US Army Corps of Engineers®

Stewardship news

Volume 4, Issue 4: December 2021

YOUR Thoughts

We are looking for contributors and ideas .

✖ If you have a topic, success story, lesson learned, or helpful suggestion—let us know.

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Your Stewardship HQ Update

The HQ NRM Team wishes everyone a safe and happy holiday season. We hope that you are able to enjoy this time to relax and celebrate with friends and family. As we look forward to the many opportunities in the new year, THANK YOU for all of your tireless work to advance the stewardship of our public lands and waters.

HAPPENING BEFORE THE NEXT NEWSLETTER!

Don't forget National Invasive Species Awareness Week will be held Feb. 28, 2022 through Mar. 4, 2022. For more information, please visit www.nisaw.org!

31 Years of Bird Monitoring at Albuquerque District's John Martin Reservoir

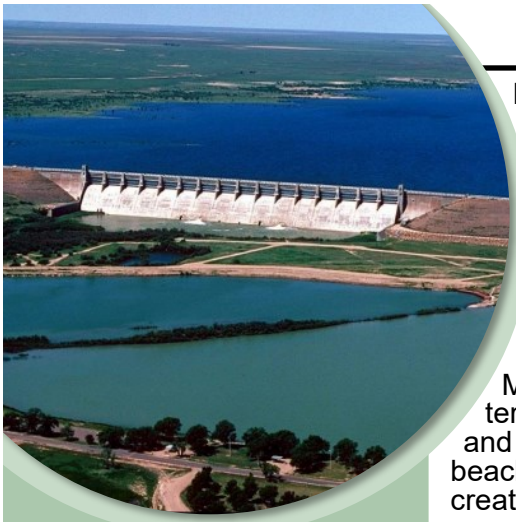
Article provided by Dr. Sara Harrod, Natural Resources Specialist, John Martin Reservoir

A multi-agency threatened and endangered species monitoring program at John Martin Reservoir has completed its 31st year. Located in southeastern Colorado, John Martin Reservoir is a popular area for locals and visitors alike. Known as "The Sapphire on the Plains," the reservoir boasts excellent fishing, boating, and wildlife viewing opportunities, as well as hiking trails, camping, and RV hookups.

One of the things that makes John Martin special is that the reservoir is home to nesting populations of federally threatened Piping Plovers (*Charadrius melodus*) and state endangered Interior Least Terns (*Sterna antillarum athalassos*). Plovers were listed as federally threatened under the Endangered Species Act in 1986. Terns were listed as federally endangered in 1985 and delisted in 2021. The tern species has recovered enough across its range to no longer be considered in danger of extinction, however, they are still listed as endangered in the state of Colorado. John Martin has been managing for and monitoring both of these bird species since 1990.

However, they are still listed as endangered by the state of Colorado.

Photos: A Piping Plover and Interior Least Tern at John Martin Reservoir. Each



John Martin Reservoir

Construction of the John Martin Dam and Reservoir began in August 1940, but work was suspended in the spring of 1943 due to World War II. Construction resumed in the spring of 1946 and the project was completed in October 1948. The project was originally named the Caddoa Dam and Reservoir, Public Law 76-667 changed the name to honor the late Congressmen from Colorado, John A. Martin. The project is located about 3.5 hours from Denver and 2 hours from Colorado Springs.

The dam was built for the purposes of flood control and irrigation. It was later authorized to establish a permanent conservation pool for recreation and fish and wildlife.

The project encompasses 10,650 acres of land and 11,484 acres of surface water.

John Martin Reservoir Continued

Plovers and terns are migratory species. They come to John Martin in the spring and summer months to breed. Plovers typically arrive in late April and terns arrive mid- to late-May. Both species stay to raise their chicks until mid- to late-August and then head south to their wintering grounds.

Threats to Terns and Plovers

Like many visitors to John Martin, both plovers and terns flock to the gravelly and pebbly shorelines and beaches of the reservoir. This creates the potential for human-wildlife conflict. Because eggs and chicks are well-camouflaged, they can be unknowingly stepped on by visitors. Off-leash dogs also pose a threat as they often chase adults, trample nests, and kill chicks. This creates a unique challenge for John Martin because staff wants the public to enjoy the area, while also striving to protect these imperiled birds.

Photo: Invasive tamarisk can quickly takeover prime plover and tern breeding habitat. Tamarisk also reduces the amount of shoreline available for recreationists to enjoy.

Another threat to plovers and terns is habitat loss from the invasion of the brush Tamarisk (*Tamarix* spp.). Tamarisk plants grow to the size of a small tree and spread rapidly, infesting the shoreline and rendering previously prime habitat unsuitable for plovers, terns, and people. Tamarisk thickets also allow nest predators, such as coyotes, foxes, skunks, and snakes, to hide more easily and attack vulnerable plover and tern nests.

Photo Left: *A permitted USGS biologist prepares a newly banded plover for release. Banding does not harm the birds and provides critical data about individual survival.* ***Photo Right:*** *An adult plover watches over its 2 chicks and 2 eggs. Eggs and chicks blend in with their environment and can easily be crushed by people and dogs.*

Program History and Management Efforts

Because of these threats, and the fact that John Martin is one of the few places in Colorado where these birds breed, a collaborative management program between the US Army Corps of Engineers (USACE), Colorado Parks and Wildlife (CPW), the US Geological Survey (USGS), and the US Fish and Wildlife Service (USFWS) began in 1990. With permits from USFWS, Rangers from USACE and CPW work together to protect and monitor nesting birds. Rangers may close nesting areas to the public, as needed, and collect information such as the number of eggs laid, chicks hatched, and nests attempted. USGS biologists band adults and chicks with unique tags, which allows for estimates of survival, recruitment of juveniles into the breeding population, and overall population size.

John Martin Reservoir Continued

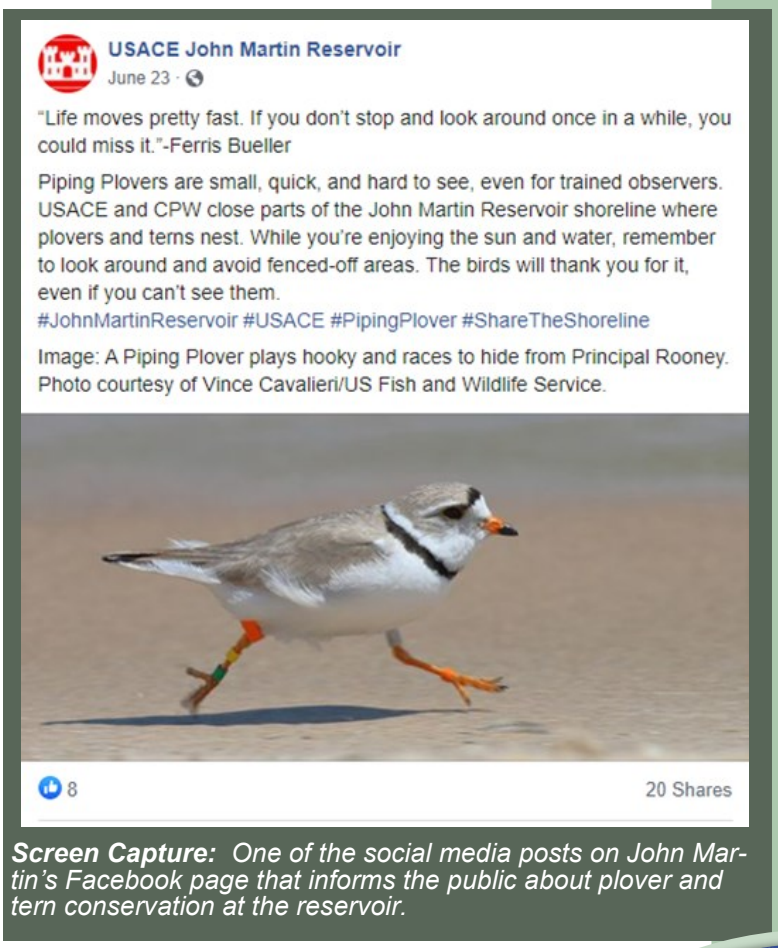
Long-term nesting and survival data are used to determine future management strategies and how to best support John Martin's populations.

In addition to this fieldwork, USACE is ramping up its public outreach efforts to increase awareness about the plight of these birds. John Martin's USACE website has been updated with a page dedicated to information about the birds and related shoreline closures. John Martin's social media presence has increased via multiple Facebook posts highlighting the monitoring program and providing information about the latest happenings with the birds. Additionally, project staff developed new educational materials including the first in a series of annual newsletters. Lastly, Rangers provide virtual and in-person educational talks to interested groups.

2021 Nesting Season Update

The majority of nests found in 2021 were plover nests (78%). Of these, 57% were successful or probably successful, meaning the eggs hatched. Unfortunately, 75% of the known tern nests failed and the remaining 25% of nest outcomes are unknown. It is difficult to know why a nest failed, however it is suspected predators were the cause of several failures.

Two terns and 15 previously banded plovers returned to breed at John Martin. Of the returning plovers, three (John, Andrew, and Martin) were born at the project and banded as juveniles in 2017, 2018, and 2019, respectively. They have since returned "home" every year to nest. Other familiar faces included plovers Amity (banded in 2018) and Sly (banded in 2017), and tern Gigi (banded in 2017). Each of these birds nested this year. Four previously banded birds returned to the reservoir, but did not nest. Plovers Andrew and Amity reared 4 chicks in 2020 and paired up again this year, but their nests failed. USGS biologists banded 2 new adult plovers and 1 new adult tern, as well as 10 plover chicks.



Screen Capture: *One of the social media posts on John Martin's Facebook page that informs the public about plover and tern conservation at the reservoir.*

Looking Ahead

In anticipation of the 2022 nesting season, USACE and its partners are working to improve habitat along the shoreline by removing invasive tamarisk. In addition to restoring important breeding habitat, tamarisk removal can help decrease depredation from nest predators and will also open more recreation areas for visitors. Because of the potential for regrowth of tamarisk, areas cleared of tamarisk will be monitored and maintained in the coming years. Rangers will continue to pursue outreach and education opportunities to increase public awareness of local conservation issues and provide avenues through which the public can participate.

Both managing habitat and communicating with the public are critical to protecting John Martin's plover and tern populations. As management efforts continue, more nesting habitat is restored, and community engagement increases, USACE and its partners hope to see an increase in nesting success. Protecting these imperiled species has been and continues to be a major focus for project staff.

The fishery at John Martin Reservoir is one of the most important in the lower Arkansas Valley. Its importance has increased as other large reservoirs have been lost due to continued drought conditions.

The reservoir provides habitat for an abundance of fish species, with fishing opportunities for both boaters and bank anglers alike. Stocked species include black crappie, blue catfish, channel catfish, flathead catfish, largemouth bass, sauger, saugeye, smallmouth bass, walleye, and wiper. Native species include black bullhead, channel catfish, fathead minnow, green sunfish, orange spotted sunfish, plains killifish, red shiner and white sucker.

Incase You Missed It...

The Civil Works Land Data Migration

The CWLDM data set represents the real property boundaries for USACE CW managed properties and is now close to 90% complete. HQUSACE held an Operations Security (OPSEC) review and determined there was little risk and no compelling reason to withhold the data set from the public domain. USACE is now in the process of developing the metadata and posting it to the USACE Open Data site. The public CWLDM will not have names associated with outgrants and will have the following disclaimer, "*The US Army Corps of Engineers has depicted this spatial data as a representation of the various geographic information gathered from multiple sources. This data should be viewed only as a representation of the data and should not be used for any other purpose. No guarantee is made by the US Army Corps of Engineers regarding the accuracy or completeness of the data or their suitability for a particular use*."

Open Data: https://geospatial-usace.opendata.arcgis.com/maps/0cbf46dd4dfd4283b83b799188e392f7/about

Public Feature Service: https://ags03.sec.usace.army.mil/server/rest/services/Hosted/Civil_Works_Land_Data_Migration/FeatureServer

Public Map Service: https://ags03.sec.usace.army.mil/server/rest/services/Civil_Works_Land_Data_Migration/MapServer

Photo Above: Mark Twain Lake cubes—March 2021

Mark Twain Lake Fish Habitat Project: 2020 Friends of Reservoirs Grant

Clarence Cannon Dam and Mark Twain Lake has collaborated with the Mark Twain Lake Friends of Recreation and Environmental Stewardship (FOREST) Council, the Missouri Department of Conservation, and regional angling enthusiast to develop and execute a comprehensive five-year management plan to create durable fisheries habitat and shoreline fishing opportunities. What started as a simple conversation among partners about the lack of available underwater structure in the lake evolved into a sustainable initiative supported numerous community groups and volunteers.

Beginning in May 2020, coordination and planning began to determine locations at the lake for the placement of the MTL Cubes to improve fisheries habitat, while also creating shoreline fishing opportunities via Spider Block beds. Corps Natural Resource team members, MDC Fisheries Biologist, and community anglers identified five locations to implement management. Three-Fingers Cove was chosen as the first to be developed.

Material purchase and preparation began in February of 2020. Funding permitted the purchase of materials to build 90 MTL Cubes and 150 Spider Blocks. The MTL cubes are 4'x4'x5' structures constructed from PVC pipe with interwoven drain tile pipe. The Spider Blocks are two-cell concrete blocks with poly-pipe installed to mimic shallow water vegetation.

On March 20, 26 volunteers and Corps team members met to construct the MTL Cubes. Using an assembly line setup, the group was able to convert the raw materials into 90 structures by lunch.

(Article continued on page 5.)

March 2021—Fish Structure Assembly Crew. Assembly of the base. Riser Assembly. Matrix Installation.

Mark Twain Lake Continued

Once the structures were built the next, and perhaps biggest, challenge was transporting the cubes and the spider blocks to the management location. The size, weight, and configuration of the cubes limited the number that could be transported per trailer. Again, volunteers answered the call. On May 7, 30 volunteers with 15 truck/trailer combos met to load the cubes, and transport the cubes from the assembly area located on the east side of the lake to the management area located in the central portion of the lake.

The culmination of the project occurred on May 8 when 24 volunteers and 12 boats assembled to load, transport and place the structures at identified locations in the Three-Fingers Cove Area. Each habitat site was marked with GPS coordinates, and subsequently published on the Mark Twain Lake Facebook page.

The contributions and involvement of the Mark Twain Lake FOREST Council, area angling enthusiasts, and the Missouri Department of Conservation made it possible to develop this resource which will yield beneficial fisheries habitat and offer a quality recreational opportunity to the visiting public.

Incase You Missed It...

October 01, 2021 Master Plan Exemption Process Memo

Per ER 1130-2-550, Chapter 3, Master Plans and Operational Management Plans, MSC Commanders may exempt a USACE CW Project from having a Master Plan. This memorandum lays out the evaluation criteria that should be examined prior to an exemption approval.

https://corpslakes.erdc.dren.mil/employees/cecwon/pdfs/21Sep27-MasterPlanExemptionProcess.pdf

Volunteer Contribution

Material Preparation: 154 hours valued at $4,395.16

Structure Assembly: 108 hours valued at $3,082.32

Structure Transport: 60 hours valued at $1,712.40

Habitat Placement: 80 hours valued at $2,283.00

Total— 402 Hours, $11,473.08

Photos (Left to Right, Top to Bottom): Transporting the structures. Cubes staged at boat ramp. USACE vessel loaded with spider blocks. Missouri Department of Conservation placing structures.

The next round of fisheries habitat development at Mark Twain Lake was scheduled for October 2021. 60 MTL Cubes and 120 Spider Blocks were planned for construction and placement at Corn Picker Point.

Clarence Cannon Dam and Mark Twain Lake

The construction of the Joanna Dam and Lake (later changed to Clarence Cannon Dam and Mark Twain Lake) was authorized in 1962 with work beginning in 1966. The project was completed in August 1984 and is located in on the Salt River in Northeast Missouri, approximately 63 miles upstream from its confluence with the Mississippi River. The project encompasses over 54,000 acres of land and water with 13 recreation areas managed by USACE and two recreation areas that are leased to the Missouri Department of Natural Resources. For more on the history of Mark Twain Lake, visit https://www.youtube.com/watch?v=pCN44pYiFec.

USACE Omaha District Enters Handshake Partnership Agreement to Use Goat Grazing to Control Eastern Red Cedar Trees at Fort Randall

Article written by Nyime Gilchrist (USACE, Omaha District Public Affairs Office)

NRM POC: Kelsey Kniffen, Fort Randall Project Office; Zach Montreuil, Omaha District, Operations Division

As stewards of almost 400,000 acres of public lands, Omaha District welcomes opportunities to work with local organizations and communities who share common goals and interests in conserving public resources. The Omaha District Fort Randall Project in South Dakota recently entered in a handshake partnership agreement with South Dakota State University, the Mid-Missouri River Prescribed Burn Association, South Dakota Game Fish and Parks Wildlife Division, Charles Mix County 4-H, and Gregory County 4-H with the purpose of completing targeted goat-grazing studies on eastern red cedar trees.

Photo Right: South Dakota State University volunteer, students and staff, measure and tag cedar trees for targeted goat-grazing studies on eastern red cedar trees at the U.S. Army Corps of Engineers, Omaha District's Fort Randall Project near Pickstown, South Dakota, June 10.

Cedar trees are native to the region and provide ecological value. There are many benefits of allowing cedars to grow on the lake shore and surrounding USACE properties, including wildlife shelters and nesting cover for migrating birds. In addition, cedars tend to grow well where other species do not, providing a root system to hold soil. Eastern red cedar trees have been deemed an invasive species for a several reasons. The trees have dense canopies that prevent precipitation and sunlight from reaching the grass and other vegetation below, causing them to die off. Due to a variety of oils within the tree, they can be quick to ignite in dry conditions. A burning red-cedar tree can spread thousands of embers downwind, increasing the rate of a wildfire's spread.

The program will allow the agencies to share resources to conduct a study and develop a proactive approach to manage eastern red cedar trees by using targeted goat-grazing at the Fort Randall Project. Targeted grazing focuses a group of animals, in this case, goats, on a specific area to manage a designated plant species. Partners are contributing livestock, fencing, supplies, the coordination of field days, workshops, site preparation and follow-up visits, outreach, data collection and analysis, grazing activities, and observations. For this study, grazing activities will occur each of the four season in three different grazing plots at the Fort Randall Project.

"This partnership at Fort Randall, will help us continue to accomplish mission objectives, protect wildlife, improve habitats, and protect the environment while enhancing our ability to outreach to the public," said Zach Montreuil, natural resources specialist, USACE, Omaha District.

The first phase of the grazing trials started in June of 2021. Grazing activities will be conducted early, mid, and late summer. "During the first grazing application in June, a group of 100 goats grazed a little more than one-eighth of an acre in a 24 hour period, targeting the eastern red cedars present. This was repeated for four consecutive days, helping us to determine the effectiveness of the goats," said Kelsey M. Kniffen, park ranger, USACE, Omaha District Fort Randall Project Office. Over the length of the study, a total of six grazing applications will be completed.

Through environmental planning, USACE works with other federal and state agencies, non-governmental organizations, and academic institutions to find innovative solutions to challenges that affect everyone – sustainability, climate change, endangered species, ecosystem restoration and more.
The Omaha District works to restore degraded ecosystem structure, function, and dynamic processes to a more natural condition through large-scale ecosystem restoration projects throughout the Missouri River watershed. This is achieved via system-wide watershed approaches to problem solving and management for smaller ecosystem restoration projects. Additionally, the USACE regulatory program works to ensure no net loss of wetlands while issuing construction permits.

Photo Above: Goats grazing cedar trees for targeted grazing studies on eastern red cedar trees at the U.S. Army Corps of Engineers Omaha District's Fort Randall Project near Pickstown, South Dakota, June 18

S3 for Environmental Stewardship

POC Mike Vissichelli, Michael.G.Vissichelli@usace.army.mil.

As many are aware, the annual USACE budget development process continues to evolve. Over the past several years the O&M 20/20 effort (the 20/20 is a reference to vision, not the year it was supposed to be done!) introduced us to a more streamlined way of organizing and prioritizing work. Since O&M 20/20 began, several tools have been developed to help better analyze and develop our annual budget requests. The next phase of O&M 20/20 is known as S3, or Similar Costs for Similar Activities at Similar Projects. A Project Delivery Team (PDT) of experienced ENS program managers initially convened a year ago to examine how projects with similar activities should have similar costs. The end game of the S3 effort will result in a cost range to conduct particular activities. This will allow business line managers to "ground truth" budget packages and help drive consistency across the ENS program for certain work. Identifying what those cost ranges should be for the ENS program has been nothing short of challenging!

To start the S3 process, the team had to first identify what the similar activities are that we perform at projects with an ENS mission. Ultimately, the team settled on eight activities that align very closely with ENS work category codes used to track budget development and execution. These include: (1) plans, (2) habitat management, (3) legally required work, (4) boundary, (5) historic and cultural resources, (6) environmental compliance, (7) shoreline management, and (7) real estate management. To determine these activities, the PDT conducted a thorough review of past budget submissions as well as budget guidance. These activities were peer reviewed and validated by the Stewardship Advisory Team (SAT).

The next step for the PDT was to identify "Similar Projects". With the support of IWR, ERDC, and a private consultant, various techniques and statistical analyses were performed using several metrics to identify groupings of similar projects. This process determined that the work we do in the oversight and management of the ENS program is related to three primary drivers:

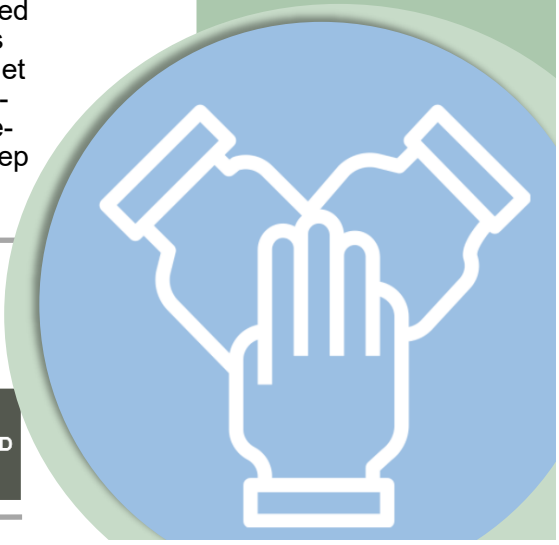
- Size – The size of the project has a direct correlation in the oversight and management roles projects are responsible for (i.e., the more you have, the more that needs to be managed).
- Stressors – Stressors are those things that cause an impact to projects that require our management (i.e., unresolved encroachments and docks).
- Protection – Things which are proactively managed for because of stewardship responsibilities as federal landowners (i.e., management for the protection of special status species and cultural resources).

The results of the analyses yielded three overall groupings of high, medium, and low (with several subcategories) to categorized projects in the ENS program based on the amount of each activity we are responsible for at each project. As with similar activities, the process to determine similar project groupings was peer reviewed and validated by the SAT.

Currently, the team is working on "Similar Costs". As expected, this is the most challenging aspect of the S3 effort. Thorough analyses are being conducted by the team, support staff, and contractors on historic budget requests and budget execution. The goal of determining similar costs requires identifying levels of effort that are required to perform work activities and applying regional cost factors to those levels of effort so that they are comparable across the nation. For the FY24 budget development process, changes have been proposed for the purpose of advancing this phase of the S3 effort. It is expected that development and refinement of costs for the ENS S3 effort will take several years. At each step of the process, the team will continue to involve experts from the field, district, and division as well as the SAT to validate procedures and findings.

ENS S3 and YOU!

What does this all mean for you? Data quality is a key factor field projects help control. Much of the work being performed to develop S3 for ENS is reliant upon having quality data. Initial reviews of data have highlighted bad data, missing data, and data that the PDT cannot validate or reconcile as accurate. It is essential that our NRM staff take the time necessary to ensure that the costs of every budget package can be explained (i.e. marking one mile of boundary line should not cost $223K!) and that NRM Assessment data is verified as being true and accurate. Inaccurate and/or missing data just might put projects in the wrong groupings which can impact future funding. While the PDT is working hard to prevent this from happening, your help is needed to ensure data accuracy!



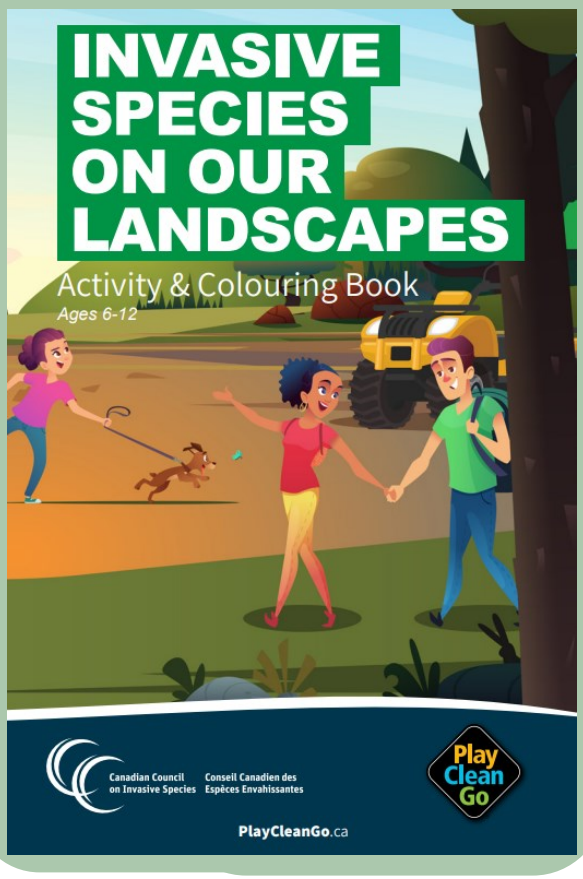
Some Interesting Reading & Viewing

Recorded Webinars

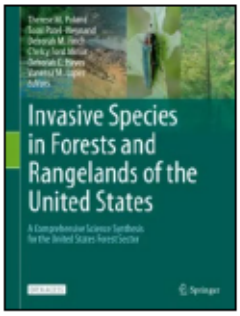
U.S. Fish and Wildlife Service's Forests for the Birds: Conserving America's Forest Birds Webinar Series.

This 12 part monthly lecture series discusses forest bird population declines, partnership opportunities, and forest management actions that can support bird population recovery and sustainability.

https://training.fws.gov/topic/online-training/webinars/forest-for-the-birds-webinar-



1 ***Invasive Species in Forest and Rangelands of the US.*** The US Forest Service's just-published comprehensive 455 page book on invasive species is open source and free to download. https://www.fs.usda.gov/treesearch/pubs/61982



2 ***Invasives in Our National Parks: How Tourists Can Help Stop the Spread of Invasive Species.*** Marci, A. E. (2021). (Graduate Thesis).

Abstract: Invasive species are a major issue around the world and more specifically in our U.S. National Parks. Ranging from plants to insects to animals, invasive species are a greater threat than many may imagine. This project serves as a way for people to start a conversation around invasive species and to work to decrease the spread, thereby allowing the NPS to manage invasive species currently in the parks more efficiently without having to worry about new invasive species entering or additional invasive species proliferating amount. The expected outcome of this research project is to decrease the spread of invasive species by creating awareness around the issue for tourists while simultaneously sparking a conversation around this issue of invasive species in the national parks. This process will hopefully encourage tourists to get more involved in national parks, start a conversation around invasive species, minimize the spread, and hopefully decrease the amount of money needed to remove the invasive species, since tourists will be working together to discourage the spread. https://digitalcommons.liberty.edu/masters/775/

3 ***Invasive Species MOU.*** Wildlife Forever and Major League Fishing (MLF) announced that the two organizations have signed an important Memorandum of Understanding (MOU) to combat the spread of invasive species. The new MOU will work to integrate Clean Drain Dry communications and marketing through tournament operations, angler education, and community outreach. Professional anglers are ambassadors for the fishing industry but also key conservationists in working to protect the sport.

4 ***Emerald Ash Borer.*** "The invasive emerald ash borer has destroyed millions of trees—scientists aim to control it with tiny parasitic wasps". Article published in *The Conversation*.

Click here to access article!

5 ***Invasive Species Activity Books.*** The Canadian Council on Invasive Species (CCIS) is proud to have partnered with the Invasive Species Council of British Columbia, a CCIS Chapter, to create two activity books launched in the Fall of 2021. The aim of the books is to engage and educate youth on preventing the spread of invasive species in their communities.

Click here to access article!

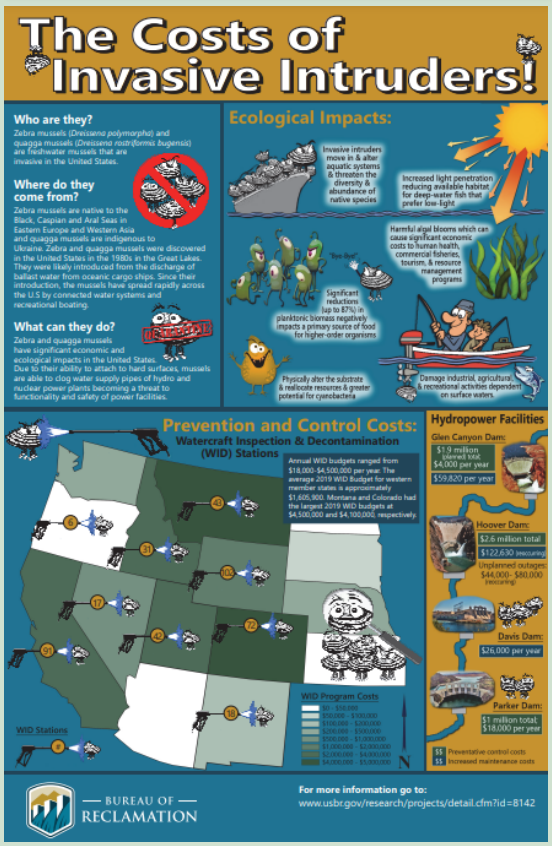
These activity books promote actions related to preventing invasive species on landscapes and in waterways, and are the most recent resource additions to the CCIS's PlayCleanGo and Clean Drain Dry take action campaigns, respectively.

https://canadainvasives.ca/wp-content/uploads/2021/10/Invasive-Species-on-Our-Landscapes-Activity-Book-1.pdf

https://canadainvasives.ca/wp-content/uploads/2021/10/CCIS-Clean-Drain-Dry-Activity-Book-English.pdf

Some Interesting Reading & Viewing

6 ***Invasive Mussels.*** The US Bureau of Reclamation recently made available a final report and infographic on the *Costs Associated with Invasive Mussels Impacts and Management*. This study explored the impacts of mussels through an evaluation of costs associated with mussel prevention strategies, ecological proxies, and costs of capital investments and operations and maintenance (O&M) expenditures to mitigate mussel-related damages at hydropower facilities. Watercraft inspection and decontamination (WID) stations are the primary strategy used to prevent the spread and introduction of dreissenid mussels throughout the West. The 2019 average annual WID budget was approximately $1,605,900. Control cost data collected through a survey from S&T Project 1876 showed that surveyed hydropower facilities experienced negative economic impacts related to control or mitigation of mussel-related damages. Facilities surveyed have spent approximately $10 million in total on preventative control measures since mussel inception. Facilities surveyed spend approximately $464,000 annually on increased maintenance. Total reoccurring maintenance costs for facilities surveyed were $650,000 per occurrence. Facilities surveyed spend approximately $88,000 in total annually on monitoring. Mussel infestation can have a variety of ecological impacts which can result in negative economic impacts. This analysis did not attempt to quantify lost ecosystem benefits, but rather it relied on existing studies to estimate a range of values for lost ecosystem or social benefits. This study provides evidence that mussels management strategies provide considerable value to the nation. This research project was funded by the Reclamation Science and Technology Program. Download/view infographic from BoR at https://data.usbr.gov/catalog/4506/item/11049. To download/view the report visit https://data.usbr.gov/catalog/4506/item/11035.



Upcoming Webinars

Upcoming NAISMA Monthly Webinars

NAISMA
NORTH AMERICAN INVASIVE SPECIES MANAGEMENT ASSOCIATION

December 15, 1 p.m. CT.

- Classical Biological Control of Weeds – About Misconceptions and Untapped Opportunities.
- Webinar presented by: Urs Schaffner, PhD Head Ecosystems Management, CABI.
- Register by using the following link: https://us02web.zoom.us/webinar/register/WN_t2IRbQzlS26rIOM1cdT4SA?utm_medium=email&utm_source=govdelivery

January 19, 1 p.m. CT.

- History and Effectiveness of Injurious Wildlife Listing under the Lacey Act.
- Webinar presented by: Susan Jewell Injurious Wildlife Listing Coordinator, U.S. Fish and Wildlife Service.
- Register for the webinar at: https://us02web.zoom.us/webinar/register/WN_CWioD48QTUKCGxz1rZxryw?utm_medium=email&utm_source=govdelivery

Research from ERDC

1 Comparison of Generic and Proprietary Aquatic Herbicides for Control of Invasive Vegetation; Part 3: Submersed Plants

- Report Number: ERDC/EL TR-21-7
- Link: http://dx.doi.org/10.21079/11681/42061

By: Christopher R. Mudge and Kurt D. Getsinger. Abstract: Herbicide selection is key to efficiently managing nuisance vegetation in our nation's waterways. After selecting the active ingredient, there still remains multiple proprietary and generic products to choose from. Recent small-scale research has been conducted to compare the efficacy of these herbicides against floating and emergent species. Therefore, a series of mesocosm and growth chamber trials were conducted to evaluate subsurface applications of the following herbicides against submersed plants: diquat versus coontail (Ceratophyllum demersum L.), hydrilla (Hydrilla verticillata L.f. Royle), southern naiad (Najas guadalupensis (Sprengel) Magnus), and Eurasian watermilfoil (Myriophyllum spicatum L.); flumioxazin versus coontail, hydrilla, and Eurasian watermilfoil; and triclopyr against Eurasian watermilfoil. All active ingredients were applied at concentrations commonly used to manage these species in public waters. Visually, all herbicides within a particular active ingredient performed similarly with regard to the onset and severity of injury symptoms throughout the trials. All trials, except diquat versus Eurasian watermilfoil, resulted in no differences in efficacy among the 14 proprietary and generic herbicides tested, and all herbicides provided 43%–100% control, regardless of active ingredient and trial. Under mesocosm and growth chamber conditions, the majority of the generic and proprietary herbicides evaluated against submersed plants provided similar control.

2 Efficacy of Florpyrauxifen-benzyl for Eurasian Watermilfoil Control and Nontarget Illinois Pondweed, Elodea, and Coontail Response

- Report Number: ERDC/TN APCRP-CC-24
- Link: http://dx.doi.org/10.21079/11681/42063

By Christopher R. Mudge, Bradley T. Sartain, Benjamin P. Sperry, and Kurt D. Getsinger. Purpose: This research evaluated low concentrations and short exposure times of the recently registered aquatic herbicide florpyrauxifen-benzyl (4-amino-3-chloro-6-(4-chloro-2-fluoro-3-methoxyphenyl)-5-fluoro-pyridine-2-benzyl ester) on the target plant Eurasian watermilfoil (Myriophyllum spicatum L., hereafter referred to as EWM) as well as selectivity towards the nontarget submersed species Illinois pondweed (Potamogeton illinoensis Morong), elodea (Elodea canadensis Michx.), and coontail (Ceratophyllum demersum L.)

3 Efficacy of Florpyrauxifen-benzyl on Dioecious Hydrilla and Hybrid Water Milfoil - Concentration and Exposure Time Requirements

- Report Number: ERDC/EL TR-21-8
- Link: http://dx.doi.org/10.21079/11681/42062

By: Christopher R. Mudge, Bradley T. Sartain, Kurt D. Getsinger, and Michael. D. Netherland. Abstract: This study conducted small-scale trials under various concentration and exposure time (CET) scenarios to determine florpyrauxifen-benzyl activity on dioecious hydrilla and hybrid watermilfoil and determine impact on water stargrass and elodea. Hydrilla treated with 12, 24, or 36 µg active ingredient (a.i.) florpyrauxifen-benzyl and exposed for 12, 24, or 48 hr under outdoor mesocosm conditions was reduced in biomass by 30-75% at 8 weeks after treatment (WAT). An additional hydrilla trial at the same herbicide concentrations, but under longer exposures (24, 72, or 168 hr), resulted in 33–85% plant control. Under indoor conditions, hybrid watermilfoil dry weight decreased 98–100% with subsurface applications of florpyrauxifen-benzyl under CET scenarios of 3–12 µg a.i. at 3–24 hr exposure times in a growth chamber trial. Under shorter exposure periods (0.5–4 hr) in a follow-up trial, low doses (3–9 µg a.i.) achieved 50–100% control of hybrid watermilfoil. In the same trial, the nontarget species water stargrass and elodea proved relatively tolerant to the florpyrauxifen-benzyl at doses up to 6 µg a.i. (4 hr exposure) and 9 µg a.i.(1 hr exposure). These small-scale trials demonstrate florpyrauxifen-benzyl's potential to selectively manage invasive species.

4 Chemical Management Strategies for Starry Stonewort: A Mesocosm Study

- Report Number: ERDC/EL TR-21-10
- Link: http://dx.doi.org/10.21079/11681/42040
- By: Kaytee Pokrzywinski, West Bishop, Christopher Grasso, Kaitlin Volk, and Kurt Getsinger
- Abstract: US Environmental Protection Agency (USEPA) approved algaecides and herbicides are frequently utilized to manage nuisance algae and aquatic macrophytes. However, there is limited information available on the effectiveness of these products for the management of starry stonewort. Thus, the goal of this research was to discern effective chemical control products for later growth stages of starry stonewort using mesocosm studies. Eleven treatments were evaluated using various combinations of four copper-based products, endothall, diquat, and carfentrazone – all with USEPA registrations for use in aquatic sites. Nine of the eleven treatments yielded lower dissolved oxygen concentrations and higher specific conductance when compared to the control.