2020 Annual Report



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





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SUMMARY

To date, a total of 713,881 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" or "THM") and other covered species. The CCA/As are administered by the New Mexico State Land Office (SLO) and the Center of Excellence (CEHMM). There are 102 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 2020, Participant revenue earned to support conservation work through the CCA/As totaled \$1,541,737.63 with \$352,287.34 remaining in accounts receivable. The total expenditures for the program's implementation and staffing needs were \$394,148.48. The Executive Committees dedicated \$200,000 of these funds toward research to determine flow regime requirements for the species and \$50,000 toward habitat projects during 2020, for a total of \$270,000. The total revenue earned by CCA/A Participants over the duration of the agreements was \$4,094,433.61, with \$737,865.72 spent on program implementation and staffing needs.

All of the funding contributed during 2020 came exclusively from industry Enrollment Fees and Habitat Conservation Fees. The Habitat Conservation Fees came from 131 new surface disturbances reported to CEHMM and 41 new surface disturbances reported to the SLO. A total of 1,558.99 new acres experienced disturbances.

CEHMM continued to monitor the flows of the Delaware and Black rivers, which both had periods of low flow in 2020. 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 2020 calendar year, the Implementation Committee held four conference calls to discuss project priorities, grant opportunities, projects, and emergency response actions for the hornshell.

The Executive Committee met or held conference calls six times in 2020 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 2020 under the CCA/A for the THM and other covered species. The CCAs for federal lands and the CCAAs for non-federal (and non-state) lands are administered by CEHMM. The SLO administers the CCAA for state trust lands. Figure 1 shows the CCA/A boundary, CCA/A management zones, and land ownership. Additional details about the CCA/As are available in the 2018 annual report and in the agreements themselves, which can be accessed at:

https://www.cehmm.org/index.php/conservation/texas-hornshell-program/texas-hornshell-documentation

https://www.fws.gov/southwest/es/documents/R2ES/TxHornshell CCAA NMCPL v3 FR2980.pdf.

II. 2020 ENROLLMENT AND FUNDING

CCA/A enrollment data for 2020 is shown in Table 1. SLO administered 28 CIs and CEHMM administered 42 CIs and 33 CPs. SLO had 127,373.93 acres of state trust land enrolled in its CCAA and CEHMM had 274,256.41 acres of non-federal land enrolled through its 42 signed CIs and 312,250.60 acres of federal land enrolled through its 33 CPs. Although enrollment in the CCAA was closed when the hornshell was listed as endangered, the annual enrolled acreage can change because participants that opted for "all activities enrollment" are required to update their enrolled acreage every year. The same acres can also be enrolled by multiple participants if the acreage is being used by multiple parties for different activities.

		No.	CCA Acres Enrolled	CCAA Acres Enrolled	
	No. CIs	CPs	2020	2020	
СЕНММ	42	33	312,250.60	274,256.41	
SLO	28	N/A	-	127,373.93	
TOTAL:	70	33	312,250.60	401,630.34	

Table 1. CCA/A Enrollment.

Fifty Participants are enrolled in more than one of the Candidate Conservation Agreements because they have a combination of land ownership types.

During 2020, the Hornshell Program at CEHMM earned \$1,219,716.59 in Participant enrollment and Habitat Conservation Fees paid under the CEHMM CCAA and CCA. From the total funds accumulated, \$304,838.98 was spent for the program's implementation needs. Also during 2020, the SLO CCAA earned \$322,021.04 in Participant enrollment. From the total funds contributed under the SLO CCAA, \$35,780.12 was used for CEHMM's administrative overhead and \$89,309.50 was used to provide implementation assistance to the SLO.



Figure 1. Texas Hornshell Enrollment Map.

III. 2020 COMMITTEE MEETINGS & AGENDAS

CCA/A Coordinating Committee (CCAACC)

The CCAACC is an informal committee that was formed by CEHMM and the SLO, pursuant to the terms of their Memorandum of Agreement, to provide a mechanism for coordinating joint administration of the CCA/As. The CCAACC Committee did not meet during 2020. However, in August, the Bureau of Land management (BLM) hosted an online information session for CEHMM and the SLO on inadvertent returns of drilling mud during horizontal drilling under the Pecos River. A training with the U.S. Environmental Protection Agency on Spill Prevention Control and Countermeasures was scheduled for March 2020, but this was postponed indefinitely due to COVID precautions.

Executive Committee

The Executive Committees held six joint meetings or conference calls in 2020 to determine project funding priorities and amounts. The Executive Committee members in 2020 were as follows:

CEHMM CCAA: Debra Hill/Chuck Hayes, Vicky Ryan, U.S. Fish and Wildlife Service

(Service) and Emily Wirth (CEHMM)

CEHMM CCA: Debra Hill/Chuck Hayes, Vicky Ryan, Emily Wirth, and Ty Allen (BLM)

SLO CCAA: Debra Hill/Chuck Hayes, Vicky Ryan, and Lisa Henne (SLO)

The Executive Committee discussed the following items at their meetings:

- Program budget and expenditures
- Program priorities and funding allocations for projects and research
- Strategic planning to better prioritize use of funding
- Implementation Committee recommendations for a temporary minimum flow and feedback provided by Interstate Stream Commission (ISC) and researchers from Miami University, Texas A&M, and Auburn University.
- Development of an emergency response plan
- Seeking partners or funding sources for purchase or lease of water rights for an instream flow protection program, including submitting a proposal to the National Fish and Wildlife Foundation and exploring with the ISC whether Strategic Water Reserve funds could be an option.
- U.S. Geological Survey (USGS) for the CCA/A program to increase its contribution for year 1 of the flow requirement studies, due to a delay in releasing USGS/SSP funds to researchers.
- A request from the flow requirement researchers for additional time and funding to complete their projects, which have experienced interruptions and delays due to COVID.

The joint Executive Committee made the following decisions in 2020:

- 1. Due to feedback received on the Implementation Committee's initial recommendations for an interim minimum flow, the joint Executive Committee did not approve the proposed interim flow and instead will reconvene a Technical Working Group to try to resolve the concerns and arrive at a consensus on interim flow targets. The revised proposal will be reviewed by the CCA/A committees prior to submitting to the Service for approval under adaptive management principles. CEHMM volunteered to coordinate the Interim Flow Technical Working Group.
- 2. A Technical Working Group will be convened to develop an instream flow program. The interim flow and instream flow program working groups would coordinate to some extent, but because the

working groups require different types of subject matter expertise, participants on the two working groups might differ. Lisa Henne from SLO volunteered to coordinate the Instream Flow Program Technical Working Group.

- 3. CEHMM and the SLO agreed to collaborate on and submit a proposal to the National Fish and Wildlife Foundation to request funding to launch the development of the instream flow protection program. The proposal was submitted in late October 2020. A funding decision is expected in March 2021.
- 4. 2020 project funding allocations were as follows:
 - \$50,000 was allocated for other research projects in 2020.
 - \$50,000 was allocated for landowner projects, which would be added to a \$25,000 rollover from 2019, for a total of \$75,000 available in 2020 for landowner projects.
- 5. The Executive Committee agreed to redistribute how its funding commitment will be allocated across years for the flow requirements studies to cover \$100,000 USGS/SSP funds that were not able to be released in 2020. CCA/A funding would increase from \$50,000 to \$170,420 for work in 2020 (year 1).

Stakeholder Committee

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

Agriculture and Ranching: Alisa Ogden and Nathan Jurva Oil and Gas: Suzanne Holland (Chevron) (no longer with Chevron as of 11-13-20), Veronica Rapp (Oxy), and Greg Boans (Murchison) Midstream: No representative Carlsbad Irrigation District: Robert Boatman Water Withdrawers: Jim Davis (Landowner) and Dave Anderson (Select) Eddy County: No representative Interstate Stream Commission: Alec Norman SLO: Camilla Romero (non-voting, support) CEHMM: Matt Ramey (non-voting, support)

The stakeholder committee meeting was held on November 18, 2020. The committee discussed the following topics:

- Boring under the river
- More defined permitting processes
- Transparency in the 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 2020 included the following:

Service: Sara Yates (alternate Vance Wolf) BLM: Cassie Brooks CEHMM: Matthew Ramey SLO: Elaine Heltman (alternates Camilla Romero and Kyle Rose) NMDGF: Daniel Trujillo (alternate Joanna Hatt)

The Implementation Committee met four times in 2020 and discussed the following topics:

February 27, 2020:

- CCA/A Updates
- Program Priorities
- Net Conservation Gain
- Proposal for Revised Temporary Minimum Flow
- Minimum Flow Research Update

April 15, 2020:

- CCA/A Update
- Proposal for Revised Temporary Minimum Flow
- Potential Proposed Projects to Fund

August 19, 2020:

- CCA/A Updates
- Revised Minimum Flow Study Auburn
- Review of Temporary Minimum Flow Threshold
- Special Water Conservation District
- Emergency Action Plan
- Potential Proposed Projects to Fund

November 18, 2020:

- CCA/A Updates
- HCP Update
- Black River Update
- Delaware River Status Update
- Potential Proposed Projects to Fund

Participant Meeting

CEHMM held a Participant meeting for the hornshell program on July 23, 2020 and discussed the following:

- CCA/A Updates
- Presentations: Rio Grande River Cooter, Texas Hornshell Biology and Monitoring
- Species Status Update
- Threats and Concerns for Texas Hornshell Mussel
- Incident Response Plan
- Habitat Conservation Plan

Technical Working Group

No technical working group meetings were held in 2020.

IV. OUTREACH

In 2020, THM staff at CEHMM traveled to Grand Junction, Colorado to attend the Rivers Edge West Riparian Respiration Conference. The conference was a national gathering of scientists, land managers, government agencies, nongovernment organizations and private landowners to network and discuss current riparian restoration research and methods. CEHMM staff is utilizing the information gathered at this conference to make more informed decisions on research, monitoring, and habitat improvement projects of the riparian lands within the THM CCA/A boundary.

CEHMM staff joined the NMDGF and Service in an educational trip to visit the San Marcos National Fish Hatchery. CEHMM participated in an educational tour of the facility to further understand methods for captive rearing of freshwater mussels (Figure 2) and discussed the possibility of using the San Marcos National Fish Hatchery for as an emergency hold facility for the THM.



Figure 2. Mussels at the San Marcos National Fish Hatchery.

In February, CEHMM set up a CCA/A educational booth at the New Mexico and Arizona American Fisheries Society and The Wildlife Society's Joint Annual Meeting. At this event, CEHMM staff used presentation boards and other items to educate the public about the CCA/A program.

CEHMM staff gave educational talks to Alamogordo High School biology classes. The talks covered the



Figure 3. River Blitz 2020.

THM CCA/A Program, its covered species, ongoing projects, and monitoring efforts. The talks were presented to multiple classes through a virtual presentations and included an audience of approximately 60 students.

CEHMM was invited to present its work at the New Mexico Environmental Department's Southern Wetlands RoundTable. In December, CEHMM staff gave a virtual presentation on the THM CCA/A program. The talk primarily focused on the current and future projects of the program. The audience included approximately 120 researchers, scientists, project managers, and

wetlands stakeholders throughout the state of New Mexico.

As outreach to industry, CEHMM attended a quarterly New Mexico Oil and Gas Association meeting in 2020.

In October, CEHMM staff participated in Riverblitz, an annual city of Carlsbad and Eddy County cleanup event (Figure 3). 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.

V. SPECIES MONITORING

In 2020, CEHMM staff assisted the NMDGF in the data collection of THM population studies on the Black River. THMs were surveyed using tactile methods and snorkeling gear. Mussels in the Black River were counted, measured, and tagged for population data collection.

CEHMM staff also assisted the NMDGF and Miami University in the collection of Pecos Springsnail, another CCA/A Covered Species, in August (Figure 4).

In October, CEHMM received reports of an exposed mussel bed in the Black River, due to low flows. CEHMM staff joined the Service staff in observing the status of the reported exposed mussel bed. Upon investigation, no dead or distressed THMs were found. The exposed mussel bed that was reported appeared to be primarily composed of the invasive Asian Clam (*Corbicula fluminea*) (Figure 5).



Figure 5. Asian Clam Shells Found in the Black River.



Figure 4. Pecos Springsnail.

Also in October, while monitoring the receding pools of the Delaware River, CEHMM and Service staff discovered an exposed mussel bed in one of the river's undercut banks. Unfortunately, all eight mussels in the bed were recently deceased, most likely due to emersion during low flows. The deceased mussels were documented and the shells were removed to be used for educational and outreach purposes.

VI. RIVER MONITORING

Black River Monitoring

The CCA/A set a temporary minimum flow goal for the Black River of 9.3 cubic feet per second (cfs) at the Malaga gage, pending the development of a revised flow requirement for the hornshell by 2022. CEHMM has monitored the daily average flow at existing USGS flow gages in the Black River at Malaga (USGS 08405500¹) and Blue Springs (USGS 08405450²) since the CCAA was implemented in 2017 (Figure 6). CEHMM staff have alarms set on the flow gages, so that when river flows are below 9.3 cfs, they are notified and can monitor the river more closely. Participants in the CCA/A who withdraw water from or near the Black River are also notified so that they can implement any pumping curtailment conservation measures contained in their CI/CP.

CEHMM's monitoring of river flow has also been vital for alerting program staff when additional measures, such as salvage efforts, might be necessary to prevent mortality due to low flows. Hornshell require perennially wetted habitat and flowing water, and emersion (stranding) can cause death and dehydration (Coker 1919). Observational data suggest that hornshell beds may be exposed when flows drop below ~3.0 cfs, so if flows are decreasing and nearing 3.0 cfs, CEHMM notifies the Service and NMDGF so that they can take appropriate measures to protect the species.

The CCA/A program partners agreed early in the program implementation that the two existing gages did not provide sufficient information about flows within the occupied reach, and that installation of additional gages should be a priority. In 2019, CEHMM, the SLO, and the Service committed to share the costs of installing and paying for the ongoing annual maintenance of two new USGS gages in the Black River. The Technical Working Group and USGS collaborated to select the best locations for the new gages and opted to install one new gage at Harkey Crossing (USGS 08405400³) and the second gage below Blue Springs (USGS 08405350⁴) (Figure 6). The gage at Harkey Crossing also collects water quality parameters within the occupied reach, including temperature, dissolved oxygen, conductivity, and salinity. The addition of the two new gages is allowing the CCA/A program to develop a more comprehensive data set to monitor flows and understand how flow varies from upstream to downstream in the river and how water quality varies with stream discharge. The gages will also help with calculations of the volume of water that would be needed, as well as approximately when it would be needed each year, to reduce threats to the species.

¹ https://waterdata.usgs.gov/nm/nwis/uv?site_no=08405500

² https://waterdata.usgs.gov/nm/nwis/uv/?site_no=08405450

³ https://waterdata.usgs.gov/nm/nwis/uv/?site_no=08405400

⁴ https://waterdata.usgs.gov/nm/nwis/uv/?site_no=08405350



Figure 6. Map of USGS Stream Gage Locations Used by the CCA/A Program.

During 2020, the rolling mean daily discharge (volume of flow) in the Black River at the Malaga gage was below the interim minimum flow threshold of 9.3 cfs at all times for the entire year except for a brief period in March (Figures 7.A and 7.C). Flows also dropped below 3.2 cfs for 3 to 4 days in August, September, and November (Figure 7.B). CEHMM also monitors and records the provisional instantaneous USGS gage readings and calculates monthly average, maximum, and minimum flow data (Table 2). The volume of water that would have been required in 2020 to maintain the CCAA's interim minimum flow target of 9.3 cfs at the Malaga gage ranged from approximately 60 to 337 acre-feet per month, for a total of 2,261 acre-feet for 2020 (Figures 7.D and 8.C).



Figure 7. Rolling 7-day average daily discharge (cfs) for January 1 to December 31, 2020 using daily average data (A). All data points (except 1/1/2020 through 1/7/2021, which are approved data) are provisional USGS data and can be revised until receiving final approval. Cumulative hours where discharge was under 3.2 cfs (B) and 9.3 cfs (C) are also presented, where calculated time under a threshold was performed using 15-minute gage data. Using daily average data, monthly water shortage (in ac-ft) to maintain 9.3 cfs has also been calculated and presented. All data are for the Black River Above Malaga gage (USGS 08405500).

The volume of water that would have been needed to maintain river flows at 3, 5, 7, and 9.3 cfs in 2020 is shown in Figure 8. Seventeen acre-feet of water would have been needed during the August-October time period to maintain flows at or above 3 cfs at all times in 2020. To maintain flows at or above 5 cfs, 223 acre-feet of water would have been needed during the July-December time period, and 872 acre-feet of water would have been needed during the July-December time period, and 872 acre-feet of water would have been needed during the July-December time period to maintain flows at or above 7 cfs at all times. Maintaining flows at or above 9.3 cfs at all times would have required 2,261 acre-feet of water to be made available over the entire year, with the bulk of the water needed occurring from June to December. These examples are provided to show the range of volumes of water that the Instream Flow Program Technical Working Group needs to have in mind when developing strategies for ensuring sufficient instream flow, such as purchase or lease of water rights or water use agreements. The CCA/A program will expand this analysis in 2021 using a larger data set on historic river flows. As more information becomes available about the flow regime requirements for the species and the likely deficits, the volume and timing of water needed for an instream flow program can be refined.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Black River (USGS 0	Black River (USGS 08405500 BR Above Malaga)											
Average Flow	8.33	8.19	8.32	7.74	7.43	6.66	5.52	5.03	3.64	3.87	3.70	6.52
Minimum Daily Average	7.85	7.15	7.01	7.21	6.59	5.95	4.22	1.82	1.13	0.05	0.00	5.61
Maximum Daily Average	8.70	8.97	12.4	8.25	8.07	7.42	6.28	6.93	4.61	5.63	5.67	7.30
Blue Springs (USGS 08405450 Blue Springs Above Diversions)												
Average Flow	10.9			8.11	9.48	14.03	9.03	7.93	7.23	7.87	6.93	11.13
Minimum Daily Average	8.56			6.00	7.63	10.10	7.74	4.59	5.51	4.41	4.05	9.69
Maximum Daily Average	13.3			10.20	10.10	19.60	9.59	9.23	7.79	9.39	9.78	12.9

Table 2. Monthly average, minimum daily average, and maximum	mum stream flow calculated by CEHMM using USGS
instantaneous provisional stream gage readings.	



С

Month Shortage (ac-ft) 3 cfs Shortage (ac-ft) 5 cfs Shortage (ac-ft) 7 cfs Shortage (ac-ft) 9.3 cfs

Jan	0	0	0	60
Feb	0	0	0	64
Mar	0	0	2	87
Apr	0	0	0	88
May	0	0	1	117
Jun	0	0	41	177
Jul	0	6	91	233
Aug	5	29	133	275
Sep	7	81	200	337
Oct	5	55	173	314
Nov	0	52	169	306
Dec	0	0	62	203
Total	17	223	872	2261

Figure 8. Rolling 7-day average daily discharge (cfs) for January 1 to December 31, 2020 (A). All data points (except 1/1/2020 through 1/7/2021, which are approved data) are provisional USGS data and can be revised until receiving final approval. Using daily data, monthly water shortage (in ac-ft) to maintain 3, 5, 7, and 9.3 cfs has also been calculated and presented in both figure (B) and table (C) format. All data are for the Black River Above Malaga gage (USGS 08405500).

Delaware River Monitoring



Figure 9. Staff Gage Installed in Delaware River.

As reported in the 2019 Annual Report, the Delaware River stopped flowing for 138 days in 2019. This lack of flow prompted CEHMM to start monitoring the flows of the Delaware River on a near-weekly basis. CEHMM has utilized a USGS gage (USGS 08408500) and visual inspections to monitor the conditions on the Delaware River. Again, in April of 2020, CEHMM observed that the flows on the Delaware had stopped (Figures 9 and 11). To date, flows have not resumed on the Delaware River. CEHMM installed a staff gage in the Delaware River to more easily monitor the evaporative losses, and standing pools in the river are estimated to have lost two to three inches of water weekly (Figure 9). Flows on the Delaware River ceased for 240 days in 2020, from May 5th to December 31. CEHMM also monitored the Delaware River water quality at active mussel beds. CEHMM spent 38 days in the field monitoring the flows and water quality on the river.



Figure 10. Rolling 7-day average daily discharge (cfs) for January 1 to December 31, 2020 at the Delaware River (USGS 08408500). All data points are provisional USGS data and can be revised until receiving final approval.

Rain Gauge Monitoring

CEHMM monitored seven rain gauges within the hornshell boundary (Table 3). Rain gauge data are being collected to evaluate stream flow effects after rain events. Rain gauges were installed in August of 2019.

Table 5. Rain Gage Totals (m.)												
Location	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Delaware River Dam	0.15	0.40	2.00	-	-	0.00	0.65	0.30	0.50	-	-	0.00
Delaware River State Line	0.10	0.43	1.87	-	0.20	-	-	0.31	2.00	0.00	0.00	0.00
Owl Draw	0.15	0.37	-	-	-	0.00	0.60	0.30	3.50	-	0.00	0.00
Red Bluff West	0.10	0.35	2.50	-	0.08	0.02	-	0.29	2.00	0.00	0.00	0.00
Red Bluff East	0.10	0.30	-	-	0.10	0.05	0.55	0.27	3.00	0.00	0.00	0.00
Black River Forehand Crossing	0.10	0.20	2.90	-	0.10	0.00	0.20	0.42	-	-	0.00	0.00
Black River Means Road Crossing	0.05	0.20	2.70	-	0.10	0.05	1.40	0.38	-	-	0.00	0.00

Table 3. Rain	Gage Totals	(in.))
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Delaware River, NM

January 2020 – December 2020



Figure 11. Delaware River Timeline from January 2020 to December 2020.

IIX. MITIGATION OF IMPACTS TO HABITAT

During 2020, CEHMM received a total of 131 notices of new surface disturbances from industry. CEHMM documented 1,229.64 acres of new surface disturbances through the 131 notices. Of the 131 combined notices of new surface disturbances in 2020, one 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 reseeding.

During 2020, the SLO received a total of 41 notifications of new surface disturbances from Participants, totaling 320.63 acres of disturbance. Of the 41 combined notices of new surface disturbances in 2020, one took place in Management Zone C.

For all CCA/As, more than half of the acres of new surface disturbances occurred through right-of-way development.

	Well Pads	ROWs	Other Infrastructure	Total
СЕНММ				
Notifications of New Surface Disturbances	31 (23.7%)	80 (61.1%)	20 (15.3%)	131
Acres Disturbed	224.1 (18.2%)	741.36 (60.3%)	264.18 (21.5%)	1229.64
SLO				
Notifications of New Surface Disturbances	14 (34.1%)	21 (51.2%)	6 (14.6%)	41
Acres Disturbed	107.57 (33.5%)	182.47 (56.9%)	30.59 (9.5%)	320.6
COMBINED				
Notifications of New Surface Disturbances	45 (26.16%)	101 (58.72%)	26 (15.12%)	172
Acres Disturbed	331.67 (21.4%)	923.83 (59.6%)	294.77 (19%)	1550.27

Table 5. New Surface Disturbances in 2020.

IX. COMPLIANCE MONITORING

The CCA/As require CEHMM and the SLO 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 2020, 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. In 2020 CEHMM spent 31 days performing industry compliance monitoring. Through those 31 days of monitoring, 16 enrolled participants were found to be out of compliance with their CIs and/or CPs. Three of the participants received formal notices. CEHMM is currently working with enrollees in order to achieve compliance and only one enrolled participant remains out of compliance.

VII. FUNDED OR COMPLETED PROJECTS

In 2020 CEHMM and the SLO did not fund any new projects, but work continued on previously funded projects.

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 6). Work commenced on August 20, 2020. CEHMM staff installed 300 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 6). 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 the New Mexico Environment Department for the Black River Wetland Action Plan (WAP), and the contract was awarded in the spring of 2020. The THM CCA/A provided matching funds in the amount of \$4,669.81 (Table 6). 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 conditions 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 6). 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 and started in January 2020.

River Flow Regime Requirements Study- This study was approved and funded in October of 2020 for \$168,772 (Table 6). 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.

CEHMM/SLO Instream Flow Program Initiative for the Texas Hornshell Mussel- CEHMM and the SLO partnered on a proposal from CEHMM to the National Fish and Wildlife Foundation for a \$250,000 grant to fund the development of an instream flow program to protect the endangered Texas hornshell mussel and other at-risk species in the Black and Delaware Rivers. The overall objective of the initiative is to provide instream flow for the Texas hornshell in the Black and Delaware Rivers through the purchase or lease of water rights, or through alternative mechanisms such as forbearance agreements or strategies that make water available for instream flow during otherwise dry periods or when high flows are needed for life history requirements. The first expected outcome of the grant would be the execution of one or more short-term (3-5 year) agreements that, at a minimum, will provide sufficient flow in the Black River to prevent the existing Texas hornshell population from being extirpated by lack of water while long-term solutions to instream flow are developed. The second expected outcome of the project will be the development of a framework for a long-term plan and budget for maintaining stream flows in the Black and Delaware Rivers, including multiple options such as outright purchase of water rights, long-term forbearance agreements, or other mechanisms to reduce diversion from the rivers.

This funding opportunity requires an in-kind matching contribution from CEHMM and the SLO. Much or all of the match will be provided through in-kind contributions from the SLO and CEHMM. A funding decision is expected in March 2021. The proposal was approved by the Implementation Committee pending receipt of requested additional information from the applicant.

* Indicates project is complete

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.
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 started in the summer of 2020.
Black River Wetlands Action Plan 2019	Feb-20	\$4,669.81	Black River Watershed	Wetland Action Plans (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. The WAP began in the 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, and started in January 2020.

Table 6. Projects Funded in 2019 and Awaiting Completion.

X. CONSERVATION MEASURE VIOLATIONS

As the administrators of the CCA/A, CEHMM and the SLO 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 SLO 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 SLO, and an understanding of the purpose of the CCA/A, no CMVs were issued in 2020. However, CEHMM worked with two enrollees to initiate corrective actions to prevent issuance of a CMV.