



NFWF

Final Programmatic Report Narrative

1. Summary of Accomplishments

Education and outreach about the conservation of Central Iowa's wildlife, water, and soil has been the highest priority of work in this grant. As of November 2021, outreach and education efforts have included 6 field days, 6 webinars, several tabling events, social media campaigns, newsletters, media articles, flyers, photography, and direct mailers. New methods for determining areas suitable for nutrient reduction practices and implementing cost-effective habitat restoration were developed and utilized. One-on-one consultations with landowners continued throughout Story, Boone, Hamilton, Marshall, and Polk counties to explore habitat, soil, and water conservation practices. The community native seed bank continued into its third year and allowed more Iowans to directly add wildlife habitat to their land.

2. Project Activities & Outcomes

Activities

1. Utilizing a new innovative tool to prioritize and set goals for conservation practice implementation

Prairie Rivers of Iowa (PRI) used the Agricultural Conservation Planning Framework to evaluate suitable sites for conservation practices and selected priority watersheds where there were multiple opportunities for wetlands and saturated buffers.

In summer of 2019, PRI Watershed Educator Dan Haug created a spreadsheet that estimated nitrogen and phosphorus load reductions for grant reporting purposes. Percent reductions are based on the science assessment of the Iowa Nutrient Reduction Strategy and baseline rates for our area are taken from the USGS 1992 SPARROW model for the Mississippi River and Atchafalya Basin (MARB). Results of this tool can be seen in the pounds of nitrogen and phosphorus removed metrics.

Between August of 2019 and June of 2020, Watershed Coordinator, David Stein mapped potential habitat corridors that link public conservation land together via private land. Between late 2020 and mid-2021, this habitat corridor map was updated and converted into a new Habitat Mapping Tool (HMT). The HMT is able to compile several soil and ecological variables to identify land unsuitable for row crop agriculture, where habitat restoration through state and federal conservation programs could be implemented. Variables in this tool include original ecosystem cover, rare ecosystem presence, CSR2 values, flooding frequency, ponding frequency, and threatened/endangered species presence. The HMT currently covers 9 counties in Central Iowa including Boone, Dallas, Hamilton, Hardin, Jasper, Marshall, Polk, Story, and Webster.

In late 2021, a literature review was conducted to compile the carbon sequestration potential of native ecosystems. Using this data, the HMT was updated for Story County to illustrate the carbon storage potential of habitat restoration projects by parcel.

2. Direct outreach to landowners and regularly communicate with NRCS field and state offices

In 2019, we reached 1330 people. Two field days were held (1) on June 26th at the Kamrar Wildlife Area focused on long-term conservation options for wet areas. (2) The second field day was held on Saturday, September 7th, 2019, at Linda Murken's farm, currently enrolled in a pollinator CRP contract. This field day focused on the benefits that native plants have on soil health, water quality, and habitat for wildlife and pollinators. The project was featured in articles in the Ames Tribune and in Farm News. In addition, multiple press releases sent over this 3-year project. Additional outreach occurred during community events including the Boone STEM Fest, Ames Eco Fair, and Story County Fair. Two mailers were sent to 723 landowners in the project area with ACPF eligible practices on their land.

In 2020 we reached 633 people. Two more field days were held, (1) June 11th, 2020, in partnership with Iowa Learning Farms, and was focused on saturated buffers along Bear Creek in Story County. Due to the COVID-19 pandemic, this field day needed to be held virtually via Zoom. This field day was advertised via PRI and Iowa Learning Farm's social media and email newsletter platforms. The full presentation was recorded and uploaded to Iowa Learning Farms'

YouTube Channel. (2) The second field day was held on December 17th, 2020, via Zoom, and focused on habitat restoration at 3 different scales. This field day was advertised through PRI's social media channels and through the Google Ads grant program. The presentation was recorded and uploaded onto PRI's YouTube Channel. Two mailers were sent to 516 landowners in the project area with ACPF eligible practices on their land.

In 2021 we reached 1570 people. Two more field days were held (1) on June 18th, 2021, via Zoom in partnership with Heartland Co-Op and the Iowa Department of Agriculture and Land Stewardship (IDALS), and was focused on three types of wetlands that local farmers installed on their land. This field day was advertised through PRI, IDALS, and Heartland Co-Op's social media platforms. The full presentation was recorded and uploaded to PRI's YouTube Channel. (2) The last field day for this project was held on August 28th, 2021, in partnership with Story County Conservation, Monarch Joint Venture, Iowa State University Extension 4-H, and The Berry Patch Farm. This field day focused on the benefits of local pollinators on habitat restoration projects and orchards.

Six webinars were held via Zoom. Topics for these webinars included water quality, ethnobotany, planting habitat for pollinators, citizen science, financial assistance available for pollinator habitat plantings, and how to use the native seed bank. Tabling and other events in 2021 included the Ames River Town of the Year Celebration, Birding Hikes at two Story County Parks, Reiman Gardens' Pollinator Fest, and the Iowa State Fair. One mailer was sent to 1385 landowners in the project area with both ACPF eligible practices and HMT identified areas for habitat restoration.

The Watershed Coordinator continued to attend monthly meetings of the Story SWCD, Boone SWCD, and Hamilton SWCD. All meetings in 2020 and 2021 were virtual. In late 2019 and early 2020, the Watershed Coordinator spent two Fridays per month in the Story County NRCS office assisting the District Conservationist. However, due to the ongoing COVID-19 pandemic, this was suspended and the office plans to re-open January of 2022.

3. Provide technical assistance to accelerate practice implementation by landowners.

Over the three-year duration of the project, one-on-one technical assistance was provided to 39 landowners through land visits. Landowners who requested consultations reached out to us following mailings, field days, and online advertisements related to the project. Technical assistance included analysis of current land use, recommendations on conservation practices that could be applied, financial assistance programs that the landowner is eligible for, and one-on-one meetings on the landowner's property to answer conservation questions in real time. Additional services provided included a formal write-up of all recommendations, as well as potential designs and plant lists for pollinator plantings.

In addition, 96 landowners were provided technical assistance through the Native Seed Bank Program. Landowners interested in planting wildlife and pollinator habitat had the opportunity to meet with the Watershed Coordinator and receive free native seeds. During a seed bank appointment, landowners were able to learn which seeds were right for their land, how to prepare their land for their seeds to be successful, and how to maintain a native habitat over the first three years of growth.

4. Implementation of Conservation Practices for Wildlife Habitat and Nutrient Reduction Benefits

A native seed bank for the community was established by the Watershed Coordinator. Donations from local and regional native seed companies were solicited. Donating seed companies included Minnesota Native Landscapes, Prairie Nursery, Prairie Moon Nursery, Shooting Star Native Seeds, Simply Native Nursery, and Stock Seed Farms. Over three years, the Community Native Seed Bank Program led to the enhancement and restoration of 23.66 acres of pollinator and wildlife habitat within the project area.

The Watershed Coordinator met monthly with the Soil and Water Conservation Districts in Boone, Hamilton, and Story Counties. Monthly meetings included the opportunity to inform SWCD commissioners of project accomplishments and successes, and allowed the Watershed Coordinator to pass along information on landowners with land available for conservation practices. The SWCD's in turn distributed cost-share to farmers in order to implement conservation practices.

In 2021, Prairie Rivers of Iowa partnered with the Iowa Soybean Association on their Soil and Water Outcomes Fund program. This program was intended to promote additional nutrient reduction practice enrollment through financial incentives. During the span of 4-weeks, we were able to enroll 3 landowners into cover crops for a combined 262.3 acres of farmland.

To assist with the implementation of conservation practices, the Watershed Coordinator followed each land visit with a formal report of what was discussed, historical data, and recommendations on which conservation practices should be installed. The reports included maps of soil conditions on the site to facilitate appropriate seed mix selection. Additional information included in reports included planting guides, invasive species removal guidelines, habitat maintenance timelines, records of species of greatest conservation need, and images of potential native plants established in the new habitat.

5. Water Quality Monitoring

Filling a void left by the dismantling of the Iowa DNR's volunteer stream monitoring program, PRI has been organizing twice-yearly volunteer events to continue the Squaw Creek Watershed Coalition's tradition of citizen science. Grant funds were used to restock phosphate tests and other supplies for the monitoring kits.

- In May 2019, 14 volunteers tested 25 sites
- In October 2019, 28 volunteers tested 30 sites
- In May 2020, 28 volunteers tested 43 sites
- In October 2020, 13 volunteers tested 16 sites, plus an invertebrate survey
- In May of 2021, 15 volunteers tested 25 sites
- In October of 2021, 15 volunteers conducted an invertebrate survey and set up storm water samplers

PRI worked with Story County Conservation and eight other partners to plan a county-wide stream monitoring program that includes the priority watersheds. Stakeholders began meeting monthly in April 2020 and released the plan in March 2021. The plan includes making better use of existing data collected by multiple agencies, monthly sampling and lab testing of multiple streams, using optical brighteners to narrow down sources of fecal contamination, and volunteer monitoring to educate and engage citizens. To publicize the monitoring plan, PRI gave 10 presentations to elected officials and the public. We also launched a website with information about all the elements of the program. (<https://www.prrcd.org/story-county-water-monitoring/>)

In addition, Story County Conservation purchased kits that it has made available to volunteers willing to commit to monthly or twice monthly monitoring of a stream, including the priority watersheds. In 2020 and 2021, 23 volunteers monitored 40 sites, for a total of 134 rounds of chemical testing.

Additional volunteer monitoring and related outreach included the following:

- PRI and Story County staff surveyed benthic macroinvertebrates in West Indian Creek in October 2019 and set up an informational table to share findings with neighbors in the community of Nevada.
- To promote volunteer monitoring, PRI staff spoke at an informational meeting at Ames Public Library in May 2019 and at a "water summit" organized by the Iowa Izaak Walton League in Des Moines.
- PRI tested Clear Creek, Long Dick Creek and West Indian Creek with field kits several times in 2018 and 2019 and wrote a blog series in May 2019 (Watershed Awareness Month) comparing streams in our priority watersheds to others in the area.
- Laura Merrick, an Iowa State University professor and long-time volunteer with Squaw Creek Watershed Coalition, did monthly monitoring of Worrell Creek from May 2017 through October 2019. Results were shared via a poster presentation at the Iowa Water Conference in March 2019 and an ISU seminar in October 2019.
- A webinar in May 2021 on citizen science, including the "Top Ten Uses for Water Monitoring." The presentation was recorded and made available on social media.
- A webinar in March 2021 clarifying water issues and misconceptions.

Beginning in April 2020 and continuing through the present, PRI has been collecting monthly water samples from 15 sites around the county including six sites in the target watersheds: Clear Creek, College Creek, Worrell Creek, Long Dick Creek, and West Indian Creek upstream and downstream of the town of Nevada. Samples were processed by a certified lab housed within the Ames Water and Pollution Control Department for nitrate, total phosphorus, total suspended solids, and E. coli. Data was analyzed using the software package R and published to the web. Results from West Indian Creek were also shared with the City of Nevada to support a grant application for a State Revolving Fund Sponsored Project. Phosphorus levels are especially high in West Indian Creek below the City of Nevada, and we expect that efforts by the city to upgrade its wastewater treatment plant, control storm water, and control streambank erosion could make a difference. PRI also encouraged the city to explore partnering with upstream farmers; city and PRI staff toured the Couser Farm in August 2020.

2021 was a drought year and many streams have gone dry, but we used fixed-stage storm samplers to collect water samples during infrequent storm events when streams and storm sewers were flowing. Storm samplers were installed at two locations on West Indian Creek and one location on College Creek. Storm events were captured in May, June, July, and August.

- Briefly explain discrepancies between the activities conducted during the grant and the activities agreed upon in your grant agreement.

1. Utilizing a new innovative tool to prioritize and set goals for conservation practice implementation

Our use of software was different from what was described in the proposal, but still innovative. The Agricultural Conservation Planning Framework (ACPF) was used at the farm-scale for outreach, rather than for watershed-scale scenario development and goal setting. We used ACPF to create farm-scale maps showing suitable locations for conservation practices which we included in targeted mailings and in initial consultations with landowners. We did not use the spreadsheet-based tool developed by Emmons & Olivier Resources because it was focused on HUC12 scale implementation scenarios that did not help us meet our goals of finding overlaps between water quality and pollinator benefits. To prioritize conservation practice implementation in locations where benefits to wildlife were greatest and costs to farmers were lowest, Watershed Coordinator David Stein developed an innovative set of GIS maps for mapping pollinator “flyways.” These GIS maps combined data on soils, corn suitability, pre-settlement land cover, sightings of rare species, and public lands.

2. Direct outreach to landowners and regularly communicate with NRCS field and state offices

The only discrepancy was the amount of time directly working in the local NRCS office. From the onset of the COVID-19 pandemic, this office was closed to the general public, and remains largely closed today. We did regularly communicate with NRCS staff by phone and through Zoom to update them on our work.

3. Provide technical assistance to accelerate practice implementation by landowners.

This activity was also conducted with relatively few changes as compared to the grant agreement. Changes did take place in terms of project area, as many of the land visits conducted were located outside of the three priority HUC-12 sub-watersheds. As this project matured, we were able to engage with a broader audience of landowners through virtual field days and webinars outside of our targeted areas. We assisted these additional landowners.

4. Implementation of Conservation Practices for Wildlife Habitat and Nutrient Reduction Benefits

Due to the COVID-19 pandemic contact between PRI, landowners, and NRCS was maintained electronically and through plan development.

5. Water Quality Monitoring

The locations and schedule of water monitoring was slightly different than proposed, but the number of samples and sites were far greater than proposed, thanks to a partnership with Story County, the City of Ames, and other local stakeholders. Instead of monthly testing of 6 sites with volunteer field kits from May-Oct of each year, monitoring activity included:

- Monitoring of three sites for a special project in 2019 and 2020.
- Twice a year volunteer events starting in spring of 2019, covering multiple sites in one of the three priority HUC12s.
- Year-round monthly lab testing of 15 sites (including 6 sites in our priority watersheds) starting in April of 2020.
- Monthly testing with field kits during the ice-free season as part of a countywide program beginning in fall of 2020. 22 sites were monitored by volunteers and 13 by Story County Conservation staff, including 9 sites in our priority watersheds.
- Biological monitoring of West Indian Creek in 2019 and 2021.

Outcomes

1. Through outreach create a lasting impact on the publics’ awareness of water quality, wildlife, conservation practices, and efforts in the MRBI.

Direct public outreach and education has allowed us to reach a diverse audience throughout the project area. Through our field days, we were able to educate 220 people on a broad range of soil, water, and wildlife conservation practices. Through webinars, we were able to expand outreach efforts to an additional 119 people. Through our technical assistance program, 39 landowners were given guidance on how best to approach soil, water, and wildlife conservation on their properties.

The social media and marketing campaign continued to distribute information about watersheds, habitat, and nutrient reduction via social media platforms. As a non-profit organization, PRI was able to utilize the Google Ads Grants Program to distribute text advertisements about our programming throughout the Midwest. Additionally, the PRI website has been continuously updated to include pertinent information regarding this project.

Seed donations for the community seed bank were secured from the Prairie Nursery, Prairie Moon Nursery, Shooting Star Native Seeds, Stock Seed Farms, Minnesota Native Landscapes, and Simply Native Nursery. Combined, the seed bank included 30 species of native plants. 96 participants withdrew seeds from the seed bank program between 2019 and 2021.

2. Increase 500 landowner's understanding of soil health and water quality.

Over 3 years, 500 landowners' outcome was exceeded, and we were able to reach 3533 people.

In 2019, 435 landowners received a mailer with an invitation to our June 26th field day and information about our programs. 14 attended our field day and received detailed information on conservation options for wetlands, and their benefits for water quality and wildlife. 288 farm-owning landowners received a mailer with an invitation to our September 7th field day. 23 people attended this field day and received detailed information on pollinator conservation practices in rural and urban locations. Tabling at community events in 2019 reached 570 people.

In 2020, 516 landowners received two mailers about the project and cost-share practices. Information regarding our June 11th field day was distributed through PRI and Iowa Learning Farm's social media platforms and email lists. 77 people attended the virtual field day, and an additional 122 watched the recorded version online. The December 17th field day was promoted through PRI's social media channels and email lists. 40 people attended the field day, and an additional 37 watched the recorded versions online.

In 2021, 1385 landowners received a mailer about the project and cost-share practices. The June 18th field day was promoted through PRI and Heartland Co-op's social media channels, newsletters, and email lists. 26 people attended the field day, and an additional 41 watched the recorded version online. The August 28th field day was promoted through PRI, Monarch Joint Venture, and Iowa State Extension 4-H's social media channels and email lists. 40 people attended this field day. This year, live webinars reached a total audience of 119 people.

3. Increase acres of quality habitat for Iowa's native wildlife species by 6,000.

The City of Ames, a partner on this project, has installed a new stormwater wetland in the Worrell Creek Watershed which added 6.2 acres of wildlife habitat.

In 2019, project partners at Story County Conservation installed 41.5 acres of habitat for use by local wildlife. Habitat practices installed by them included 2 pollinator plantings, a prairie planting, and a grassed waterway. Additionally, project partners at the Story Soil and Water Conservation District approved funding for EQIP Practices 512 and 386, Forage & Biomass and Field Borders respectively as well as 0.25 acres of windbreaks. In 2020, project partners at the Story Soil and Water Conservation District approved funding for 19.3 acres of forest stand improvement, 3 acres of conservation cover, and 0.2 acres of windbreaks. These conservation practices added 203.85 acres of habitat for use by pollinators and wildlife.

Project partners at the Story SWCD and Boone SWCD were able to distribute cost-share funds for many acres of non-habitat focused conservation practices. In 2019, the Story SWCD approved funding for 1531.05 acres of cover crops. In 2020 the Story SWCD approved funding for 1672.7 acres of cover crops. In 2020, the Boone SWCD approved funding for 1203.78 acres of cover crops, and in 2021 approved funding for 755 acres of cover crops. Finally, we assisted project partners at the Iowa Soybean Association to enroll 262.3 acres of cover crops. These conservation practices totaled 5424.83 acres of less beneficial habitat.

PRI's native seed bank had 96 participants between 2019 and 2020 which led to the restoration and enhancement of 23.66 acres of wildlife habitat within the project area.

4. Increase habitat corridor area in Story County

Mapping projects continued to facilitate the creation of wildlife corridors that linked public and private land in not only the priority HUC-12 watersheds, but the county as a whole. Originally, these corridors showed pathways connecting conservation and public lands through privately owned, mainly agricultural properties. However, this was changed through the development of a more robust mapping tool, the Habitat Mapping Tool (HMT). This new tool started by

looking at soils within the project area and determining several variables that made row crop agriculture less profitable, and where habitat restoration through state and federal cost-share programs could be the more cost-effective land management decision. This tool allowed us to determine the right land more effectively for habitat restoration, and which state and federal programs could help pay for restoration projects.

For the Habitat Mapping Tool, the watershed coordinator determined threatened, endangered, and special concern pollinators within the priority watersheds and Iowa as a whole. This included creating a master list of all native pollinators in Iowa and determining their conservation statuses. Conservation statuses were determined through compiling listing data of each species by the US Fish and Wildlife Service, Iowa Department of Natural Resources, IUCN Red List, and NatureServe. Any species designated as threatened, endangered, special concern, or a species of greatest conservation need on one or more list, was treated as a species of concern under this grant. The final result of this analysis was a list of 66 pollinator species of concern, all of which would be included in the Habitat Mapping Tool.

Records of pollinator species of concern were taken primarily from citizen science sources, including iNaturalist, Bumble Bee Watch, and Insects of Iowa. Additionally, previously unreported records of *Bombus affinis* from 2015 and 2016 from researchers at Iowa State University have been added to PRI's records. These records were placed within the habitat mapping tool and helped illustrate the need for additional habitat restoration through habitat corridor development.

In 2021, both the ACPF and HMT were used for the final direct mailing of this NFWF grant. Previously, the ACPF only provided a list of around 300 landowners with potential conservation practices that could be implemented on their land. However, when combining the ACPF with the Habitat Mapping Tool, a final list of nearly 1400 landowners within the project area was developed. This expanded list will potentially exponentially increase the total habitat corridor area within Story County in the future.

5. Increase project partners by three

Through education, outreach, and field day events, several new partners for this project were secured. These partners include The Xerces Society, Iowa State Extension and Outreach, The Iowa Department of Natural Resources, Iowa Learning Farms, Heartland Co-Op, Iowa Department of Agriculture and Land Stewardship, Monarch Joint Venture, The Bee and Butterfly Habitat Fund, and The Berry Patch Farm. Additional partner organizations that have contributed to this project include Boone Soil and Water Conservation District, Hamilton Soil and Water Conservation District, the City of Ames, Prairie Moon Nursery, Prairie Nursery, Shooting Star Native Seeds, Stock Seed Farm, Minnesota Native Landscapes, and Simply Native Nursery.

In 2020, a grant of \$2500 was provided by the Alliant Energy Community Foundation. These funds led to the installation of 2 demonstration pollinator gardens in Ames and Boone Counties. The Ames Garden contained 38 plants from 14 species and was installed at Northridge Heights Park. The Boone Garden contained the same 38 plants from 14 species and was installed at Cap Erbe Park.

- Briefly explain discrepancies between what actually happened compared to what was anticipated to happen.

1. Through outreach create a lasting impact on the public's awareness of water quality, wildlife, conservation practices, and efforts in the MRBI.

This objective was met.

2. Increase 500 landowner's understanding of soil health and water quality.

This objective was met and exceeded.

3. Increase acres of quality habitat for Iowa's native wildlife species by 6,000.

This objective was not met; however, we did achieve 5657.71 acres under improved management. Because of the push to support the Iowa Nutrient Reduction Strategy, habitat practices, although a priority, were often overshadowed by nutrient reduction practices such as cover crops. This was prevalent with large-scale row crop producers, as the majority of acres enrolled in conservation practices were cover crops and reduced tillage.

4. Increase habitat corridor area in Story County

This objective was met through planning and mapping as well as strategic outreach to farmers and landowners located in close proximity to priority conservation land.

5. Increase project partners by three

This objective was met and exceeded.

- Provide any further information (such as unexpected outcomes) important for understanding project activities and outcome results.

An unexpected outcome that affected this project's activities, especially in 2021, was the re-discovery of the Rusty Patched Bumble Bee in the priority Worrell Creek HUC-12 subwatershed. Following the initial discovery, several more records were recorded throughout the city of Ames, including findings in other subwatersheds. These findings are currently influencing future habitat corridor plans within the City of Ames.

3. Lessons Learned

Technical Assistance Lessons: Discussing practices that solely dealt with water quality and soil health benefits such as cover crops and reduced tillage was often met with disinterest when providing technical assistance. Similarly, when soliciting landowners with initial mailers related to solely water quality and soil health conservation practices, fewer responses were recorded. Large row-crop producing landowners that were targeted with mailers, were not responsive or interested in the program, and instead enrolled in cover crops and reduced tillage directly with their local Soil and Water Conservation District.

Habitat improvement and restoration practices were met with more enthusiasm by relatively smaller landowners in the project area, measuring 40 acres or fewer. When sent a mailer with information on species of greatest conservation need and conservation practices that could improve their habitats, we received more responses as compared to a mailer about water quality and soil health practices only. Landowners interested in this project and habitat restoration were primarily non-corn and soybean producing landowners, including ranchers, alfalfa growers, hobby farmers, sub-10-acre landowners, and urban residents.

Iowa's farmers and landowners messaging needs to be adapted to size of landholding. Financial assistance for conservation practices is now mostly available, when they are interested. We continue to adapt our delivery of information so those who are ready to place conservation practices on their land can get the assistance needed.

Outreach & Education Lessons: The traditional field day model of on-site learning centered on a specific practice was not effective during this project. In-person field days had lower than anticipated attendance throughout the project.

Virtual field days were a necessity upon the onset of the Covid-19 pandemic, and they were highly attended. What made virtual field days successful, was partnering with a larger organization to expand advertising for the event. Three large organizations that we partnered with included Iowa Learning Farms, Heartland Co-Op, and the Bee and Butterfly Habitat Fund. The virtual field day format also allowed the recording of the full field day to upload onto our social media channels, allowing those who could not initially attend, able to view the field day content and learn. During in-person field day events, small-group or one-on-one communication was a successful engagement strategy. This allowed us to address specific questions and concerns with landowners and made said landowners more comfortable engaging with staff as opposed to a larger group setting. Smaller-scale engagement also allowed us to dive deeper into specific conservation practices and plant/pollinator species. Finally, incentives were an effective way to engage and communicate with landowners. The Community Native Seed Bank allowed landowners to obtain free native seeds risk free, and while collecting them from our office, they received lessons on which seeds are appropriate for their land, the benefits of native plants, and how to successfully plant the seeds they received.

Other organizations can adapt their outreach and education programs by either abandoning the large in-person field day model entirely or ensuring there is time for smaller group or one-on-one discussions with staff members. Other organizations can also invest in virtual field day planning and development. Often, these field days are held at more accessible times, and can be recorded for later viewing by a larger audience. Finally, incentives such as free seeds can be offered to increase audience size.

Pollinator Conservation Lessons: Our proposal focused on farmers and set ambitious goals for acres of habitat restored. However, in 2021, Watershed Coordinator David Stein spotted, identified, photographed, and filmed the endangered rusty patched bumble bee in the project area. This discovery was followed by other observations of the rusty patched bumblebee on urban lands. Increasingly, we are finding that habitat quality—including factors such as proximity to streams, presence of favored nectar plants, and absence of pesticide drift—is more important than the size of habitat

patches or overall acres restored for supporting endangered pollinators. We were able to fill an unmet need in providing seed and technical assistance to smaller landowners to install pollinator plantings in both rural and urban areas. Working with farmers to install conservation practices through NRCS cost-share programs was also an important part of our work, but was sometimes constrained by factors outside our control, such as cost share rates, eligibility requirements, and availability of technical staff.

Water Quality Lessons: As part of the project, we conducted extensive monitoring of West Indian Creek above and below the city of Nevada. Due to drought conditions in late 2020 and all of 2021, we observed very high phosphorus concentrations with both lab tests and volunteer monitoring that we were able to attribute to effluent from a wastewater treatment plant, which was less diluted when streams were running low. Nitrate concentrations were very low at all sites in 2021. Under these conditions, water quality impacts from agricultural runoff and tile drainage and water quality improvements from best management practices. Future projects focused on non-point source pollution may benefit from employing a stratified sampling design to focus limited resources on periods of moderate to high flows when the influence of non-point sources of nutrients is more apparent in order to inform future conservation priorities.

4. Dissemination

Project activities, results, and lessons learned during this grant have been disseminated in real time to the Boone, Hamilton, and Story Soil and Water Conservation Districts during their monthly meetings. These same findings were also disseminated to the Story County 10-Year Water Quality Monitoring Team during semi-monthly meetings and the Ioway Creek Watershed Management Authority during their quarterly meetings.

Monitoring results from 2021 were shared at a webinar on November 2nd. The webinar highlighted volunteer monitoring and the unusual findings from West Indian Creek, one of our priority watersheds. <https://www.prrcd.org/story-county-wq-monitoring-plan-webinar/>

5. Project Documents

Include in your final programmatic report, via the Uploads section of this task, the following:

- 2-10 representative photos from the project. Photos need to have a minimum resolution of 300 dpi and must be accompanied with a legend or caption describing the file name and content of the photos.
- report publications, GIS data, brochures, videos, outreach tools, press releases, media coverage.
- any project deliverables per the terms of your grant agreement.

POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as “PROTECTED” and provide an explanation and complete citation to the statutory or regulatory source for such protection.*