

2019 Annual Report



Candidate Conservation Agreements:
Texas Hornshell Mussel (*Popenaias popeii*)



CEHMM

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State of New Mexico

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SUMMARY

To date, a total of 714,648 acres have been enrolled in the Candidate Conservation Agreement or Candidate Conservation Agreements with Assurances (collectively referred to as “CCA/A”) for the Texas hornshell mussel (hornshell) and other covered species. The CCA/As are administered by the New Mexico State Land Office (NMSLO) and the Center of Excellence (CEHMM). There are 104 individuals or entities participating in the CCA/A through Certificates of Inclusion (CI) or Certificates of Participation (CP). Fifty Participants are enrolled in more than one of the conservation agreements.

In 2019, Participants contributed a total of \$1,492,841.50 to support conservation work through the CCA/As, and \$181,409.74 was spent for the program’s implementation and staffing needs. The Executive Committees dedicated \$220,000 of these funds for research to determine flow regime requirements for the species and \$50,000 for habitat projects during 2019, for a total of \$270,000. The total amount contributed by CCA/A Participants over the duration of the agreements was \$2,378,797.98, with \$343,717.24 spent on program implementation and staffing needs.

All of the funding contributed during 2019 came exclusively from industry Enrollment Fees and Habitat Conservation Fees. The Habitat Conservation Fees came from 123 new surface disturbances reported to CEHMM and 85 new surface disturbances reported to NMSLO. A total of 1,413 new acres were disturbed.

CEHMM continued to monitor the flows of the Black River. Along with the New Mexico Department of Game and Fish (NMDGF) and Miami University of Ohio, CEHMM also assisted with species monitoring surveys.

During the 2019 calendar year, the Implementation Committee met or held conference calls four times to discuss project priorities, grant opportunities, projects, and emergency response actions for the hornshell.

The Executive Committee met or held conference calls three times in 2019 to discuss funding levels, to determine which proposed projects to fund, and to discuss program priorities.

I. INTRODUCTION

This report describes the activities conducted in 2019 under the CCA/A for the hornshell and other covered species. The CCAs for federal lands and the CCAAs for non-federal (and non-state) lands are administered by CEHMM. The NMSLO administers the CCAAs for state trust lands. Additional details about the CCA/As are available in the 2018 annual report and in the agreements themselves, which can be accessed at:

<http://cehmm.org/index.php/documents/tx-hornshell/>

https://www.fws.gov/southwest/es/documents/R2ES/TxHornshell_CCAA_NMCPL_v3_FR2980.pdf.

II. ENROLLMENT AND FUNDING

In 2019, the NMSLO administered 28 CIs and CEHMM administered 43 CIs and 33 CPs (Table 1). Currently, 128,876.35 acres are enrolled through the NMSLO CCAA agreement (Figure 1). CEHMM currently has 284,633.89 acres enrolled through its 43 signed CIs and 301,146.75 acres enrolled through its 33 CPs (Figure 1).

Table 1. CCA/A Enrollment.

	No. CIs	No. CPs	CCA Acres Enrolled 2019	CCAA Acres Enrolled 2019
CEHMM	43	33	301,146.75	284,633.89
NMSLO	28	N/A	-	128,876.35
TOTAL:	71	33	301,146.75	413,501.24

Fifty Participants are enrolled in more than one of the Candidate Conservation Agreements.

During 2019, the Hornshell Program at CEHMM received \$1,085,057.75 in Participant enrollment and Habitat Conservation Fees paid under the CEHMM CCAA and CCA. From the total funds accumulated in 2019, \$181,013.41 was spent for the program’s implementation needs. Also during 2019, Participants in the NMSLO CCAA contributed \$407,783.75. From the total funds contributed under the NMSLO CCAA in 2019, \$45,216.02 was used for CEHMM’s administrative overhead and \$396.33 was used to provide implementation assistance to NMSLO.

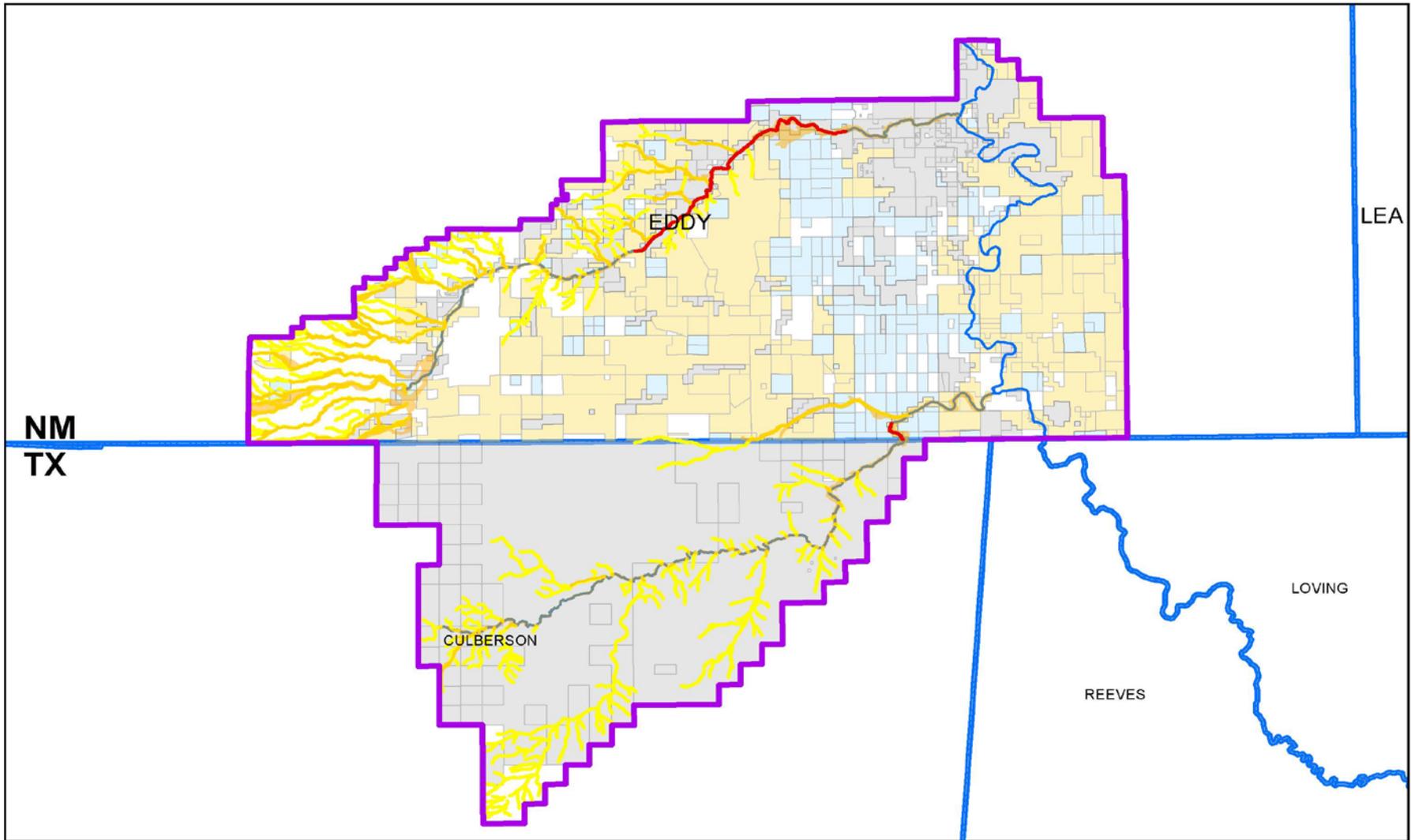


Figure 1. Texas Hornshell Enrollment Map

III. 2019 COMMITTEE MEETINGS & AGENDAS

CCA/A Coordinating Committee (CCAACC)

The CCAACC is an informal committee that was formed by CEHMM and the NMSLO pursuant to the terms of their Memorandum of Agreement to provide a mechanism for coordinating joint administration of the CCA/As. The CCAACC met twice in 2019 to discuss the following topics: program governance and structure, joint report writing, invoices and deductions, maintenance of United States Geological Survey (USGS) streamflow gages, utilization of enrolled companies and partners, Delaware River monitoring, minimum flow study, emergency action plan development, committee structure and function, and joint compliance monitoring.

Executive Committees

The Executive Committees held three joint meetings or conference calls in 2019 to determine project funding priorities and amounts. The Executive Committee members in 2019 were as follows:

CEHMM CCAA: Debra Hill U.S. Fish and Wildlife Service (Service) and Emily Wirth (CEHMM)

CEHMM CCA: Debra Hill, Emily Wirth, and Ty Allen Bureau of Land Management (BLM)

NMSLO CCAA: Debra Hill and Lisa Henne (NMSLO)

The Executive Committee discussed the following:

- Submission of a bid response to the Request for Quote from the New Mexico Environment Department (NMED) to develop a Wetlands Action Plan (WAP) for the Black River
- Requirements for boring under the river
- Financial transparency of the program
- Program priorities

Stakeholder Committee

The Stakeholder Committee was formed in 2019 and included the following representatives:

Agriculture and Ranching: 2 representatives

Oil and Gas: 2 representatives

Midstream: 2 representatives

Carlsbad Irrigation District: 1 representative

Eddy County: 1 representative

Interstate Stream Commission: 1 representative

NMSLO: 1 representative

CEHMM: 1 representative

The first stakeholder committee meeting was held on June 5, 2019. The committee discussed the following topics:

- Boring under the river
- More defined permitting processes
- Transparency in use of the CCA/A funds
- Emergency action plan

- Litter and debris
- Road conditions by the Black River
- More information on data populations, health, and biological information about the Black River

Implementation Committee

The Implementation Committee members in 2019 included the following:

- Service: Frank Weaver (alternate Vance Wolf)
- BLM: Chelsie Dugan (alternate Cassie Brooks)
- CEHMM: Matthew Ramey (alternate Robert Kasuboski)
- NMSLO: Will Barnes (alternate Camilla Romero)
- NMDGF: Daniel Trujillo (alternate Joanna Hatt)

The Implementation Committee met four times in 2019 and discussed the following topics:

March 13, 2019:

- Priority funding for the Texas Hornshell CCA/A program
- Discussion of Request for Proposals (RFP) for minimum flow study
- Evaluation criteria
- Stakeholder meeting and dates

July 18, 2019:

- Minimum flow study budget update
- NMDGF update on Hornshell habitat occupancy model and population estimates
- USGS gage funding contingencies
- Protocol for voting on project proposals
- Reviewed the Service's proposal for future gage operation and maintenance
- Habitat Conservation Program (HCP) writing update
- CEHMM and NMSLO financial updates

September 25, 2019:

- CCA/A updates
- Delaware River status
- Science Support Partnership Grant and CEHMM RFP update
- Habitat restoration discussion for salt cedar removal
- NMED Wetland Action Plan

November 20, 2019:

- CCA/A updates
- HCP update
- Delaware River status update
- San Marcos trip to learn about emergency holding facility capabilities for the hornshell
- Potential proposed projects to fund
- Financial feasibility of funding proposed projects

Participant Meeting

CEHMM held a Participant meeting for the hornshell program on October 22, 2019 and discussed the following:

- CCA/A presentations
- Improving stakeholder communications
- The issue of litter within the hornshell boundary
- Creating an emergency action plan for the Black River

Technical Working Group

No technical working group meetings were held in 2019.

IV. OUTREACH

In 2019, CEHMM set up a CCA/A educational booth at the following events: Living Desert State Park Public Land Days, Brantley Lake State Park 30th Anniversary, Bitter Lakes National Wildlife Refuge Dragonfly Festival, New Mexico State University Career Fair, and the New Mexico and Arizona American Fisheries Society and The Wildlife Society's Joint Annual Meeting. At these events, CEHMM staff used presentation boards and other items to educate the public about the

CCA/A program. CEHMM also gave a CCA/A educational presentation at the NMED's Wetlands Roundtable Meeting and the New Mexico and Arizona American Fisheries Society and The Wildlife Society's Joint Annual Meeting. As outreach to industry, CEHMM attended a quarterly New Mexico Oil and Gas Association meeting in 2019.

CEHMM staff participated in Riverblitz, an annual city and Eddy County county-wide river clean up event. CEHMM encouraged enrollees along the Black River to join as well. Within a half-day, CEHMM staff and enrollees removed over one ton of litter from the Black River's floodplain (Figure 2).



Figure 2. Riverblitz 2019

V. SPECIES MONITORING

In 2019, CEHMM staff assisted the NMDGF in a streamside mussel inoculation (Figure 3). This process involved locating gravid female mussels on the Black River, extracting glochidia from adult mussels, checking glochidia for vitality, and introducing glochidia to multiple host fish species. Once host fish were infected with glochidia, they were released into the Delaware River in an attempt to relocate mussels from the Black River.

CEHMM staff also assisted in data collection for native fish population studies on the Black River. Raft electroshocking, backpack electroshocking, and trammel netting were used to collect fish. Fish were weighed, measured, and released back into the river. For the purpose of tracking movement in the river, the gray redhorse (*Moxostoma congestum*) were PIT-tagged before they were released back into the river. Additionally, tissue samples were taken from several species of fish to identify DNA markers that could later be used for eDNA sampling in the river.

Along with the NMDGF and Miami University, CEHMM assisted with data collection for a habitat occupancy model for the Texas hornshell mussel. This data collection included taking sectioned bathometric measurements of the river as well as identifying the percentage of substrate types in the transects.

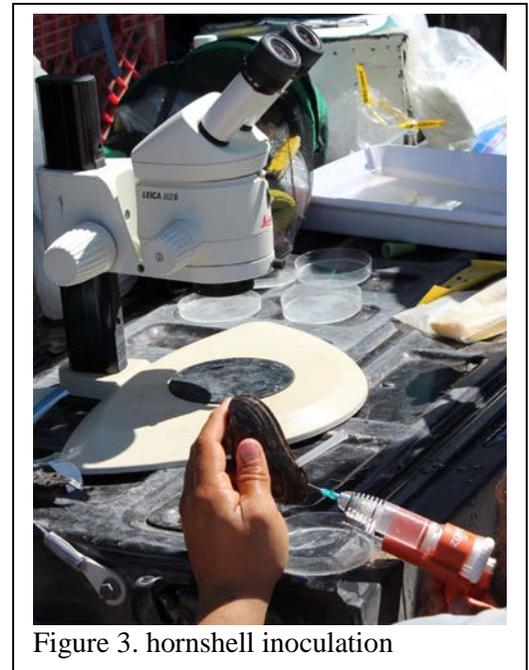


Figure 3. hornshell inoculation

VI. PROJECTS

During 2019, CEHMM and the NMSLO funded the following projects through the hornshell CCA/A program.

Black River Erosion Control Project - This erosion control project was approved and funded in September 2019 for \$4,771.99 to restore one acre of habitat along the Black River (Table 2). Work commenced on August 20, 2019. CEHMM staff installed three hundred feet of silt fence on the water's edge and 63 filter socks along the flood plain to contain and slow erosion and aid in vegetation recovery. Because the site had already been seeded, seed was broadcasted over the disturbed area to assist in recovery. This stretch of river is occupied habitat for the covered species. Erosion control measures were installed to protect the species from sediment loading into Zone A of the Black River.

Black River Salt Cedar Spray- This hand treatment of 46 acres was approved and funded in September 2019 for \$12,000 (Table 2). Salt cedar is a species of concern since it can be highly invasive, reduce water availability, and increase salt content within riparian areas. Upon approval, CEHMM contributed funds to the existing Carlsbad Soil and Water Conservation District salt cedar sprays to treat a reach of the Black River that has been experiencing increased salt cedar sprouts. Treatment was approved in advance by the Service.

Black River Wetland Action Plan- In the fall of 2019 CEHMM submitted a proposal to NMED for the Black River WAP, and the contract was awarded in the spring of 2020 for \$18,679.25 (Table 2). Work is planned to commence in early spring of 2020. The New Mexico Wetlands Program facilitates the development of comprehensive wetlands restoration and protection in watersheds throughout New Mexico. The WAP will be a planning document designed to address wetlands and riparian resources within the boundaries of the Black River watershed. A WAP describes the current status of wetlands/riparian types, distribution, and condition within the watershed. It is recognized as a working document representing the best information available at the time. This plan also documents and provides information for improving wetland conditions, identifies sites that can be protected and/or restored, and determines where additional monitoring and inventory are needed.

Rio Grande River Cooter- This study was approved and funded in December of 2019 for \$75,000 (Table 2). The Rio Grande river cooter (*Pseudemys gorzugi*) is a covered species in the Texas Hornshell CCA/A. Little is known about Rio Grande river cooter ecology, especially pertaining to reproduction and nesting behaviors. Since no systematic searches for the nesting females or nests have been conducted on the Black River since the early 1990s, Dr. Mali with Eastern New Mexico University (ENMU) proposed several survey methods with a goal of assessing Rio Grande river cooter nesting biology. We specifically seek to: (1) identify nesting grounds at various stretches of the Black River, (2) confirm the peak of the nesting season, (3) understand the daily nesting activity (i.e., diurnal vs. nocturnal nesting behavior), (4) characterize nesting substrate, (5) identify nest distance from the water's edge, and (6) quantify nest success and nest predation. The work will span over two years, starting in January 2020.

River Flow Regime Requirements Study- This study was approved and funded in October of 2019 for \$168,772 (Table 2). A collaborative team of researchers from Miami, Texas A&M, and Auburn universities will conduct a series of laboratory experiments and field monitoring studies to examine lethal and sublethal effects of thermal and hypoxia stress on various life history stages of the Texas hornshell. Relationships between flow, temperature, and dissolved oxygen in the Black River will also be studied. Results will be used to identify flow regimes most likely to induce mortality and/or thermal stress in the Texas hornshell. Combined with historical datasets, results will be used by both CEHMM and the Service. CEHMM will determine whether frequency of stressful periods has been increasing over time, and the Service will make specific flow recommendations for Texas hornshell populations in the Black River. This project is currently on hold pending further budget discussions with the universities and approval by the Implementation and Executive Committees due to funding delays with the original funder.

Table 2. Projects Funded in 2019

Funded Projects in 2019				
Project	Date Funded	Amt Funded	Units	Description
Black River Erosion Control	Sep-19	\$4,771.99	1 acre	Installed silt fencing and filter sock to prevent erosion and sediment loading into Zone A of the Black River. This portion of the Black River is an occupied site for the Texas hornshell mussel and other covered species. This project was funded using CCAA funds.
Black River Salt Cedar Spraying	Sep-19	\$12,000	46 acres	Hand treatment of salt cedar on the Black River from John D. Forehand downriver. Hand treatment of salt cedar to allow native flora the opportunity to reestablish. Treatment will improve the riparian area of the Black River and knock back the invasive salt cedar. This project was completed by the Carlsbad Soil and Water Conservation District.
River Flow Regime Requirements Study	Sept-19 Amended Dec-2019	\$168,772	Black River	This project is both a research and technical assistance project. The research involves determining streamflow and in situ conditions necessary for the Texas hornshell to survive and thrive in the Black River by examining lethal and sub lethal thermal, hypoxia, and salinity thresholds and by collecting and assessing in-stream water-quality conditions. The minimum flow study will span over three years; year 1 is expected to start in the summer of 2020.
Black River Wetlands Action Plan 2019	Feb-20	\$18,679.25	Black River Watershed	WAPs are designed to specifically address wetlands and riparian resources within the boundary of the Black River Watershed. Goals of the WAP are to assess wetland/riparian resources in the watershed and propose how to protect, restore, and create wetlands locally. WAP will begin early spring of 2020.
Black River (Rio Grande river cooter Study)	Dec-19	\$75,000	Riparian Area of Black River	CEHMM and ENMU are specifically seeking to: (1) identify nesting grounds at various stretches of the Black River, (2) confirm the peak of the nesting season, (3) understand the daily nesting activity (i.e., diurnal vs. nocturnal nesting behavior), (4) characterize nesting substrate, (5) identify nest distance from the water's edge, and (6) quantify nest success and nest predation. The work will span over two years, starting in January 2020.

VII. LANDSCAPE MONITORING

CEHMM utilized USGS flow gages in the Black River and Blue Springs to monitor the daily average flow of the river (Figures 4, 5 & Table 3). Monitoring the flow of the river is vital, as hornshell require perennially wetted habitat and flowing water, as emersion (stranding) can cause death and dehydration (Coker 1919). The CCA/A has set a minimum flow goal for the Black River at 9.3 cubic feet per second (cfs). CEHMM staff have alarms set on the flow gages, so that when the river drops below 9.3 cfs, they are notified and can monitor the river more closely. During 2019, the Black River minimum flows fell below 9.3 cfs in every month except January (Table 3). CEHMM and the NMSLO partnered with the Service to install two new USGS gages in the Black River (Figure 4). CEHMM consulted with the Technical Working Group and the USGS to identify the most desirable locations for installation on the Black River. The new gages can be found on the USGS website at:



Figure 4. Flow Gage at Harkey Crossing.

Black River at Harkey Crossing - https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=08405400
 Black River Below Blue Springs - https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=08405350

CEHMM installed six new rain gages and acquired one existing NMSLO gage to monitor rain events within the hornshell boundary (Table 4). Rain gage data will hopefully assist in determining stream flow effects after storms. Rain gages were installed in August of 2019.

Table 3. Flow Data

Location	Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
Black River Average Flow	10.35	9.93	8.87	10.76	7.94	9.71	11.18	6.1	7.87	7.58	7.77	8.97
Black River Max. Flow	11.3	10.5	10.7	39.2	8.89	39.4	102	6.93	45.4	11	8.34	9.59
Black River Min. Flow	9.53	8.81	7.96	8.19	7	6.78	5.35	5.38	5.08	6.83	6.94	6.98
Blue Springs Average Flow	12.82	12.34	9.31	9.21	9.67	8.88	10.67	9.37	7.86	8.39	9.36	9.59
Blue Springs Max. Flow	13.5	16.5	14.5	10	10.1	11.6	26.2	10.5	10.9	14.8	11.1	10.9
Blue Springs Min. Flow	12.1	10.4	6.21	9.21	9.28	6.65	8.74	7.87	6.85	7.03	6.35	8.45

Table 4. Rain Gage Totals

2019 Rain Gauge Monitoring in Tenths of Inches					
Location	September	October	November	December	Totals
Delaware River Dam	0.75	1.4	0.1	0.7	2.95
Delaware River State Line	-	-	0.6	0.75	1.35
Owl Draw	1.15	0.5	0.2	0.55	2.4
Red Bluff West	-	-	-	0.55	0.55
Red Bluff East	0	-	0	0.5	0.5
Black River Forehand Crossing	6.1	0	0	0.6	6.7
Black River Means Road Crossing	0.65	1.4	0.1	0.6	2.75

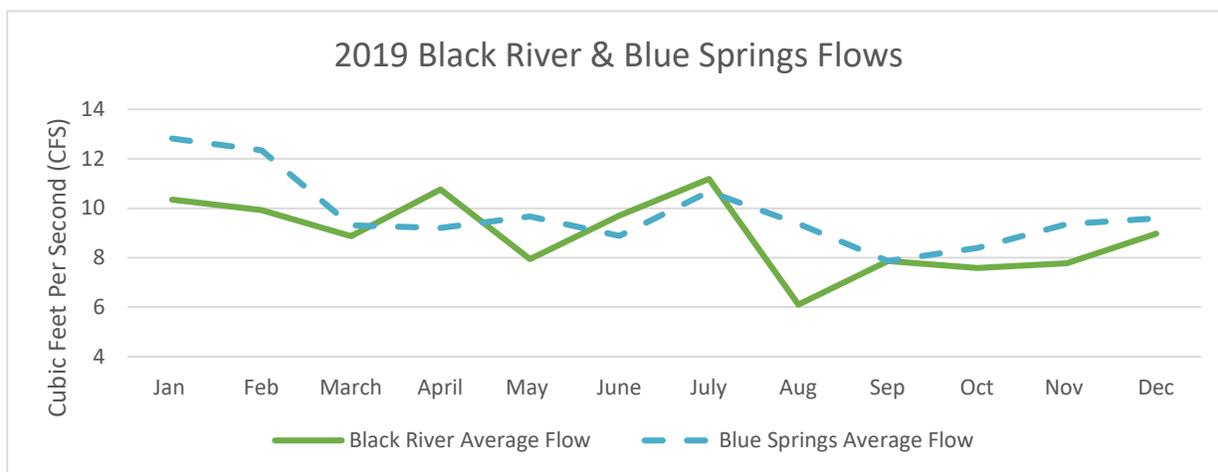


Figure 5. The 2019 Monthly Average Flows of the Black River above Malaga and Blue Springs.

IX. MITIGATION OF IMPACTS TO HABITAT

During 2019, CEHMM received a total of 123 notices of new surface disturbances from industry. Forty-one of the surface disturbances were to take place on BLM land enrolled through the CCA, while eighty-two of the notices were to take place on private lands enrolled through the CCAA (Table 5). CEHMM documented 1,003 acres of new surface disturbances through the 123 notices. A total of 365.02 acres were newly disturbed on BLM lands enrolled in the CCA and 637.56 acres were disturbed on private lands enrolled in the CCAA. Of the 123 combined notices of new surface disturbances in 2019, two took place in Management Zone C and one in Management Zone B. CEHMM worked with the Participants to ensure all of the proper conservation measures were followed including Reasonable and Prudent Practices for Stabilization (RAPPS) and Spill Prevention Control and Countermeasure (SPCC). These practices included building water-bars, silt fences, culverts, erosion blankets, waddles, and reseeded.

During 2019, the NMSLO received a total of 85 notifications of new surface disturbances from Participants, totaling 410 acres of disturbance. All of the new surface disturbances took place within Management Zone D. For all CCA/As, more than half of the acres of new surface disturbances occurred through right-of-way development.

Table 5. New Surface Disturbances in 2019

	Well Pads	ROWs	Other Infrastructure	Total
CEHMM				
Notifications of New Surface Disturbances	29 (24%)	72 (59%)	22 (17%)	123
Acres Disturbed	274 (27%)	529.68 (53%)	198.9 (20%)	1002.58
NMSLO				
Notifications of New Surface Disturbances	26 (31%)	51 (60%)	8 (9%)	85
Acres Disturbed	164.48 (40%)	210.56 (51%)	34.96 (9%)	410
COMBINED				
Notifications of New Surface Disturbances	55 (27%)	123 (59%)	30 (14%)	208
Acres Disturbed	438.48 (31%)	740.24 (52%)	233.86 (17%)	1412.58

IX. COMPLIANCE MONITORING

The CCA/As require CEHMM and NMSLO to submit an annual compliance verification to the Service for each enrolled Participant. CEHMM performed the compliance monitoring for all of the CCA/As. In 2019, CEHMM’s CCA/A compliance monitoring included inspecting for failure to submit new surface disturbances and inspecting for SPCC or RAPPs compliance if applicable. CEHMM utilized the New Mexico Oil Conservation Division (NMOCD) data and field surveying to conduct inspections. CEHMM spent 19 days performing industry compliance monitoring. During inspections, it was found that six industry enrollees were out of compliance. CEHMM is currently consulting with these enrollees to achieve compliance. CEHMM’s goal for 2020 is to work more closely with all enrollees to ensure compliance with their CIs and CPs. In 2020, CEHMM will expand compliance monitoring to include SPCC, RAPPs, and failure to submit new surface disturbances.

X. CONSERVATION MEASURE VIOLATIONS

As the administrators of the CCA/A, CEHMM and the NMSLO have the responsibility to provide formal notification to Participants if it is discovered that any of the conservation measures listed in their CIs and CPs are not being implemented. A Conservation Measure Violation (CMV) is a formal notification to Participants of the failure to implement conservation measure(s). It is similar to an Incident of Non-Compliance (INC) that

the BLM issues to operators that do not meet the conditions of use on their respective operations. If a CMV is issued, CEHMM and the NMSLO will work with Participants to remedy the violation in relation to the specific conservation measure that is not being applied. No fine or penalty is involved with a CMV; however, if three CMVs are issued in a 12-month period, Participants risk termination of their CP and/or CI. Due to diligent planning, consultation with CEHMM and the NMSLO, and an understanding of the purpose of the CCA/A, no CMVs were issued in 2019. However, CEHMM worked with two enrollees to initiate corrective actions to prevent issuance of a CMV.