



Environment and Natural Resources Trust Fund

M.L. 2026 Final Work Plan

General Information

ID Number: 2026-086

Staff Lead: Noah Fribley

Date this document submitted to LCCMR: May 28, 2026

Project Title: Flyway Fellows: Engaging Teachers in Bird Migration Education

Project Budget: \$362,000

Project Manager Information

Name: Robert Blair

Organization: U of MN - College of Food, Agricultural and Natural Resource Sciences

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Project Reporting

Reporting Schedule: April 1 / October 1 of each year.

Project Completion: June 30, 2029

Final Report Due Date: August 14, 2029

Legal Information

Legal Citation: M.L. 2026, Chp. 104, Sec. 2, Subd. 05h

Appropriation Language: \$362,000 the second year is from the trust fund to the Board of Regents of the University of Minnesota to train teachers in bird monitoring practices and support them in engaging students in scientific research that advances Mississippi Flyway conservation efforts.

Appropriation End Date: June 30, 2029

Narrative

Project Summary: Deliver professional development to 48 teachers across three Minnesota regions in bird monitoring practices, empowering them to engage 5,500 students in scientific research and support Mississippi Flyway conservation efforts.

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Since 1970, North America has lost nearly three billion birds—a quarter of its birdlife—with 2.5 billion being migratory species. Migration is the riskiest period in a bird's life, with mortality reaching 50% for some songbirds. Effective conservation requires accurate, timely data tracking when and where migratory birds appear in our state.

Minnesota, positioned along the Mississippi Flyway (one of North America's four major migratory routes), offers prime opportunities for observing and learning about bird migration. We will use the Cornell Laboratory of Ornithology's eBird participatory science program as the means to explore this phenomenon. Each year, millions of people contribute bird sightings to eBird which is used by researchers to track populations and migration patterns, supporting over 1,180 peer-reviewed publications.

Partnering with science teachers is an effective strategy to educate Minnesotans about migratory birds' vulnerability while building the next generation of conservation-minded citizens. Teachers seek curricula aligned with state science standards that engage students in authentic scientific practices, but they often lack specialized training in ornithology and field research techniques. Our approach combines engaging, hands-on workshops with ongoing mentorship with bird experts and lead teachers to help participants overcome implementation barriers and achieve long-term curriculum adoption.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

Flyway Fellows will train 48 teachers to engage over 5,500 Minnesota students in meaningful migratory bird research and conservation. Through five days of weekend workshops combined with ongoing support, teachers will learn to conduct bird field research, contribute migratory data to eBird, and guide students in designing independent bird investigations.

The program builds on the successful University of Minnesota Driven to Discover Birding and eBird curriculum and will feature experiences with Hawk Ridge Bird Observatory, the National Eagle Center, the University of Minnesota's Raptor Center, and the U.S. Fish and Wildlife Service. Workshops will be strategically timed with migration events, allowing teachers to experience these phenomena first-hand across Minnesota's diverse ecosystems.

To maximize statewide impact, we will host years in three key migration regions:

1. Twin Cities (urban migration along the Mississippi River)
2. Duluth (raptor migration along the Lake Superior shore)
3. Wabasha (bald eagle migration along the Mississippi River)

Each location represents a critical habitat within the Mississippi Flyway, giving teachers region-specific expertise they can bring back to their classrooms. This approach ensures the program benefits communities throughout Minnesota while addressing the urgent need for expanded data collection on migratory bird populations facing significant decline.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

Birds provide essential ecosystem services in Minnesota, such as controlling pests, pollinating plants, and dispersing seeds. This project supports bird conservation by training 48 educators who will engage >5,500 students in monitoring migratory birds and contributing data to eBird. Students will conduct authentic scientific investigations, fostering environmental stewardship while generating valuable data on declining bird populations along the Mississippi Flyway. The program builds lasting partnerships between schools and conservation organizations that support migratory birds,

creating a sustainable model for participatory science that addresses Minnesota's need for expanded bird population monitoring.

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Activities and Milestones

Activity 1: Recruit middle- and high-school science teachers to participate in bird migration education workshops at three Minnesota locations.

Activity Budget: \$6,158

Activity Description:

We will leverage our established network of 1,500+ teachers who have participated in previous Driven to Discover programs to recruit for Flyway Fellows, including participants from recent LCCMR-funded professional development initiatives. Our science teacher workshops consistently fill and have waiting lists, demonstrating our program's strong reputation and the high demand for this type of professional development.

We will recruit 16 teachers each year for three years, totaling 48 teachers, with emphasis on Greater Minnesota school districts for two out of three years. Each year the teachers will participate in four 2-day workshops during key bird migration periods, allowing them to experience the full annual cycle of migration. The program's geographic distribution ensures we reach diverse communities:

- Year 1: Twin Cities (urban migration along the Mississippi)
- Year 2: Duluth (raptor migration along Lake Superior)
- Year 3: Wabasha (bald eagle migration along the Mississippi)

This statewide approach ensures the program benefits all regions of Minnesota and develops expertise across the full range of the Mississippi Flyway within the state.

Activity Milestones:

Description	Approximate Completion Date
Recruit 16 teacher participants for Year 1 (Metro) bird migration workshops during 26-27 school year.	June 30, 2027
Recruit 16 teacher participants for Year 2 (Northern) bird migration workshops during 27-28 school year.	June 30, 2028
Recruit 16 teacher participants for Year 3 (Southern) bird migration workshops during 28-29 school year.	June 30, 2029

Activity 2: Train three cohorts of teachers during five training days each year using existing bird identification and participatory science programs.

Activity Budget: \$352,192

Activity Description:

Each year a teacher cohort will participate in five training days seasonally aligned with critical migration periods, providing a comprehensive understanding of bird migration patterns throughout the year. Year 1 (Twin Cities) will have the teachers attending weekend events at significant wildlife refuges and bird habitats in the metro area. Participants in Years 2 and 3 will attend two overnight weekend workshops at environmental learning centers to better accommodate teachers from broader geographical regions. All three cohorts will participate in a day trip to a local raptor education organization in their region.

The NSF-funded Driven to Discover: Birding and eBird curriculum provides a research-tested foundation for teaching about migratory birds, citizen science methodology, and scientific investigation processes. Our interdisciplinary team includes:

- Ornithologists and bird scientists
- Experienced environmental educators

Graduate students conducting bird research
 U.S. Fish and Wildlife Service Migratory Bird Program staff

This collaborative approach ensures teachers receive both scientific expertise and practical classroom implementation strategies. Workshops will focus on hands-on skills development including bird identification, monitoring protocols, use of eBird and other technologies, and guiding student investigations. Teachers will learn to implement monitoring stations at their schools and conduct field investigations with students.

Activity Milestones:

Description	Approximate Completion Date
Train 16 teachers in bird migration curriculum over five days in the 26-27 academic year.	June 30, 2027
Train 16 teachers in bird migration curriculum over five days in the 27-28 academic year.	June 30, 2028
Train 16 teachers in bird migration curriculum over five days in the 28-29 academic year.	June 30, 2029

Activity 3: Assist teachers with implementation of bird migration curriculum in their classrooms using ongoing mentoring.

Activity Budget: \$3,650

Activity Description:

Previous evaluations of our professional development initiatives clearly demonstrate that mentoring during the school year significantly improves success in classroom implementation. We will provide comprehensive support for teachers throughout the academic year, including:

- Staff assistance with classroom integration of bird monitoring activities
 - On-call support for troubleshooting implementation challenges
 - Connections to local birders and conservation groups who can serve as regional experts
 - Guidance for participation in established participatory science projects like the Great Backyard Bird Count and Project FeederWatch
 - Supplies and protocols for setting up bird monitoring stations at schools
 - Regular community-of-practice discussions where teachers share implementation strategies
- This ongoing support creates a collaborative learning community that increases teachers' confidence in teaching about birds and migration. The approach ensures scientific data collected by students meets quality standards for inclusion in research databases while building a sustainable network of educators committed to bird conservation. Teachers will be encouraged to share program impacts with their local communities, amplifying the program's reach beyond participating schools.

Activity Milestones:

Description	Approximate Completion Date
Assist 16 workshop teachers with implementing bird migration curriculum during the school year 2026-2027.	June 30, 2027
Assist 16 workshop teachers with implementing bird migration curriculum during the school year 2027-2028.	June 30, 2028
Assist 16 workshop teachers with implementing bird migration curriculum during the school year 2028-2029.	June 30, 2029

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Kris Spaeth	U.S. Fish and Wildlife Service Migratory Birds Program	Wildlife Biologist	No
Participating Teachers	Schools Across Minnesota	Participatory	Yes
Margie Menzies	Hawk Ridge Bird Observatory	Collaborator	No
Sherry Taplin	The Raptor Center	Collaborator	No
Lori Arent	The Raptor Center	Collaborator	No
Ed Hahn	National Eagle Center	Collaborator	No

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

Flyway Fellows will directly engage 48 teachers from a variety of school districts, with a special emphasis on greater-Minnesota schools. Many of the over 5,500 students who will be reached by participating teachers will bring conversations about bird migration home to their families. Flyway Fellows educators will be encouraged to share the knowledge and teaching techniques they have learned with their colleagues. Additional teachers and youth program leaders will be able to access the free Birding and eBird curriculum guide through the University of Minnesota digital conservancy. Findings and experiences from this novel workshop series will be shared with statewide science teacher networks and conferences. Additionally, the workshop activities will be shared with Fisheries, Wildlife, Conservation Biology department members and alumni through a quarterly newsletter. Environment and Natural Resources Trust Fund will be acknowledged through use of the Trust Fund logo or attribution language on project print and electronic media, publications, signage, and other communications per the ENRTF Acknowledgement Guidelines.

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

Flyway Fellows will continue to have impacts beyond the initial three years of workshops. Teachers can implement and share with colleagues the Driven to Discover: Birding and eBird curriculum for years, available for free at the University's conservancy website. Educators will learn about local birding hotspots for student outings and teachers will be connected with regional bird conservation groups for ongoing support. Educators can continue to use the free eBird database and Merlin Bird ID app and participate in the free Great Backyard Bird Count project, enabling long-term monitoring of migratory birds in Minnesota and hands-on scientific inquiry for students.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
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Minnesota Master Naturalist: Nature For New Minnesotans	M.L. 2021, First Special Session, Chp. 6, Art. 6, Sec. 2, Subd. 05d	\$293,000
Phenology Investigations in Minnesota Schools	M.L. 2024, , Chp. 83, Art. , Sec. 2, Subd. 05d	\$392,000

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Principal Investigator		The PI will supervise all personnel, maintain budgets, report on grant progress, and participate in instruction at all workshops.			36.6%	0.24		\$58,955
Program Instructor		The Program Instructor will coordinate curriculum and instruction for each workshop, work with scientists to integrate research activities, offer classroom implementation support, and mentor teachers.			32.3%	1.2		\$67,363
Program Director		The Program Director will spearhead collaborations with partners, coordinate recruitment and registration, communicate with participants, organize logistical details for each workshop, and work with HR on payments and stipends.			32.3%	1.2		\$113,645
Lead Teacher 1		The Lead Teacher will be an important part of the Flyway Fellows team by providing the expertise on science teaching and classroom implementation. The Lead Teachers will assist bird scientists in presenting the Driven to Discover: Birding and eBird curriculum to participants and will assist a group of teachers as they conduct a bird investigation. Lead Teachers will work during all 5 days of workshops and attend team meetings and work on instructional preparation throughout the school year.			7.4%	0.15		\$13,205
Lead Teacher 2		The Lead Teacher will be an important part of the Flyway Fellows team by providing the expertise on science teaching and classroom implementation. The Lead Teachers will assist bird scientists in presenting the Driven to Discover: Birding and eBird curriculum to participants and will assist a group of teachers as they conduct a bird investigation. Lead Teachers will work during all 5 days of workshops and attend team meetings and work on instructional preparation throughout the school year.			7.4%	0.15		\$13,205

Bird Scientist		The Bird Scientist, in conjunction with PI Blair, will complement the Lead Teachers on the Flyway Fellows team by providing the expertise in ornithology and scientific research. The bird scientist will assist the Lead Teachers in presenting the Driven to Discover: Birding and eBird curriculum to participants and will assist a group of teachers as they conduct a bird investigation. The Bird Scientist will work during Year 2 only for all 5 days of the workshop plus additional time for instructional preparation and team meetings throughout the calendar year.			7.4%	0.05		\$4,398
							Sub Total	\$270,771
Contracts and Services								
University of Minnesota	Internal services or fees (uncommon)	Participants will receive one free University of Minnesota graduate credit: tuition will be waived, and the \$150 administration fee per registrant (and applicable student fees) will be covered by this grant.				0.03		\$7,800
Environmental Learning Centers (TBD, e.g. Eagle Bluff ELC)	Subaward	32 teachers in years 2 & 3 (16 teachers per year for 2 years) will require one night lodging and 4 meals each for two workshops per year, totaling 64 nights lodging and 128 meals. Cost will average \$160 per teacher per workshop .		X		0.04		\$10,240
							Sub Total	\$18,040
Equipment, Tools, and Supplies								
	Tools and Supplies	Workshop Supplies	Workshop supplies include office/administrative and activities supplies (name tags, pens, folders, notebooks, chart paper, presentation markers, tote bins, etc).					\$1,371
	Tools and Supplies	Participant books and course materials	Participant course materials include items participants will need to complete the activities in the workshop (binoculars, 3 bird field guides, clipboards, notebooks, etc.). 48 participants x \$1501					\$7,200

	Tools and Supplies	Classroom Implementation Supplies	Classroom Implementation supplies are items that teachers will use in their classrooms directly with their students (bird feeder station materials including several bird feeders, a shepherd's hook, bird bath, and bird safe tape for windows, etc.). 48 participants x \$150. Supplies are purchased by UMN staff and distributed to participants.					\$7,200
							Sub Total	\$15,771
Capital Equipment								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Mileage for Staff - Total miles = 8,500 miles (for 5 staff members x 9 trips x 3 years)	Staff will travel to off-site locations for Years 2 and 3 when the workshop is offered in Greater Minnesota (5 staff members x 3 trips, distance determined by greater MN location). Year 1 will be offered in the Twin Cities Metro Area and staff will travel to off-site locations in the Twin Cities metro area to wildlife refuges or other birding hot spots. Approximate mileage for each year varies (Year 1= approx. 880 miles, Year 2=approx. 4430 miles, Year 3=approx. 3190 miles). Total miles for all staff =8500 miles x \$.70 =\$5950 over three years.					\$5,950
	Miles/ Meals/ Lodging	Meals & Lodging for Staff (5 staff members, three nights lodging & 6 meals per overnight workshop for each of 2 cohort years)	5 staff members will require two total nights lodging per two-day workshop (one night lodging prior to the workshop to prepare materials and activities and then one night during the					\$9,600

			workshop) and 4 meals during each workshop for two workshops per year x 3 years, totaling 60 nights lodging and meals. Lodging & meals will be provided at economical residential environmental learning centers or similar camp-like centers. Total cost will average \$160 per staff member per overnight workshop.					
	Miles/ Meals/ Lodging	Meals for Staff at off-site locations (5 people x 7 workshops x \$20)	5 staff in Year 1 will require one working lunch for each of the 5 days of workshop at remote locations without dining facilities, such as wildlife refuges or similar venues. 5 staff in Years 2 & 3 will require one working lunch for the day trip to a regional raptor educational center.	X				\$700
							Sub Total	\$16,250
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
	Printing	Printing curriculum handouts for workshops and University of Minnesota's Driven to Discover Birding and eBird curriculum guide.	Per participant printing cost = \$20 activity/lesson handouts + \$20 book = \$40 x 16 teachers = total of \$640 per year x 3 years = \$1920					\$1,920
							Sub Total	\$1,920
Other Expenses								
		Teacher Stipend (48)	48 teachers (16 teachers per year for 3 years) will be provided with a \$150 per workshop day stipend for a total of \$750 per teacher. The stipend will be paid upon successfully fulfilling the requirements of the program, including participating in all five workshop days, preparing and carrying out a program					\$36,000

			implementation plan, and completing workshop reflections. Teachers receive stipends to attend professional development workshops outside of their contracted time. This is often dictated by their contracts and is used to offset expenses for attending including travel expenses and child care. This is a mandatory feature of grants from the Minnesota Department of Higher Education and the National Science Foundation. The amount of the stipend is based on the NSF recommendation.					
		Raptor Center, National Eagle Center, Hawk Ridge Bird Observatory, and Raptor Center educational programming	The Twin Cities year one will tour the Raptor Center at the University of Minnesota to learn about raptor rehabilitation and conservation. The Northern MN year two will visit the Hawk Ridge Bird Observatory for a field trip for teachers to learn about the annual fall raptor migration. The Southern MN year three will visit the National Eagle Center in Wabasha to learn about the geographic anomaly at the confluence of the Mississippi and Chippewa Rivers that allows eagles to congregate and hunt fish year round. Staff and participant fees at these location = average of \$16 per person x 21 people = \$336 x 3 years = \$1008					\$1,008
		Meals Participants at off-site locations (16 people x 7 workshops x \$20)	16 teachers each of the 5 days of workshop at remote locations without dining facilities, such as wildlife refuges or similar venues. 16 teachers Years 2 & 3 will require one working lunch for the day trip to a regional raptor educational center.	X				\$2,240
							Sub Total	\$39,248
							Grand Total	\$362,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Contracts and Services - Environmental Learning Centers (TBD, e.g. Eagle Bluff ELC)	Subaward	32 teachers in years 2 & 3 (16 teachers per year for 2 years) will require one night lodging and 4 meals each for two workshops per year, totaling 64 nights lodging and 128 meals. Cost will average \$160 per teacher per workshop .	Workshop runs 9:00 Sat to 16:30 Sun with after-dinner meetings. Food and refreshments will be reasonable and proportionate to the type of event being held.
Travel In Minnesota	Miles/Meals/Lodging	Meals for Staff at off-site locations (5 people x 7 workshops x \$20)	To better reach teachers in Greater Minnesota with this workshop series, two out of the three years of the workshops are being held in Greater Minnesota. To better accommodate educators traveling extensively to attend the workshop, having teachers housed for the night between the two workshop days ensures they will be present both days and allows for extended experiential time with scientists and instructors. For participants in the Twin Cities Year 1, we will hold workshops in remote locations without dining facilities, such as wildlife refuges or similar venues. To maintain the momentum of the learning day and maximize valuable instruction time, we will have a working lunch rather than requiring participants to leave the site for meals. Therefore, we would like to provide a simple boxed lunch for all participants.
Other Expenses		Meals Participants at off-site locations (16 people x 7 workshops x \$20)	To better reach teachers in Greater Minnesota with this workshop series, two out of the three years of the workshops are being held in Greater Minnesota. To better accommodate educators traveling extensively to attend the workshop, having teachers housed for the night between the two workshop days ensures they will be present both days and allows for extended experiential time with scientists and instructors. For participants in the Twin Cities Year 1, we will hold workshops in remote locations without dining facilities, such as wildlife refuges or similar venues. To maintain the momentum of the learning day and maximize valuable instruction time, we will have a working lunch rather than requiring participants to leave the site for meals. Therefore, we would like to provide a simple boxed lunch for all participants.

Non ENRTF Funds

Category	Specific Source	Use	Status	\$ Amount
State				
In-Kind	University of Minnesota	For grant-funded courses, the University waives tuition for students but requires the payment of a processing fee (Currently \$150). One credit of graduate tuition is	Secured	\$90,142
			State Sub Total	\$90,142
Non-State				
			Non State Sub Total	-
			Funds Total	\$90,142

Total Project Cost: \$452,142

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [4125a647-ed8.pdf](#)

Alternate Text for Visual Component

A "Flyway Fellows" poster displays bird silhouettes and a Minnesota map showing migration patterns and key locations. It outlines a three-step teacher workshop process with circular images of outdoor bird education activities. Partner logos US Fish and Wildlife Service, Raptor Center, Hawk Ridge Bird Observatory & the National Eagle Center....

Supplemental Attachments

Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
UMN SPA Authorization Letter	1dcdcf3-88d.pdf
UMN Flyway Fellows Bird Migration Education Promotional Flyer	8b31f5dc-db2.pdf

Difference between Proposal and Work Plan

Describe changes from Proposal to Work Plan Stage

We reduced the number of teachers attending each year from 20 to 16 per year. We also reduced the number of meetings from four two-day meetings to two two-day meetings and a single-day meeting.

Additional Acknowledgements and Conditions:

The following are acknowledgements and conditions beyond those already included in the above workplan:

Do you understand and acknowledge the ENRTF repayment requirements if the use of capital equipment changes?

N/A

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I understand the UMN Policy on travel applies.

Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

Yes, Sponsored Projects Administration

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this project:

Jess Paulson, Lisa Curtis, Jennifer Schultz

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

N/A