



State Aquatic Nuisance Species (ANS) Program Summary for Colorado Legislators per SB 08-226



Colorado Parks and Wildlife January 2013

The former Division of Wildlife (CDOW) and State Parks (Parks) have been merged into a single agency, Colorado Parks and Wildlife, beginning July 1, 2011. For the purpose of this report, the activities occurring between 2008-2011 are attributed to the former CDOW and Parks agencies independently. Activities occurring in the 2012 boating season are referred to as combined CPW activities. The ANS Program functions of data management, training, quality control, customer service and inventory were completely merged in 2012. CPW Invasive Species Program staff is working to merge all other functions and protocols prior to boating season 2013. Budgets will remain separate per SB08-226 authorizations.

Background

Zebra and/or Quagga Mussels were identified in eight reservoirs in Colorado in 2008 as a result of a multi-year statewide sampling effort conducted by the CDOW, in partnership with Parks, the U.S. Fish & Wildlife Service and the U.S. Bureau of Reclamation. Zebra mussels, and their close relatives Quagga mussels, are highly invasive aquatic species that negatively impact plankton communities, fisheries, water based recreation, and water supply and distribution systems for municipal, industrial and agricultural supply.

The State Aquatic Nuisance Species (ANS) Act was passed by the General Assembly in May 2008. The Act defines ANS as exotic or nonnative aquatic wildlife or any plant species that have been determined to pose a significant threat to the aquatic resources or water infrastructure of the state. It makes it illegal to possess, import, export, ship, transport, release, plant, place, or cause an ANS to be released. The Act allocated funding to ANS programs in both the former CDOW and Parks. It provides authority to qualified peace officers to inspect, and if necessary, decontaminate or quarantine watercraft for ANS. It also provides authority for trained authorized agents to inspect and decontaminate watercraft for ANS.

The Parks Board passed regulations required by the Act on February 20, 2009. The rules require mandatory watercraft inspection and if necessary decontamination of all boats coming in from out of state, leaving a known positive water in Colorado, and those entering a high-risk water where inspections and decontaminations are required by the managing agency. The rules set the standard for watercraft inspection, decontamination, impoundment, sampling, monitoring, identification and reporting.

The CDOW internally reallocated resources to create a fulltime position to coordinate Invasive Species activities statewide beginning July 1, 2008. The Invasive Species Coordinator oversees implementation of the State Zebra and Quagga Mussel Management Plan (ZQM Plan), along with a variety of other invasive species management duties, such as noxious weed and forest pest coordination. The backbone of the ZQM Plan includes containment and prevention through watercraft inspection and decontamination, sampling and monitoring, education/outreach, communications and information, and applied research. The CDOW provides ANS support to all waters of the state, and to all inspection stations, regardless of jurisdiction. Services provided by the CDOW include site-specific planning, training/certification, watercraft inspection and decontamination, law enforcement support, educational materials, workshops and conferences, sampling/monitoring, ANS identification, cost-share opportunities and Motorboat Colorado Grants.

The ANS Act authorized 7 FTE to State Parks for ANS. In February 2009, Parks hired an FTE to coordinate the Parks ANS program and train staff in inspection and decontamination procedures at 28 parks. As provided for in the ANS Act, Parks hired 6 additional full-time employees to implement the ZQM Plan with Parks, which includes education, boat inspections and decontaminations. Only 4 FTE remain active today, as 3 of the 7 have been eliminated.

Program Goal

The goal of the program is to protect the state's natural resources, outdoor recreation and water supply systems through prevention of new introductions and reduce the spread of costly Invasive Species, specifically ANS such as zebra or quagga mussels, in Colorado.

Current Status of Zebra and Quagga Mussels in Colorado

Pueblo Reservoir, Granby Reservoir, Grand Lake, Shadow Mountain Reservoir, Willow Creek Reservoir, Tarryall Reservoir and Jumbo Reservoir all tested positive for microscopic juvenile zebra and/or quagga mussels in 2008. Since that time there have been no new positive waters listed. Subsequent testing identified juvenile mussels in Pueblo Reservoir in 2009 and 2011.

In April 2009, Blue Mesa Reservoir was classified as 'suspect' for quagga mussels. Disparate DNA results from the U.S. Bureau of Reclamation in both 2011 and 2012 indicated that quagga mussel DNA was present in Blue Mesa Reservoir, but no mussel juveniles or adults were found. Therefore, Blue Mesa will remain on the suspect waters list for quagga mussels and we will continue to implement the containment and prevention boat inspection protocols as a joint partnership between CPW and the National Park Service.

The U.S. Bureau of Reclamation 2012 results also included unconfirmed DNA results for quagga mussels in Grand Lake, Shadow Mountain, Granby Reservoir, Narraguinnep Reservoir and Navajo Reservoir. Colorado Parks and Wildlife is working with the U.S. Bureau of Reclamation to attempt to validate DNA/PCR protocols in 2013. Due to numerous disparate and unconfirmed DNA results from Reclamation in several states including Colorado, CPW is no longer contributing samples to the Reclamation laboratory and will make no management decisions based on DNA/PCR results alone, until validation occurs.

Additional Aquatic Nuisance Species in Colorado:

- Rusty crayfish, an invasive species first detected in Colorado in the Yampa River and Catamount Reservoir in 2009, in Sanchez State Wildlife Area in 2010 and in Steamboat Reservoir State Park in 2011. Populations are being controlled through mechanical and physical harvesting.
- New Zealand Mudsnail (NZMS) was discovered at one new location in 2012: Spinney Mountain Reservoir State Park. NZMS were found in three new locations in 2011: Eleven Mile Reservoir State Park, East Delaney Buttes State Wildlife Area, and College Lake, CSU, Fort Collins. In 2010, they were discovered at the South Delaney Buttes State Wildlife Area, and two sites within the City of Boulder along Dry Creek. The invasive snail was first found in Colorado in 2004 in Boulder Creek, the South Platte River below Eleven Mile dam and the Green River in Dinosaur National Monument. There were no detections from 2005-2009. All populations have been mapped and are being monitored for long-term impacts. There are no viable control methods.
- Eurasian watermilfoil, an expensive and destructive aquatic noxious weed is being monitored and treated at many locations in Colorado. Recently it was discovered at Eleven Mile Reservoir State Park in 2011 (alongside the New Zealand mudsnails). A hybrid of the aquatic noxious weed was also confirmed in Cherry Creek Reservoir State Park. Both new populations were mapped in 2012. Eurasian watermilfoil is being controlled throughout the Front Range using chemical, physical and mechanical methods.

2012 Program Activities:

Sampling/Monitoring

The CDOW, now CPW, has sampled 391 “at-risk” waters for aquatic invasive species over the last six years. It was through this sampling program that zebra/quagga mussels were detected in Colorado.

The state follows a three-tier sampling protocol and a three-phase identification process for the early detection of zebra or quagga mussels: 1) conducting plankton tows to find the veligers, 2) deploy and check substrates to find the juvenile “settlers” or attached adult mussels, and 3) conduct surveys along the shoreline and existing structures for settled juveniles or attached adult mussels. Identification of plankton tows includes a cross-polarized light microscopic visual analysis, followed by two-phase DNA analysis (polymerase chain reaction [PCR] and gene sequencing) to confirm genus and species.

In 2008, the CDOW implemented a comprehensive early detection program for zebra and quagga mussels. Waters were selected from a prioritization ranking resulting from a risk assessment, which was conducted specifically to determine the potential risk of introduction of zebra and quagga mussels. The risk assessment identified 168 total lakes and reservoirs divided into 19 very high risk waters (sampled every two to three weeks), 17 high risk waters (sampled every three to four weeks), 58 medium risk waters (sampled twice), and 64 low risk waters (sampled once). Streams and rivers are monitored on a rotating basis annually by need and priority.

Water Type	Surface Acres Surveyed by CPW ANS Program	Surface Acres in Colorado	% of Total Surveyed by CPW ANS Program
Total Surface Acres in Colorado*	150,319	282,112	53.2%
Lakes and Reservoirs*	136,539	228,294	59.8%
Perennial Streams and Rivers**	13,811	49,234	28.1%

**Based on the 24K water bodies shapefile from CPW GIS Unit, which includes private and public waters.*

*** Based on the 24K water bodies shapefile from CPW GIS Unit, which does not include intermittent streams, wetlands or marshes.*

In 2012, crews sampled 220 standing and approximately 131 flowing waters statewide. In total, there were 1705 plankton tows collected and analyzed for veligers, 142 substrates were checked approximately 649 times for settled mussels, approximately 813 shoreline surveys conducted, approximately 52 crayfish sampling sites, and 161 sampling locations within 21 state hatcheries. In addition, water quality measurements were recorded at approximately 707 sites and two reservoirs were inventoried for aquatic plants. Partner agencies contributed 140 plankton tow samples, including Colorado Springs Utilities (9), the National Park Service (88), US Bureau of Reclamation (41) and the US Forest Service (2).

CPW is currently completing the development of an online ANS sampling and monitoring database. The system allows tracking a sample from collection to final identification, including the results from microscopy, PCR testing, and gene sequencing. This database also enables us to better communicate with our partners and reservoir owners/managers regarding our efforts specific to their water bodies. Reclamation has partnered with the CDOW to cost-share its development and assists with implementation.

Watercraft Inspection and Decontamination

Per the State ANS Regulations, trailered watercraft must submit to an inspection, and decontamination if needed, prior to entrance in Colorado's waters following boating out of state or boating on a positive or suspect water. Boaters are also required to submit to an inspection prior to entering a water body where inspections are required by the managing agency. All persons performing inspections and/or decontaminations in Colorado must be certified by CPW. A major change to the program in 2012 is that Wildlife contracted the boat inspection station operations to private industry at six high use reservoirs (three positive and three negative).

CPW and their partners taught 91 watercraft inspection and decontamination certification courses in 2012. CPW certified 747 individuals, for a total of 3,001 certifications since the training program's inception in 2009. Both the training and the inspections focus on educating the boaters.

A total of 71 locations were authorized to perform watercraft inspection and decontamination in 2012. Of the 71 total stations, eight locations were containment operations at positive or suspect waters. The focus of the containment programs is to inspect watercraft leaving the lakes/reservoirs to prevent boats from moving mussels or other ANS overland from positive waters into currently uninfested areas. Parks manages the containment program at Pueblo Reservoir. The CPW ANS Program office contracted the containment procedures at the federally managed impoundments in Grand County (Granby Reservoir, Shadow Mountain, and Willow Creek and Grand Lake) to private industry in 2012.

Wildlife operates the program at two positive State Wildlife Areas (Tarryall Reservoir and Jumbo Reservoir). The CPW and the National Park Service jointly implement both prevention and containment protocols at the suspect Blue Mesa Reservoir. In addition to zebra/quagga mussel containment, three locations (Eleven Mile State Park, Lathrop State Park and Standley Lake) implemented containment protocols in response to infestations of an aquatic weed, Eurasian watermilfoil, or NZMS.

The other 60 authorized locations were implemented to prevent the introduction of mussels into currently uninfested waters, including boat ramps on lakes and reservoirs, and off-water locations such as at CPW offices and private industry locations. Prevention stations focus on inspecting watercraft prior to entering an uninfested water to prevent a new invasive species from being introduced. The prevention stations are operated by a variety of entities, including the CPW, Larimer County, private concessioners, municipalities, marinas, private clubs, and marine dealers.

Number of People Trained by Entity				
Entity Type	2009	2010	2011	2012
Colorado Parks & Wildlife	-	-	-	726
Division of Wildlife	396	378	282	-
Larimer County	64	44	17	10
Municipalities	51	7	12	11
National Park Service	0	0	1	0
Private Industry	4	0	1	0
State Parks	219	383	395	-
Annual Totals:	734	812	708	747
Total:	3,001			

Number of Authorized Locations by Entity					
Entity Type	2008	2009	2010	2011	2012
Colorado Parks & Wildlife	-	-	-	-	41
Division of Wildlife	5	160	19	19	-
Larimer County	0	2	2	2	2
Municipalities	3	7	11	9	6
National Park Service	0	1	1	1	1
Private Industry	3	11	51	30	21
State Parks	24	28	28	28	-
Total:	35	209	112	89	71

A total of 50 boats with attached adult zebra or quagga mussels have been intercepted coming into Colorado's waters from out of state at watercraft inspection and decontamination stations since 2009. Infested vessels were intercepted at Blue Mesa, Carter, Cherry Creek, Chatfield, Crawford, Denver CPW Office, Grand Junction CPW Office, Highline, Horsetooth, Jackson, Martin, Navajo, Pueblo, Ridgway,

Intercepted Mussel Boats by Entity	# of Mussel Boats			
	2009	2010	2011	2012
Colorado Parks & Wildlife	-	-	-	7
Division of Wildlife	2	2	2	-
Larimer County	1	3	3	2
Municipalities	0	0	0	0
National Park Service	7	1	0	1
Private Industry (Rocky Mountain Recreation Company)	0	1	0	0
State Parks	9	6	3	-
Annual Totals:	19	13	8	10
Total Intercepted Vessels:	50			

Shadow Mountain, Taylor Park, Turquoise, Vallecito and Williams Fork Reservoirs. The infested vessels were coming from Arizona, California, Illinois, Indiana, Louisiana, Michigan, Minnesota, Missouri, New York, Ohio, Texas and Wisconsin. The majority of the intercepted vessels were coming from the Great Lakes, the Mississippi River, or Arizona (Lake Pleasant or Lake Havasu). These boats were fully decontaminated to ensure all mussels were dead, and no mussels were attached to the vessel.

A total of 411,687 inspections and 3,997 decontaminations were performed in Colorado in 2012. A summary of annual inspection numbers can be found in the table to the right, and a summary of inspections and decontamination performed by entity type each year can be found below.

Year	Total Inspections	Total Decontaminations
2008	119,000	129
2009	396,104	3,364
2010	437,520	3,120
2011	415,302	2,833
2012	411,687	3,997
Total:	1,774,845	13,443

Number of Inspections					
Entity Type	2008	2009	2010	2011	2012
Colorado Parks & Wildlife	-	-	-	-	266,076
Division of Wildlife	4,587	52,608	70,165	63,155	-
Larimer County	-	62,595	64,813	61,489	49,741
Municipalities	-	20,569	24,563	24,422	28,331
National Park Service	-	27,582	35,557	21,913	18,374
Private Industry	-	18,060	17,782	20,584	49,165
State Parks	114,000	214,690	224,640	223,739	-
Annual Totals:	118,587	396,104	437,520	415,302	411,687
Total:	1,774,845				

Number of Decontaminations					
Entity Type	2008	2009	2010	2011	2012
Colorado Parks & Wildlife	-	-	-	-	1009
Division of Wildlife	47	1,025	775	1,443	-
Larimer County	-	635	1,029	271	217
Municipalities	-	554	590	415	664
National Park Service	-	219	239	290	338
Private Industry	-	420	122	99	1769
State Parks	79	511	365	315	-
Annual Totals:	126	3,364	3,120	2,833	3,997
Total:	13,443				

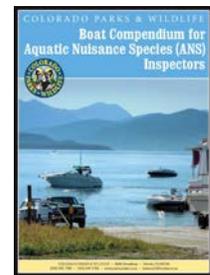
In order to guarantee quality assurance of the inspections operated by the various certified entities, the CDOW implemented a Quality Assurance & Field Support Team in 2009, which continues annually, and State Parks followed in 2010. In 2012, there was a unified CPW Quality Assurance and Field Support Team in place that performed quality control evaluated all watercraft inspection stations to ensure that state protocol was being followed, that all stations were adequately stocked with educational materials and proper signage, and provided on the job training to inspectors and supervisors. CPW conducted 90 secret shopper evaluations of inspectors and decontaminators. CPW also called 26 state, local and federal offices, private businesses and inspection stations to assess the quality of telephone customer service with respect to ANS. The quality control program will continue in 2013 with secret shopper evaluations, announced evaluations and customer service evaluations.

All programmatic data management from the former CDOW and Parks were consolidated into single systems in 2012. This includes two primary Watercraft Inspection and Decontamination Databases to manage information related to trainers, certification courses, certified individuals, identification cards, site operating procedures, supervisors, cooperative management agreements and key partner contacts.

Over the last two years, a pilot project was conducted with the goal of providing a mechanism for electronic data collection at boat inspection and decontamination systems. In 2012, the ANS Utility Data Collection System was deployed successfully statewide. By collecting boat inspection records electronically and not on paper logs (as is the current method at most sites), the ANS Program anticipates saving money currently being spent on data collection technicians to type the data into a database and gain great efficiencies on busy boat ramps. The data collection system was deployed at 31 unique inspection stations at 20 reservoirs across the state and collected 159,953 inspection records successfully (39%). The ANS Utility Data Collector system will be expanded to positive and suspect waters, and additional high use prevention sites, in 2013.

Protocol Development for Watercraft Inspection and Decontamination

To ensure the protection of the state's waters and the validity of the state certification program, the CDOW and State Parks have had strict field protocols and training regiments since the program's inception. All watercraft inspection and decontamination staff in Colorado attends the same training and adheres to the same protocols. Development of effective standardized protocols is a priority.



Protocol Title	Date Published
<i>Colorado Watercraft Inspection and Decontamination Curriculum</i> (This new document will combine all previous protocol documents into one consolidated manual, which follows the training agenda, with both teacher and student editions and interactive resources for continued education.)	March 2013
Initial Merge of CDOW and State Parks Watercraft Inspection and Decontamination Protocols (training slideshows and handouts)	February 2012
<i>Colorado Boat Compendium for Aquatic Nuisance Species Inspectors</i>	January 2012
<i>Colorado Watercraft Containment Manual for Waters Positive with Zebra or Quagga Mussels, or other ANS.</i>	September 2011
<i>Colorado Watercraft Decontamination Manual</i>	June 2011
<i>Colorado Watercraft Inspection and Decontamination Containment Protocol</i>	June 2010
<i>Colorado Watercraft Inspection and Education Handbook</i>	February 2009

Information and Outreach

Beginning in 2008, the CDOW, Parks and partner agencies developed a comprehensive, multi-faceted, public-education campaign to inform boaters and anglers about zebra and quagga mussels and how to prevent the further spread of these harmful species and other ANS in Colorado's waterways.

Over the last three years, the cooperative effort utilized a variety of mediums, including billboards, boat ramp signage, ANS brochures, agency Web pages, and staffing tradeshow and expo booths to convey this message. Accomplishments include distribution of tens of thousands of printed rack cards, brochures, handouts, DVDs, posters and signs at offices, boat ramps and water-access points. In addition, they have implemented an aggressive media relations campaign, using press releases and conducting Web-based, radio, print and television interviews. Division staff hosted numerous outreach seminars to boating and angling groups, marine dealers, HOAs, watershed groups, basin roundtables, ditch companies, municipal water managers and providers.

CDOW developed and published the *Aquatic Nuisance Species Pocket Guide* in partnership with the Colorado Department of Agriculture. This booklet combines all four prohibited species lists (in three state agencies) into a single book that instructs the reader how to report the species if they were to find it. It was revised into a second edition in 2012.

In 2013, the priority for education and information will focus on the nursery and pet industry with the goal of reducing invasive species being sold in Colorado, to reduce the risk those invaders will escape or be dumped into native ecosystems or wildlands.

State Fish Hatchery Program

To date, no mussels have been identified in any Colorado hatchery, including the hatchery at Pueblo Reservoir. However, proactive measures have been put in place statewide to protect hatcheries and state waters from an invasive species introduction. Those measures include Annual Fish Health Inspections, HACCP, Trainings and Workshops. All hatcheries are monitored regularly for a mussel or other ANS introduction.

Statewide preventative measures also include implementation of standardized disinfection protocols for wild spawn, fish transfers and egg transfers. Through a contract with the Bureau of Reclamation, the CDOW explored methodologies for disinfection for fish being transported from Pueblo Fish Hatchery. In addition, specialized trailer units have been constructed for all wild fish spawning operations to ensure no ANS are transported. Biologists are certified inspectors and decontaminators. They have decontamination units, which clean boats and equipment in between each use.

Research

The state is funding or participating in research projects related to zebra and quagga mussel management. There is only one current project underway:

- A boater choice model and risk assessment for the movement of zebra or quagga mussels in Colorado. Colorado State University. Anticipated completion July 2013.
- Economic Analysis of Invasive Species in Colorado; Focus on Noxious Weeds. Colorado State University. Phase I anticipated completion July 2013.

Completed projects include the following:

- A risk assessment of recreational boating traffic and aquatic nuisance species (*Dreissena* mussel) invasion to lakes, rivers and reservoirs of the Western United States. Western Regional Panel and University of California Davis. March 2011.
- Potential Zebra and Quagga Mussel Control Studies: Focus on Boat Decontamination of Interior Compartments. Colorado State University. May 2011.
- A Cost-Benefit Analysis of Prevention Management for Zebra and Quagga Mussels in the Colorado Big-Thompson Project. Colorado State University. July 2010.
- Statewide Risk Analysis and Modeling of *Dreissena* Mussels. University of Toledo. September 2010.
- Colorado State Parks Risk Analysis and Modeling of *Dreissena* Mussels. University of Toledo. September 2010.
- Assessment of Quagga Mussel Veliger Treatments for Pueblo State Fish Hatchery Transport. Reclamation. October 2010.

Other ANS of Concern

Rusty Crayfish

Rusty crayfish is an invasive species that was first discovered in 2009 in a main-stem impoundment of the Yampa River and at two river locations between Stagecoach Reservoir and Steamboat Springs. The CDOW conducted extensive surveys statewide and detected a population in Sanchez Reservoir State Wildlife Area in 2010 and Stagecoach State Park in 2011. All populations were controlled by CPW in 2012 through manual removal of adult crayfish to reduce the reproducing population in the reservoirs and limit impacts to native communities and reservoir users.



The Director issued an Emergency Administrative Restriction: Crayfish Collection Closure for Sanchez Reservoir, which restricts the taking of a live crayfish from Sanchez. CPW implemented regulations passed by the Wildlife Commission in November 2010, in an effort to stop the spread of ANS and diseases. Those regulations included substantive changes to further prohibit the transport and use of live baitfish, which now must be used in the same body of water from which they were taken, except for those fish captured within the Lower Arkansas River Basin (below Pueblo), which may be transported and used in other counties within that area. In addition, all crayfish caught west of the Continental Divide must now be immediately killed and taken into possession, or immediately returned to the water from which they were taken. There are no crayfish native to the west slope. The same restriction applies to Sanchez Reservoir on the East Slope due to the invasive rusty crayfish found there in 2010.

Rusty crayfish are native to the Ohio River Basin and have expanded their native range to include several U.S. states and Ontario, Canada. They colonize lakes, rivers, and streams throughout North America. They are more aggressive than native crayfish, better able to avoid fish predation, and can harm native fish populations by eating

their eggs and young. They can displace native crayfish and hybridize with them. They graze on and eliminate aquatic plant populations that provide necessary habitat and food source for native fish and waterfowl.

New Zealand Mudsnail

New Zealand Mudsnail was discovered in one new location in 2012: Spinney Mountain Reservoir State Park, similar to the previous year's detection in neighboring Eleven Mile Reservoir State Park. In 2011, they were also found in East Delaney Buttes State Wildlife Area and College Lake, CSU, Fort Collins. In 2010, they were discovered at the nearby South Delaney Buttes State Wildlife Area, and two sites within the City of Boulder along Dry Creek. The invasive snail was first found in Colorado in 2004 in Boulder Creek, the South Platte River below Eleven Mile dam and the Green River in Dinosaur National Monument. There were no detections from 2005-2009.



New Zealand Mudsnail

All known populations were mapped in 2012 and long term monitoring processes were put into place for future impact analysis. There is no viable method for control of these very small, asexual animals. CPW placed a strong emphasis on angler education in the past year providing wader brushes and instructional rack cards to anglers via Wildlife Manager and Park Staff contacts. The only way to stop the spread of these tiny invaders is through educating anglers to clean their waders in between each and every use!

Aquatic Weed Coordination

CPW has been the lead agency on aquatic weed mapping and education, in close partnership with the Colorado Department of Agriculture's Noxious Weed Program. There are a few distinct aquatic weed efforts led by CPW, which is summarized below.

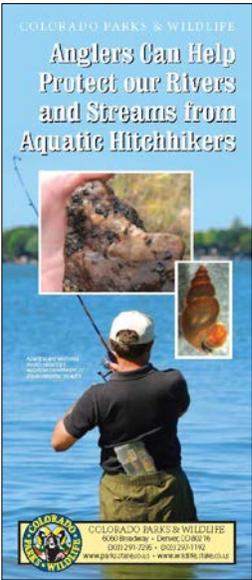
Eurasian watermilfoil (EWM)



An EWM weed mat

The ANS program has coordinated EWM management since 2005. A detailed Geographic Information System (GIS) database of EWM locations and control efforts was developed and is maintained by CPW and was updated in 2012 following the detailed mapping of two infested reservoirs and all known populations in flowing water systems.

CPW is actively controlling EWM with herbicide treatments at Lathrop State Park, St. Vrain State Park, and Chatfield State Park.



Purple Loosestrife

Beginning in 1993, the CDOW has been the lead coordinator on the Denver metro purple loosestrife management effort. The goal of the program is to make sure that purple loosestrife is controlled to protect waterfowl habitat and maintain in-stream flow. Approximately 31 cities and counties, public agencies, private landowners and private entities are involved. For example, Parks aggressively controlled purple loosestrife at Cherry Creek with spraying and hand pulling small plants and seed head cutting on larger plants and continues to shrink the population there. The CPW and CDA share the responsibilities for the continuance of this program.



Purple Loosestrife

Clean Water Act – National Pollution Discharge Elimination System (NPDES) Permit:

Colorado Parks and Wildlife manage invasive species, noxious weeds, aquatic nuisance species and pests statewide, some of which require applications of aquatic herbicides, pesticides or aerial sprays of forest pests. This includes but is not limited to the following species: Eurasian watermilfoil, purple loosestrife, tamarisk, mountain pine beetle and mosquitoes. Locations where treatments may occur are State Parks, State Wildlife Areas, State Fish Units (hatcheries) or Administrative Areas (offices).

The 6th Circuit Court of Appeals changing the definition of “point source pollutants” in the Clean Water Act (CWA) to now include pesticide applications (including herbicides) under the NPDES permit program. The new state and federal NPDES permits now cover CPW pesticide applications, including herbicide applications. Compliance with these permit requirements are now necessary to continue legal pesticide applications.

It is the intent of Colorado Parks and Wildlife (CPW) to comply with NPDES. Given the magnitude of the agency and the lands or waters managed by CPW throughout the state (approximately 1,515,000 land acres and 313,733 surface acres of water) this management plan does not address site-specific applications and treatments. This plan includes all aquatic and forest pests currently found in Colorado. However, there is not sufficient mapping on properties to know if these species are or are not located on CPW properties, and if so, the treatment will be at the discretion of local field operations staff based on state laws and resources available for treatment. The specifics of individual pesticide applications on CPW properties are stored on field data sheets. Applicators and/or decision makers enter the field data into a Pesticide / Herbicide Application Database on the internal shared CPW intranet.

CPW intends to file this plan along with the Certificate of Compliance with the Colorado Department of Public Health and Environment (CDPHE) state permit on June 30, 2013 for all applications performed between November 4, 2011 and July 1, 2013. For applications on CPW properties, CPW is always the decision maker, funder and sometimes the applicator regardless of property ownership.

CPW does not intend to file with the U.S. Environmental Protection Agency (EPA) for federal land applications that are under a management agreement with CPW. The reason for this is that in those cases, CPW is the decision maker, funder and sometimes the applicator. In the event that those federal agency property owners, with whom CPW has management agreements, provide direction to CPW that we should be filing a Notice of Intent with the EPA, the CPW Pesticide / Herbicide Application Database can be queried to provide application records between October 31, 2011 and July 1, 2013.

Regional Participation

CPW is involved in several regional efforts to stop the spread of zebra and quagga mussels and other ANS, including:

- Chair of the Western Regional Panel (WRP) on ANS
- Secretary for the Western Invasive Species Coordinating Effort
- Member of the Western Association of Fish and Wildlife Agencies (WAFWA) Invasive Species Committee
- Member of the Association of Fish and Wildlife Agencies (AFWA) Invasive Species Committee

Operating and Financial Statement

Senate Bill 08-226 created the Division of Wildlife Aquatic Nuisance Species fund within the state treasury and authorized a funding of \$3,917,244 in FY 08-09 towards the prevention, containment and eradication of aquatic nuisance species in state waters. This funding was a mix of \$1,250,000 wildlife cash combined with \$2,667,244 of funding from the operational account of the severance tax (Tier II). SB 08-226 appropriated \$1,304,544 of severance tax funding for the state fiscal year commencing July 1, 2009 and for every state fiscal year thereafter.

Figures reported here are for boating seasons that are based on a calendar year of January through December. The CDOW did not receive appropriated funding prior to July 1, 2008, so expenditures made for the 2008 Boating Season, prior to July 1, 2008 were paid for out of wildlife cash. Permanent CDOW staff time spent on aquatic nuisance species work is paid for with wildlife cash, including the Invasive Species Coordinator.

CDOW Boating Season 2008	\$433,000.69
CDOW Boating Season 2009	\$2,233,423.91
CDOW Boating Season 2010	\$1,861,615.57
CDOW Boating Season 2011	\$ 2,002,344.20
CDOW Boating Season 2012	\$2,248,634.46

Wildlife has leveraged SB08-226 funds with federal and local grants in order to maintain the ANS Program at its current level and provide the services Coloradan's have come to expect. For the 2012 boating season, \$1,373,375.68 was funded with a federal Motorboat Colorado grant, and \$271,660.24 was funded through severance tax appropriated by SB08-226 with remaining funds coming in from partners or local grants. Over the last four years, the CDOW leveraged current funding by forming partnerships with a variety of entities. The following table details the sources of Wildlife's partnership funds.

Partner Agency	Summary of 2012 Wildlife Partner Contributions
Colorado Springs Utilities	\$8,314.26
Denver Water	\$91,316.10
Larimer County	\$194,755.00*
US Army Corp of Engineers	\$4,000.00
US Forest Service	\$310,029.45
US National Park Service	\$427,304.00*
Total:	\$1,035,718.81

**Figures represent contributions spent by partners directly on jointly implemented boat inspection programs with Wildlife, and not funds coming into Wildlife or being spent by Wildlife.*

Parks was also funded through Senate Bill 08-226 created the Colorado State Parks Aquatic Nuisance Species fund within the state treasury and authorized funding from Severance Tax (Tier II). FY 08-09 was funded at \$3,289,392. For FY 09 and beyond is funded at \$2,701,461. In 2011, Parks ANS funding was reduced by \$400,000 to \$2,301,461. SB 08-226 authorized seven ANS FTE in Parks. In 2011, two of these FTE were eliminated and in 2012, one more of these FTE were eliminated. Only four FTE remain active today.

Parks ANS - Fiscal Year	Total Expenditures
08-09	\$1,788,654
09-10	\$2,221,494
10-11	\$2,985,000
11-12	\$2,429,000
12-13 (July 1 – December 31, 2012)	\$ 995,384

Two partners have contributed to the ANS effort in Parks in 2012.

Partner Agency	Summary of Partnership Funds
Denver Water (Eleven Mile State Park)	\$100,000
Army Corps of Engineers (John Martin S.P.)	Provide ACOE ANS Inspectors

CPW is planning to retain budget carryover between fiscal years because the boating season and some projects span two fiscal years. Federal contributions and grants are not as plentiful as they were in former years. CPW has contingency plans to respond to new zebra or quagga mussel detections in new waters during the middle of a boating season. The cost of operations at a major recreational water body following infestation could double in order to implement containment measures. The future risk of infestation could moderate if more monitoring is conducted and other agencies within Colorado and surrounding states put in place programs to prevent the spread of zebra and quagga mussels.

