

Colorado Department of Natural Resources

# Species Conservation Trust Fund

FY 2022-23 Annual Report to the General Assembly

## **Species Conservation Trust Fund**

The Colorado General Assembly created the Species Conservation Trust Fund (SCTF) in 1998 through the passage of HB 98-1006. This legislation provides ongoing funding to implement cooperative agreements, recovery programs, and other programs designed to meet Colorado's obligations under the Endangered Species Act (ESA). The SCTF is also intended to promote practices designed to conserve species currently listed as threatened or endangered under state law, recover or protect candidate species in order to avoid the need to list those species under the state or federal ESA, and improve the scientific understanding governing federal or state species listing and delisting.

Statute (24-33-111 (3), C.R.S.) directs the Executive Director of the Colorado Department of Natural Resources (DNR) to report to the General Assembly on the progress and status of activities undertaken to conserve and recover Colorado's native species. This report covers activity in FY 2022-23 and includes a summary of appropriations, select outcomes, and a full list of project accomplishments that have occurred during these years.

### **Summary of SCTF FY 2022-23 Appropriations**

Each year, the Executive Director of DNR prepares a species conservation eligibility list (SCEL) after consultation with the Colorado Water Conservation Board (CWCB) and its Director, and the Colorado Parks and Wildlife (CPW) Commission and its Director. The SCEL identifies programs (and associated costs) that are eligible for funding from the SCTF. Once finalized with the Board and the Commission, the SCEL is sent to the General Assembly for review and modifications as appropriate prior to the passage of the annual SCTF bill.

In FY 2022-23, CPW was appropriated \$3.0 million and CWCB was appropriated \$3.0 million for programs or projects. These funds were appropriated under Senate Bill 22-158. The funding appropriated to CPW has been allocated to research, monitoring, and habitat improvements for numerous species including: prairie dogs, Gunnison Sage Grouse, and a variety of native fish species. CWCB's funding has been allocated to endangered species programs related to the Platte River Recovery Implementation Program and the Upper Colorado River native fish recovery programs, selenium management, and related projects.

## Selected Project Outcomes

Since 1998, the SCTF has funded a wide array of important conservation projects. The following highlights some of the key accomplishments for FY 2022-23, and the following table provides a more comprehensive details of outcomes from SCTF projects during that period.

- Implementation of the Platte River Recovery Implementation Program to enhance, restore and protect habitat for the whooping crane, interior least tern, piping plover, and pallid sturgeon. The Program protects more than 13,500 acres of species habitat and provides 115,000 acre-feet of water to the associated habitat area.
- Implementation of the Upper Colorado River Endangered Fish Recovery Program to support the recovery of four endangered fish species. The Program conducted non-native fish management, development of the White River Management Plan, habitat restoration and other conservation measures. In 2023, nonnative fish management was conducted at Ridgway and Elkhead reservoirs, and the Ridgway Reservoir fish escapement prevention net was operational for the first time.
- Collaboration with Ute Water Conservancy District to lease 6,000 acre-fee of water and Garfield County to lease 350 acre-feet of water from Ruedi Reservoir, which was delivered to a 15-mile section of the Colorado River to support the water flow and habitat needs of endangered fish.
- Construction of an isolation building at the Rifle Falls Hatchery for the protection and propagation of Cutthroat trout and other Species of Greatest Conservation Need.
- Design of a fish passage structure at the Chilcott diversion on Fountain Creek to increase available habitat for the Flathead chub and other native fishes.
- Generation of high-resolution genetic data to determine the native range of the “green lineage” of cutthroat trout and relatedness to other subspecies.
- Development of an Integrated Population Model to evaluate translocation scenarios for Gunnison sage-grouse helping to inform a translocation strategy.
- Providing additional capacity to rear large-bodied fish species of greatest conservation need, including bluehead sucker, flannelmouth sucker, roundtail chub and bonytail at the Native Aquatic Species Recovery Facility (NASRF). Rearing these species in greater numbers requires additional infrastructure.

**Species Conservation Trust Fund – Projects In Progress**  
**Colorado Parks and Wildlife**  
**FY 2022-23**

<b>Project</b>	<b>Purpose</b>	<b>Outcomes</b>	<b>Year(s) Authorized</b>	<b>Total Appropriated</b>
<i>Native Terrestrial Wildlife Conservation</i>				
Monitoring & Evaluation of Adaptive Plague Management	Monitor and evaluate adaptive plague management at sites where management is ongoing or planned.	Provide current and critical information to managers about the outcomes of plague management and determine if tools and techniques need to be modified in order to meet desired management goals.	22-23 (SB22-158)	\$180,000
Gunnison Sage-Grouse Population Enhancement	The project will address the Fish and Wildlife Service (FWS) Gunnison Sage-Grouse Recovery Plan Priority Action of conducting translocations to augment the Gunnison sage-grouse satellite populations. Currently, translocations cannot be conducted until the source population has reached the FWS recovery target. The purpose of this project is to develop a translocation strategy via an Integrated Population Model to assist in translocation planning.	We are working towards contracting with USGS to develop an Integrated Population Model that will evaluate a variety of translocation scenarios. This information will help CPW develop a translocation strategy for Gunnison Sage-Grouse.	22-23 (SB22-158)	\$590,000

***Native Aquatic Wildlife Conservation***

<p>Rifle Falls SFU New Isolation Facility</p>	<p>Construct a 26 x 28 ft. prefabricated metal isolation building. The isolation building will be outfitted with an ultraviolet treatment system for effluent, as well as plumbing, tanks, troughs, incubators, and hatching jars needed to fulfill both rescue and production operations. The water supply would be provided by existing available water sources at the hatchery.</p>	<p>Construction of an isolation building at the Rifle Falls Hatchery would provide much-needed space for the protection and propagation of Cutthroat trout and potentially other cold-water native Species of Greatest Conservation Need. Isolation facilities enable CPW to move critical stocks of native fish from habitats that are at immediate risk, into a secure environment, protecting the survival and genetic integrity of the population. Recent rescues of San Juan lineage cutthroats from the 416 fire, and Hayden Creek cutthroats from the Hayden fire, provide dramatic examples.</p>	<p>22-23 (SB22-158)</p>	<p>\$300,000</p>
<p>Lab-based Temperature Standards for Native Fish</p>	<p>Develop temperature standards for many of Colorado's Tier 1 and Tier 2 endangered fish species.</p>	<p>Laboratory-based temperature studies using CTMax and CTMin have been completed with Bluehead Suckers and Flannelmouth Sucker larvae. Construction of a mobile, stream-side laboratory is underway to conduct ecologically relevant temperature studies in the field. Development of an electrocardiogram to create temperature standards for adult fish is currently being optimized and studies will begin in spring 2024 with the three species.</p>	<p>22-23 (SB22-158)</p>	<p>\$260,000</p>
<p>Fish Passage at Chilcote Diversion Structure, Fountain Creek</p>	<p>Design a fish passage structure to be built at the Chilcote diversion on Fountain Creek south of Colorado Springs.</p>	<p>The Chilcote diversion structure is the first barrier to fish movement upstream of the Owens-Hall diversion, where CPW and collaborators installed a very successful fish passage structure. Opening up the Chilcote Diversion to fish passage would increase available habitat for Flathead chub, a Tier 1 species, and other native fishes by at least another 5 miles. Fountain Creek holds one of Colorado's most important populations of Flathead chub, a species that requires long</p>	<p>22-23 (SB22-158)</p>	<p>\$75,000</p>

		reaches of unfragmented habitat		
Eastern Plains Stocking Survival	The purpose of this project is to assess reproductive success of hatchery-released and translocated plains fishes by collecting early life stages (eggs and larvae). This will provide management guidance as to whether continued stocking is necessary, or if hatchery production would be better utilized in new locations.	Preliminary sampling was conducted at three sites where Plains Minnow Hybognathus placitus have been stocked. However, due to high water, sampling was not effective. No Plains Minnow eggs or larvae were collected via drift nets or Moore egg collectors. Fieldwork will continue in 2024.	22-23 (SB22-158)	\$130,000
Control of Non-native Species in West Slope Waters	This project is designed to assess tiger muskellunge stocking in Colorado for (1) improving conditions for native fish by disadvantaging non-native predators (northern pike and smallmouth bass) that have been illegally introduced, and undesirable species that are spreading in Colorado like white suckers; and (2) a controllable method for disadvantaging nuisance species that is compatible (sterile hybrid) with native fish conservation goals, and discouraging the further spread/introduction of non-native predators.	The statewide request for tiger muskellunge was met and exceeded in 2023. Thus, both Elkhead and Shadow Mountain reservoirs received the target number of tagged tiger muskellunge. Sampling will take place the following field season (2024) to assess tiger muskellunge survival and potential impacts on target species for control (e.g., northern pike, smallmouth bass, and white sucker). Samples were collected and processed from the Wray hatchery for a short-term study evaluating the growth and development of tiger muskellunge eye lenses for archival diet determination in the future. The Research Associate used a bioenergetics approach coupled with stocking records and survival estimates from the literature to characterize system-specific tiger muskellunge consumption demand at the population-level for 117 lakes and reservoirs that received tiger muskellunge in Colorado from 1983 to 2023. Patterns evident in these data revealed several insights about effective stocking densities of tiger muskellunge, timing and magnitude of their impacts on three target species groups (bullhead, carp, and suckers), and the potential for prey (rainbow trout) stocking to act as a buffer between tiger muskellunge and their intended target	22-23 (SB22-158)	\$361,000

		species for control. Collaborations continue to develop appropriate/effective tiger muskellunge stocking strategies under different system-specific conditions based on data available.		
Cutthroat Trout Sub-species Delineation	The primary purpose of this project is to determine if "green lineage" cutthroat trout east of the Continental Divide are native or whether they became established because of undocumented human actions. The answer to this question has dramatic consequences for the conservation of this fish and whether the USFWS would likely choose to list them under the ESA or not. We will use new high throughput DNA sequencing and "demographic reconstruction" to address when genetic bottlenecks occurred in these populations and whether those suggest transcontinental migrations following the last ice age or much more recently, consistent with human intervention.	Generate high-resolution genetic data to determine native range of "green lineage" cutthroat trout, and evaluate relatedness of other subspecies.	22-23 (SB22-158)	\$95,000
NASRF Additional Capacity for Large-bodied Fish	Install a partial recirculating aquaculture system at the Native Aquatic Species Recovery Facility (NASRF) in Alamosa. The system will supply water to six new 16-foot-diameter rearing tanks allowing increased propagation of large-bodied, non-game SGCN	Provide additional capacity to rear large-bodied fish species of greatest conservation need. NASRF currently produces 13 species of tier 1 SGCN fish and amphibians, and is operating at capacity. Production needs are especially pressing for large bodied fishes including bluehead sucker, flannelmouth sucker, roundtail chub and bonytail. Rearing these species in greater numbers requires additional infrastructure.	22-23 (SB22-158)	\$500,000
3 Species Inventory	Evaluate distribution and abundance of Flannelmouth sucker, Bluehead sucker and Roundtail chub. Assess the success of efforts to augment key populations with hatchery-reared fish.	Monitor the status of 3 species throughout their range within Colorado. Use physical (PIT) tag data and genomic analyses to assess population augmentation efforts, by determining the contribution of	22-23 (SB22-158)	\$100,000

		hatchery-reared fish to populations.		
eDNA for Plains Fishes and Mollusks	Incorporate environmental DNA metabarcoding into CPW's plains sampling protocol to detect threatened and endangered Great Plains fish species, detect aquatic invasive species, and guide future sampling efforts.	eDNA metabarcoding database for species of interest has been completed, as well as sequencing of 36 species. At comparative sites, we found eDNA to be similar in species detection to electrofishing and seining. The majority of fish detected by electrofishing were also detected with eDNA (88%). Additionally, there were 48 occasions where eDNA detected a species that was not detected with traditional methods, and 19 occasions where this was reversed. eDNA is a useful tool to collect species detection data more efficiently and cost-effectively than traditional methods. Although there will always be a need for traditional sampling, eDNA is a useful tool that can be another source of information regarding species' distributions.	22-23 (SB22-158)	\$57,000
Aquatic Disease Research	To determine impacts of gill lice and other pathogens on fish populations in Colorado. Identify methods to reduce effects of these diseases on important fish species and populations.	An assessment of the current status of gill lice infestations in cutthroat trout and mountain whitefish populations; an evaluation of threats presented by gill lice to cutthroat trout and mountain whitefish populations; a description of potential management strategies to protect cutthroat trout and mountain whitefish populations of conservation concern. A report was prepared with the most recent gill lice distribution map, results from the field sampling and tank experiments, and potential management strategies based on the interpretation of the cumulative results. Data indicate spatial variation in the parasite and field and lab exposures suggest that cutthroat are somewhat less susceptible to the parasite than rainbow trout. Lab data indicate that the freeliving form of the parasite is longer lived than reported	22-23 (SB22-158)	\$217,000

		elsewhere. Additional work to evaluate the susceptibility of the copepodid stages of the parasite to iodine treatment has been completed. A more thorough assessment of eDNA was initiated in 2022. In addition, a more thorough assessment of distribution of the copepod was initiated in 2022, with hundreds of new samples submitted for testing.		
Effects of Food Web Toxicants on Native Fish	Dietary exposure of toxicants is rarely considered in risk assessment and water quality standards. Algae readily accumulates toxicants and is a major food source for many threatened and endangered fish. Effects of toxicants on algae and accumulation rates are rarely if ever studied. This study aims to evaluate the effects of toxicants on algivorous threatened and endangered species by direct accumulation of toxicants through the food web and indirect loss of food sources.	This project has 2 major goals. Goal one will evaluate the susceptibility of threatened and endangered fish and amphibian food sources to toxicants by exposing algal species to agrochemicals, pharmaceuticals, pesticides or metals. Use of pulse amplitude modulated fluorimetry has been developed to examine colonization, growth and physiological health of important food species. The second goal examines risk of toxicants to endangered and threatened fish species through dietary exposure. Algal susceptibility is under represented in the scientific literature that is considered in creating water quality standards. These results will inform pollution policy. Dietary exposure of fish to toxicants will add environmental realism to experiments and thus ensure water quality standards are protective of fish. Understanding the importance of algae food sources for threatened and endangered species will help fish and water managers make decisions regarding water quality, quantity and timing.	22-23 (SB22-158)	\$135,000
<b>CPW TOTAL</b>				<b>\$3,000,000</b>

**Species Conservation Trust Fund – Programs and Projects In Progress**  
**Colorado Water Conservation Board**  
**FY 2022-23**

Project	Purpose	Outcomes	Year Authorized	Total Appropriated
Platte River Recovery Implementation Program	To provide Colorado’s contribution to the Program’s operations and to operate the Tamarack State Wildlife Area project and similar water re-timing projects in accordance with Colorado’s commitments. The goal of the Program is to enhance, restore, and protect habitat for the whooping crane, interior least tern, piping plover, and pallid sturgeon. The existence of the Program allows water use and development to continue in the Platte River Basin through providing Endangered Species Act compliance to water projects	<p>Colorado water users in the South Platte and North Platte River basins have benefited from 160 streamlined Endangered Species Act Section 7 consultations since the inception of the Program in 2007.</p> <p>Colorado meets its water-specific obligations to the Program through operation of the Tamarack State Wildlife Area project and similar groundwater recharge projects on the lower South Platte River near the state line. Water is re-timed at the Tamarack State Wildlife Area to meet Colorado’s commitment to reduce target flow shortages by 10,000-acre feet per year as well as future depletions.</p> <p>Program partners manage nearly 13,500 acres of land in central Nebraska as habitat and nearly 115,000 AF of water. The program is nearing its management goals and continues to provide successful Endangered Species Act compliance for water projects throughout the Platte River basin.</p>	FY22-23	\$1,900,000
Upper Colorado River Endangered Fish and San Juan River Basin Recovery Implementation Program	The Colorado Water Conservation Board actively participates in the Upper Colorado River Endangered Fish Recovery Program and the San Juan River Basin Recovery Implementation Program to support recovery of four endangered fish species: humpback chub, razorback	<p>The programs provides Endangered Species Act compliance for more than 1,500 projects in Colorado.</p> <p>Nonnative fish management was conducted at Ridgway and Elkhead reservoirs to reduce risk of nonnative fish escapement, predation</p>	FY22-23	\$800,000

	<p>sucker, Colorado pikeminnow, and bonytail. In addition to benefiting species, the Program allows water use and development to continue in Colorado through providing streamlined Endangered Species Act compliance for water users in the basin.</p> <p>Funds support conservation measures for the endangered fish through the two recovery programs. Projects include non-native fish control, development of the White River Management Plan, habitat restoration, and other conservations measures.</p>	<p>and competition with native fish downstream. The Ridgway Reservoir fish escapement prevention net, funded by the Species Conservation Trust Fund, was completed in 2022 and was operated in 2023 for the first time.</p> <p>The Colorado Water Conservation Board and the Recovery Program partners have made significant progress toward completion of the White River Management Plan.</p>		
Ruedi Reservoir Releases for the 15-mile reach	<p>Colorado Water Conservation Board partners with municipalities, water providers, irrigators, and other water rights owners to lease water from Ruedi Reservoir during times of low flow. This assists in efforts to improve local streamflow conditions on a reach of the Colorado River critically important to the lifestages of the endangered fish. The water leased also increasing water available for hydropower production, and ultimately increasing streamflows in endangered species critical habitat.</p>	<p>In the summer of 2022, the CWCB partnered with Ute Water Conservancy District to lease 6,000 AF and Garfield County to lease 350 AF of water from Ruedi Reservoir. This water was delivered to the 15-mile reach on the Colorado River to support the flow and habitat needs of the endangered fish.</p>	FY22-23	\$250,000
Selenium Management, research, monitoring, evaluation, and control	<p>The Gunnison Basin Selenium Management Program is a required conservation measure identified in the Programmatic Biological Opinion, issued by USFWS Dec. 4, 2009, as part of the Aspinall Unit Final Environmental Impact Statement (2012). The Program aims to improve fish habitat by reducing selenium loading from irrigation runoff in the Gunnison Basin. By meeting the targets set in the Program, basin water</p>	<p>The Selenium Science Plan describes and identifies gaps in monitoring and research efforts to better understand selenium occurrence and mitigation in the lower Gunnison and Colorado River basins. Funding continues to support a real-time surface and groundwater quality-monitoring network, investigation of selenium loading, research of best management practice effectiveness, and support for local conservation district staff. Analysis indicates a continuing downward</p>	FY22-23	\$50,000

	<p>users maintain Endangered Species Act compliance and have regulatory certainty in continuing historical water uses.</p> <p>Funding provides for selenium monitoring of water, sediment, and fish tissue; updating of statistical models to identify selenium loading sources; and evaluation of selenium reduction methods such as further lining of canals and piping of laterals. In FY2022-23, funds were authorized to support selenium management efforts in the Colorado River Basin to better understand selenium-loading impacts on endangered fish species in the mainstem of the Colorado River.</p>	<p>trend in dissolved selenium at the Gunnison River near Grand Junction.</p>		
<b>CWCB TOTAL</b>				<b>\$3,000,000</b>