easy from the public road crossing. Banks range from gently sloping and heavily vegetated at the access point to steep and denuded featuring exposed tree roots further downstream. Total discharge during Survey 1 was 8.61 cfs, and the total discharge during Survey 2 was 0.4879 cfs. Large woody debris across and within the stream channel are common. The stream is perennial and maintained wadeability and sufficient water for primary contact recreation during both surveys.

Human foot prints were observed along the bank underneath the highway bridge crossing. Photogroup 5-10 documents these indications of possible recreational activity.
survey.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 15 is illustrated in Photogroup 4-14.

Physical Description of Site Attoyac 16

Attoyac Bayou at site Attoyac 16 was surveyed on July 21 and August 24, 2012. This site is not publicly accessible, and is located on fenced property at the end point of a very poorly maintained county road that is rarely used according to the landowner.

Access to the stream channel is difficult due to the steep nature of the banks at the access point as well as its location at the end of the poorly maintained county road. Banks within the survey reach range from gently sloping and heavily vegetated to steep and denuded featuring exposed tree roots. Woody debris was present in the stream channel, although the water surface remained relatively clear throughout the survey reach. The total discharge during Survey 1 was 11.01 cfs, and the total discharge during Survey 2 was 1.6086 cfs. The perennial stream maintained wadeability and sufficient water for primary contact recreation during both surveys.

In a separate interview, the landowner confirms that fishing from a small boat or from the bank does occasionally take place. There appeared to be no regularly used human access points within the 300 meter survey reach.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 16 is illustrated in Photogroup 4-15.

Physical Description of Site Attoyac 17

Attoyac Bayou at site Attoyac 17 was surveyed on July 21 and August 25, 2012. This site is accessible from the County Road (CR) 392 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

Access to the stream channel is difficult due to the steep nature of the bank at the access point. Banks within the survey reach remain steep and heavily vegetated throughout the 300 meter reach. Woody debris across and within the stream channel was common. Total discharge during Survey 1 was 17.7 cfs, while the total discharge during Survey 2 was 2.8374 cfs. The perennial stream maintained wadeability and sufficient water for primary contact recreation during both surveys.

Evidence of recreational use was found in the form of a discarded trot line/set hook attached to a tree on the right bank. There appeared to be no other human access points other than the CR 392 crossing within the 300 meter survey reach. Photogroup 5-11 documents these indications of recreational activity.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 17 is illustrated in Photogroup 4-16.

Physical Description of Site Attoyac 18

Attoyac Bayou at site Attoyac 18 was surveyed on July 21 and August 25, 2012. This site is accessible from the Texas State Hwy 21 public road crossing of the Attoyac Bayou; both adjacent stream banks are privately owned.

A small, unmarked road branches off of Hwy 21 and leads to the left bank of the stream where a small, rudimentary boat launch is available. Access to the stream channel itself is difficult due to the steep, heavily vegetated nature of the banks at the access point.

Evidence of human bank use is present in the form of litter (beer cans, soda bottles) as well as graffiti throughout the underside of the left bank portion of the Highway 21 bridge crossing.

Banks remain relatively steep and heavily vegetated throughout the 300 meter survey reach, although certain portions of both left and right bank slope more gently in some areas. During Survey 1, the total discharge was 21.39 cfs, while during Survey 2 the total discharge was 2.7614 cfs. The perennial stream maintained wadeability and sufficient water for primary contact recreation during both surveys.

There appeared to be no other human access points other than the Hwy 21 crossing within the 300 meter survey reach.

Average thalweg depth, hydrographic parameters, appearance of the water, as well as wildlife observations for the site during each survey are documented in Tables 4-4, 4-5, and 4-6, correspondingly. The general appearance of the stream channel of site Attoyac 18 is illustrated in Photogroup 4-17.

Photogroup 4-1 Attoyac 1 depicting general appearance of the site from public access point, FM 95. Top left: 0-m transect, downstream view, stream channel with dense vegetation, July 2012; Top center: 0-m transect, downstream view, August 2012; Top right: 0-m transect, downstream view July 2012.

Photogroup 4-2 Attoyac 2 depicting general appearance of the site. All individuals featured are SFASU and CES staff. Top left: 30-m transect, upstream, July 2012; Top center: 30-m downstream, July 2012; Top right: 90-m transect, downstream, July 2012; Middle left: 300-m transect, upstream, July 2012; Middle right: large woody debris, July 2012; Bottom left: large channel litter, July 2012; Bottom right: 300-m transect, upstream, August 2012.

Photogroup 4-2 Attoyac 2 depicting general bank appearance and stream access point. All individuals featured are SFASU and CES staff. Top left: 0-m transect, downstream bank, July 2012; Top center: 150-m transect, downstream, July 2012; Top right: 150-m transect, upstream, August 2012. Bottom left: Stream access point from CR 3122, July 2012; Bottom right: 30-m transect, downstream, August 2012.

Photogroup 4-2 Attoyac 2 depicting potential sources of contamination. Top left: Livestock fecal, August 2012. Top right: Livestock tracks in channel, August 2012; Bottom: Feral hog wallow, July 2012.

Photogroup 4-3 Attoyac 3 depicting general stream appearance. All individuals featured are SFASU and CES staff. Top left: 30-m transect, downstream, July 2012; Top center: 150-m transect, upstream, August 2012; Top right: 30-m transect, July 2012; Bottom Left: 150-m transect, downstream, July 2012. Bottom right: 300-m transect, upstream, July 2012.

Photogroup 4-3 Attoyac 3 depicting bank access and general bank appearance. All individuals featured are SFASU and CES staff. Top left: Large channel litter against left bank, August 2012; Top center: 150-m transect, left bank, July 2012; Top right: 30-m transect, downstream, August 2012; Bottom left: 150-m transect, upstream, July 2012; Bottom right: Stream access point from CR 3181.

Photogroup 4-3 Attoyac 3 Depicting water surface characteristics further stream features. Top left: Raccoon tracks, August 2012; Top right: Large litter in channel (tire), July 2012; Middle left: 300-m transect, upstream, August 2012; Middle right: 300-m transect, downstream, July 2012; Bottom: Water Moccasin in channel, July 2012.

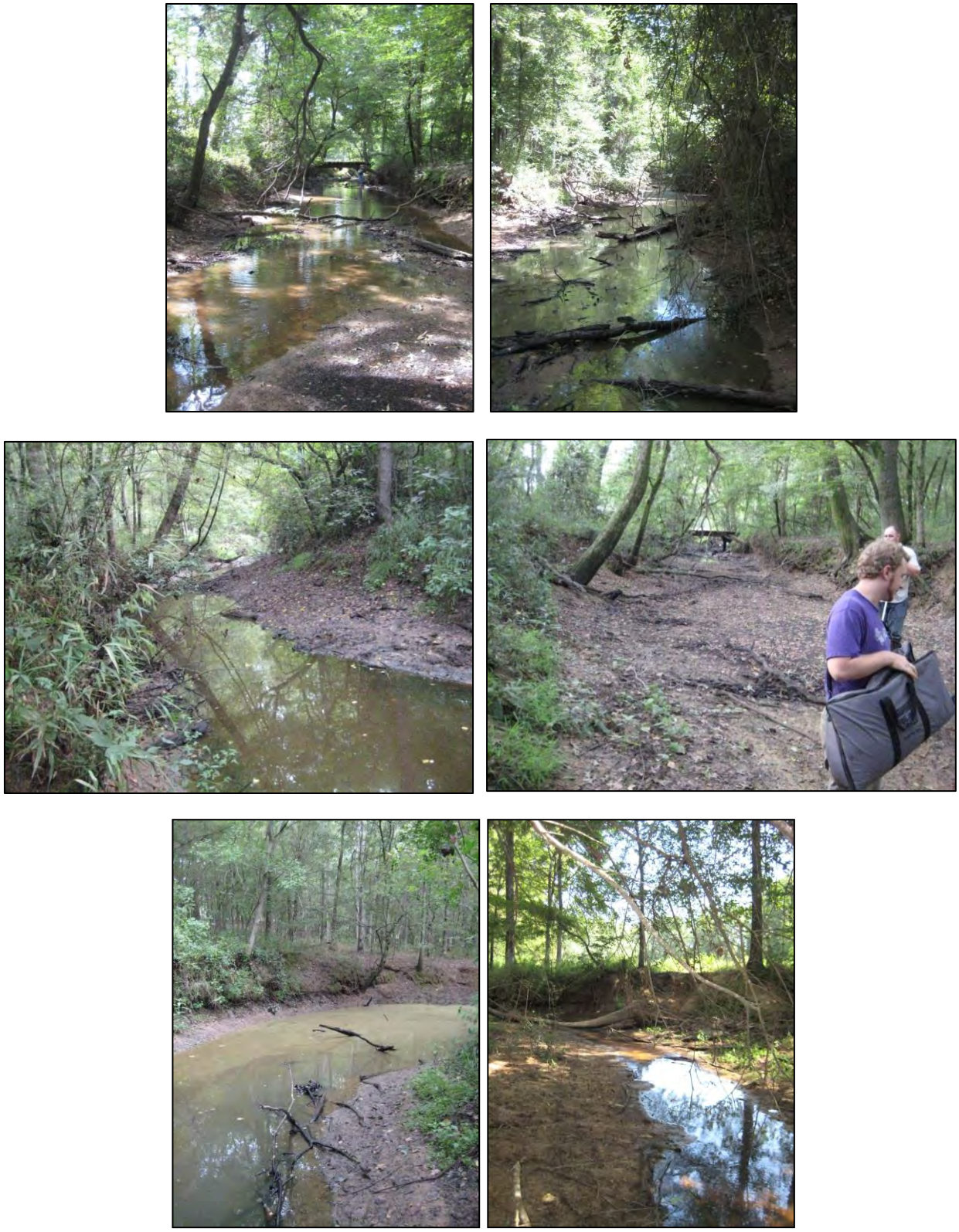
Photogroup 4-4 Attoyac 4 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m transect, downstream, July 2012; Top right: 30-m transect, upstream, July 2012; Middle left: Pool at access point, July 2012; Middle right: Beaver dam, upstream, July 2012. Bottom: Water Moccasin in pool, July 2012.

Photogroup 4-4 Attoyac 4 depicting access point and general bank appearance. Top left: 0-m transect, left bank, July 2012; Top right: 30-m transect, right bank, August 2012; Bottom left: Fence on Right bank, August 2012; Bottom Right: Stream access point from FM 1971, July 2012.

Photogroup 4-5 Attoyac 5 (20842) depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m transect, downstream, July 2012; Top right, Large woody debris, July 2012; Bottom left: 30-m transect, downstream, August 2012; Bottom center: 150-m transect, upstream, August 2012; Bottom right: 150-m transect, downstream, July 2012.

Photogroup 4-5 Attoyac 5 (20842) depicting stream banka access and general bank appearance. Top left: Upstream channel fenced, July 2012; Top right: 30-m transect, upstream, July 2012; Middle left: 300-m transect, rightbank, August 2012; Middle right: 30-m transect, rightbank; Bottom: 0-m transect, stream access from Hwy 84; August 2012.

Photogroup 4-5 Attoyac 5 (20842) depicting stream surface characteristics. All individuals featured are SFASU and CES staff. Top left: 150-m, downstream, August 2012; Top center: 300-m, upstream, July 2012; Top right: Large woody debris, July 2012; Bottom left: 300-m, downstream, August 2012; Bottom right: Large woody debris, July 2012.



Photogroup 4-6 Attoyac 6 depicting general stream characteristics. Top left: 30-m, downstream, July 2012; Top right: 150-m, upstream, July 2012; Middle left: 300-m, upstream, August 2012; Middle right: 30-m, downstream, August 2012; Bottom left: 30-m, upstream, August 2012; Bottom right: 300-m downstream, August 2012.

Photogroup 4-6 Attoyac 6 depicting bank access and general bank appearance. All individuals featured are SFASU and CES staff. Top left: 150-m, downstream, July 2012; Top right: 300-m, right bank, August 2012; Middle: 30-m, left bank, August 2012; Bottom left: CR 4760 crossing, August 2012; Bottom right: 0-m, Bank access from CR 4760 crossing, July 2012.

Photogroup 4-6 Attoyac 6 depicting water surface characteristics. All individuals featured are SFASU and CES staff. Top left: Large woody debris in channel, July 2012; Top right: Woody debris and aquatic vegetation, July 2012; Middle left: 150-m transect, downstream, July 2012; Middle right: Large woody debris, July 2012; Bottom: Large channel litter (tires), July 2012.

Photogroup 4-6 Attoyac 6 depicting potential contamination sources. Top left: Livestock access bank access, July 2012; Top right: Livestock fecal, August 2012; Bottom left: Livestock fecal, August 2012; Bottom right: 0-m transect, animal carcass, August 2012.

Photogroup 4-7 Attoyac 7 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 150-m, downstream, July 2012; Top center: 30-m downstream, July 2012; Top right: 150-m, downstream, August 2012; Middle: 150-m, upstream, August 2012; Bottom left:150-m, upstream, July 2012; Bottom right: Establish trail along left bank, August 2012.

Photogroup 4-7 Attoyac 7 depicting bank access and general bank appearance. All individuals featured are SFASU and CES staff. Top left: Stream access point from Hwy 59, July 2012; Top right: 30-m, right bank, July 2012; Middle left: 150-m, right bank, August 2012; Middle right: 30-m, upstream, August 2012; Bottom: 30-m, upstream, July 2012.

Photogroup 4-7 Attoyac 4-7 depicting water surface characteristics and potential sources of contamination. Top left: Large woody debris, August 2012; Top right: Aquatic vegetation, August 2012; Middle left: Livestock use, left bank, July 2012; Middle right: Livestock use, left bank, July 2012; Bottom left: Livestock fecal, July 2012; Bottom right: Livestock fecal and tracks, July 2012.

Photogroup 4-8 Attoyac 8 depicting general stream characteristics. Top left: 150-m, upstream, July 2012; Top center: 300-m, downstream, August 2012; Top right: 30-m, downstream, July 2012; Middle left: Dry stream channel, August 2012; Middle right: Upstream from major logjam; July 2012; Bottom: 30-m, upstream, August 2012.

Photogroup 4-8 Attoyac 8 depicting bank access and general bank appearance. Top left: 150-m, leftbank, August 2012; Top right: 150-m; right bank, July 2012; Middle left: Large woody debris, July 2012; Middle right: Camp house on left bank, July 2012; Bottom: Defunct CR 294.

Photogroup 4-8 Attoyac 8 depicting stream surface characteristics and potential sources of contamination. Top left: Pool with scum, August 2012; Top right: Feral hog use, August 2012; Middle left: 150-m, downstream, July 2012; Middle right: Channel litter, July 2012; Bottom: Downstream logjam, July 2012.

Photogroup 4-9 Attoyac 9 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m, left bank, July 2012; Top right: 150-m, downstream, July 2012; Middle left: 30-m, downstream, July 2012; Middle center: 150-m, upstream, July 2012; Middle right: 300-m, downstream, July 2012; Bottom: Large woody debris, July 2012.

Photogroup 4-9 Attoyac 9 depicting general bank appearance. All individuals featured are SFASU and CES staff. Top left: 300-m, left bank, July 2012; Top right: Large woody debris, July 2012; Middle left: 30-m, upstream, August 2012; Middle right: 150-m, right bank, July 2012; Bottom: 300-m, upstream, July 2012.

Photogroup 4-9 Attoyac 9 depicting general water surface appearance and potential sources of contamination. All individuals featured are SFASU and CES staff. Top left: Large woody debris, August 2012; Top right: 150-m, downstream, August 2012; Middle left: Feral hog track, August 2012; Middle right: Feral hog use; Bottom left: Feral hog wallow, August 2012; Bottom right: Feral hog tracks, August 2012.

Photogroup 4-10 Attoyac 11 depicting general stream appearance. All individuals featured are SFASU and CES staff. Top left: 150-m, downstream, August 2012; Top right: 30-m, downstream, August 2012; Middle left: 150-m, upstream, August 2012; Middle right: 30-m, upstream, August 2012; Bottom left: 300-m, upstream, August 2012; Bottom right: 300-m, downstream, August 2012.

Photogroup 4-10 Attoyac 11 depicting general bank access and water surface appearance. All individuals featured are SFASU and CES staff. Top left: Large woody debris, August 2012; Top right: 150-m, right bank, August 2012; Middle left: Woody debris in channel, August 2012; Middle right: Aquatic vegetation, August 2012; Bottom left: Gated site access, August 2012; Bottom right: Fenced stream bank, August 2012.

Photogroup 4-11 Attoyac 12 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m, downstream, July 2012; Top right: 150-m, downstream, July 2012; Middle left: 300-m, upstream, July 2012; Middle right: 300-m, upstream, August 2012; Bottom: 30-m, downstream, August 2012.

Photogroup 4-11 Attoyac 12 depicting general bank access and bank appearance. Top left: FM 138 stream crossing, August 2012; Top right: Stream channel access with visible use, July 2012; Middle left: Large channel litter (tire and metal objects) under FM 138 crossing, July 2012; Middle right: 300-m, right bank, August 2012; Bottom left: 150-m, left bank, July 2012; Bottom right: 150-m, right bank, August 2012.

Photogroup 4-11 Attoyac 12 depicting water surface characteristics. All individuals featured are SFASU and CES staff. Top left: Large woody debris, August 2012; Top right: Dense organic material as substrate, July 2012; Bottom left: 300-m downstream with scum, August 2012; Bottom right: Channel litter (bathroom sink), August 2012.

Photogroup 4-12 Attoyac 13 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m, downstream, July 2012; Top middle: 150-m, upstream, July 2012; Top right: 30-m, downstream, August 2012; Bottom left: 300-m, downstream, July 2012; Bottom right: 300-m, downstream, August 2012.

Photogroup 4-12 Attoyac 13 depicting general bank appearance. Top left: 150-m, upstream, August 2012; Top right: 30-m, left bank, August 2012; Bottom left: 300-m, left bank, July 2012; Bottom right: 150-m, left bank, July 2012.

Photogroup 4-12 Attoyac 13 depicting water surface appearance and potential sources of contamination. Top left: Large woody debris, July 2012; Top right: 300-m, upstream, July 2012; Middle left: 300-m, upstream, August 2012; Middle right: Woody debris, August 2012; Bottom left: Feral hog use, August 2012; Bottom right: Feral hog use, August 2012.

Photogroup 4-13 Attoyac 14 depicting general stream characteristics. Top left: 30-m transect, downstream, August 2012; Top right: 300-m transect, downstream, August 2012; Middle left: 30-m transect, July 2012; Middle right: 30-m transect, downstream, July 2012; Bottom: 150-m transect, downstream, July 2012.

Photogroup 4-13 Attoyac 14 depicting general bank appearance. Top left: 300-m transect; upstream, July 2012; Top center: Woody debris along banks; Top right: 300-m transect, left bank, July 2012; Bottom left: 150-m transect, upstream, August 2012; Bottom right: 150-m transect, left bank, August 2012.

Photogroup 4-13 Attoyac 14 depicting water surface characteristics. Top left: Log jam, August 2012; Top right: 30-m transect, upstream, July 2012; Bottom left: 300-m transect; downstream, August 2012, Bottom right: Photograph of alligator within survey area provided by landowner, taken 2011.

Photogroup 14 Attoyac 15 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m transect, downstream, July 2012; Top right: 30-m transect, upstream, July 2012; Middle left: 150-m transect, downstream, July 2012; Middle right: 300-m transect, upstream, July 2012; Bottom: 150-m transect, downstream, August 2012.

Photogroup 14 Attoyac 15 depicting general bank appearance. Top left: 30-m transect, downstream, August 2012; Top right: 150-m transect, right bank, August 2012; Middle left: 300-m transect, left bank, August 2012; Middle right: 300-m, downstream, August 2012; Bottom left: 150-m transect, left bank, August 2012; Bottom right: 30-m transect, right bank, August 2012.

Photogroup 14 Attoyac 15 depicting water surface characteristics. All individuals featured are SFASU and CES staff. Top left: 300-m transect, upstream, August 2012; Top right: 300-m, downstream, July 2012; Middle left: Stream width measurement, July 2012; Middle right: 150-m transect, upstream, July 2012; Bottom: Channel litter (tire), August 2012.

Photogroup 4-15 Attoyac 16 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m transect, downstream, July 2012; Top right: 30-m transect, upstream, July 2012; Middle left: 30-m transect, downstream, August 2012; Middle right: 150-m transect, upstream, July 2012; Bottom left: 30-m transect, upstream, August 2012; Bottom right: 150-m transect, downstream, August 2012.

Photogroup 4-15 Attoyac 16 depicting general bank appearance. All individuals featured are SFASU and CES staff. Top left: 150-m transect, left bank, August 2012; Top right: 150-m transect, right bank, August 2012; Middle left: 300-m transect, left bank, August 2012; Middle right: 150-m transect, left bank, July 2012; Bottom left: 300-m transect, downstream, July 2012; Bottom right: 300-m transect, upstream, August 2012.

Photogroup 4-15 Attoyac 16 depicting water surface characteristics. All individuals featured are SFASU and CES staff. Top left: Adolescent Alligator, July 2012; Top right: 150-m transect, downstream, July 2012; Bottom left: 300-m transect, upstream, July 2012; Bottom right: Raccoon prints, August 2012.

Photogroup 4-16 Attoyac 17 depicting general stream characteristics. All individuals featured are SFASU and CES staff. Top left: 30-m transect, downstream, July 2012; Top right: 150-m transect, downstream, July 2012; Middle left: 150-m transect, upstream, July 2012; Middle right: 30-m transect, downstream, August 2012; Bottom left: 300-m transect, upstream, August 2012; Bottom right: 30-m transect, upstream, August 2012.

Photogroup 4-16 Attoyac 17 depicting general bank appearance. All individuals featured are SFASU and CES staff. Top left: 30-m transect, upstream, July 2012; Top right: 30-m transect, left bank, July 2012; Middle left: 150-m transect, right bank, July 2012; Middle right: 300-m transect, left bank, July 2012; Bottom left: 30-m transect, right bank, August 2012; Bottom right: 30-m transect, left bank, August 2012.

Photogroup 4-16 Attoyac 17 depicting water surface characteristics. All individuals featured are SFASU and CES staff. Top left: Large woody debris, August 2012; Top right: 300-m transect, left bank, August 2012; Middle left: 150-m transect, right bank, August 2012; Middle right: 300-m transect, downstream, July 2012; Bottom: 300-m transect, upstream, July 2012.

Photogroup 4-17 Attoyac 18 depicting general stream appearance. All individuals featured are SFASU and CES staff. Top Left: 30-m transect, upstream, July 2012; Top right: 150-m transect, upstream, July 2012; Middle left: 300-m transect, upstream, July 2012; Middle right: 150-m transect, upstream, August 2012; Bottom left: 300-m transect, downstream, July 2012; Bottom right: 30-m transect, upstream, August 2012.

Photogroup 4-17 Attoyac 18 depicting general bank appearance. All individuals featured are SFASU and CES staff. Top left: 30-m transect, downstream, July 2012; Top right: 30-m transect, left bank, July 2012; Middle left: 300-m transect, right bank, August 2012; Middle right: 150-m transect, left bank, August 2012; Bottom: 150-m transect, left bank, July 2012.

Photogroup 4-17 Attoyac 18 depicting water surface appearance. Top left: 150-m transect, downstream, August 2012; Top right: 300-m transect, downstream, August 2012; Bottom left: 300-m, upstream, August 2012; Bottom right: 30-m, downstream, August 2012.