



Environment and Natural Resources Trust Fund

2026 Request for Proposal

General Information

Proposal ID: 2026-086

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

Project Manager Information

Name: Robert Blair

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

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Project Basic Information

Project Summary: Deliver professional development to 60 teachers across three Minnesota regions in bird monitoring practices, empowering them to engage 7,000 students in scientific research and support Mississippi Flyway conservation efforts.

ENRTF Funds Requested: \$535,000

Proposed Project Completion: June 30, 2029

LCCMR Funding Category: Education and Outdoor Recreation (C)

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

Narrative

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 60 teachers to engage over 7,000 Minnesota students in meaningful migratory bird research and conservation. Through four seasonal 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 60 educators who will engage >7,000 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.

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: \$6,710

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 20 teachers each year for three years, totaling 60 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 20 teacher participants for Year 1 (Metro) bird migration workshops during 26-27 school year.	June 30, 2027
Recruit 20 teacher participants for Year 2 (Northern) bird migration workshops during 27-28 school year.	June 30, 2028
Recruit 20 teacher participants for Year 3 (Southern) bird migration workshops during 28-29 school year.	June 30, 2029

Activity 2: Train three cohorts of teachers in four two-day workshops each year using existing bird identification and participatory science programs.

Activity Budget: \$524,313

Activity Description:

Each year a teacher cohort will participate in four seasonal workshops 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 overnight weekend workshops at environmental learning centers to better accommodate teachers from broader geographical regions.

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 20 teachers in bird migration curriculum in four workshops over the 2026-2027 academic year.	June 30, 2027
Train 20 teachers in bird migration curriculum in four workshops over the 2027-2028 academic year.	June 30, 2028
Train 20 teachers in bird migration curriculum in four workshops over the 2028-2029 academic year.	June 30, 2029

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

Activity Budget: \$3,977

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 20 workshop teachers with implementing bird migration curriculum during the school year 2026-2027.	June 30, 2027
Assist 20 workshop teachers with implementing bird migration curriculum during the school year 2027-2028.	June 30, 2028
Assist 20 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
Ornithology Graduate Student	University of Minnesota	Bird scientist - only travel costs will be covered by this grant (mileage, meals, and lodging)	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

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
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

Project Manager and Organization Qualifications

Project Manager Name: Robert Blair

Job Title: Professor and Department Head

Provide description of the project manager's qualifications to manage the proposed project.

Robert Blair is a professor in and head of the Department of Fisheries, Wildlife, and Conservation Biology at the University of Minnesota. The outreach component of his work centers on providing professional development for in-service educators, both formal and informal. He has managed more than \$10,000,000 of grants in this work including

those from the National Science Foundation, the Minnesota Office of Higher Education, and the ENRTF. If successful, this grant will be his seventh funded by the ENRTF. In his role as an Extension Specialist, he developed the Driven to Discover Citizen Science teacher training program, which focuses on helping teachers use citizen science in the classroom. This NSF-funded project resulted in several curricula aligned with various national citizen-science projects including Driven to Discover Curriculum Guide: Birding and eBird, which will be the core curriculum of this project. Blair will use both his expertise in providing professional development for in-service teachers and his knowledge of ornithology in executing this project.

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

Organization Description:

The University of Minnesota's Driven-to-Discover Teacher Professional Development Program has a 20-year track record of offering evidence-based teacher professional development in natural sciences. Co-taught by University scientists and experienced K-12 educators, the program provides technical and practical instruction on topics including pollinators, birds, and phenology. Using an NSF-funded curriculum, teachers learn to engage students in participatory science, enabling them to conduct original investigations. Students develop scientific inquiry skills and see themselves as scientists—not just learning content but doing real science. We've trained over 1,500 educators throughout Minnesota since 2004, reaching over 270,000 students.

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%	0.3		\$72,560
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%	1.14		\$63,152
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%	1.14		\$106,542
Program Coordinator		The Program Coordinator will assist with logistical details for each workshop, reserve workshop venues, order supplies and materials, and organize and transport supplies to the workshop sites.			32.3%	0.3		\$32,532
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 8 days of workshops (with travel time this entails 12 hour days) plus an additional 24 hours for instructional preparation and team meetings throughout the calendar year. [(8 days x 12 hours) + 24 hours =120 hours/year.			7.4%	0.18		\$15,251
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			7.4%	0.18		\$15,251

		Teachers will work during all 8 days of workshops (with travel time this entails 12 hour days) plus an additional 24 hours for instructional preparation and team meetings throughout the calendar year. [(8 days x 12 hours) + 24 hours =120 hours/year.						
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 scientists 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 all 8 days of workshops (with travel time this entails 12 hour days) plus an additional 24 hours for instructional preparation and team meetings throughout the calendar year. [(8 days x 12 hours) + 24 hours =120 hours/year.			7.4%	0.18		\$15,251
							Sub Total	\$320,539
Contracts and Services								
							Sub Total	-
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).					\$1,177
							Sub Total	\$1,177
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								

							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Mileage for Staff - Total miles = 26,880 miles (for 7 staff members and 1 graduate student x 16 trips with an average of 210 miles per trip)	Staff will travel to off-site locations for Years 2 and 3 when the workshop is offered in Greater Minnesota (7 staff members and 1 graduate students x 4 trips x 360 miles x 2 years = 23,040 miles). Additionally, staff will travel to off-site locations in the Twin Cities metro area to wildlife refuges or other birding hot spots (7 staff members and 1 graduate student x 8 trips x 60 miles = 3840 Combined miles for three years for staff = 26,880 miles x \$.70 =\$18,816 over three years.					\$18,816
	Miles/ Meals/ Lodging	Meals & Lodging for Staff (7 staff members and 1 graduate student, two nights lodging & 4 meals per workshop; 4 workshops per staff member for each of 3 cohort years)	7 staff members and 1 graduate student will require two total nights lodging per workshop (one night lodging prior to the workshop to prepare materials and activities and then one night during the workshop) and 4 meals during each workshop for four workshops per year x 3 years, totaling 192 nights lodging and 384 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 workshop.					\$20,480
	Miles/ Meals/ Lodging	Meals & Lodging for Teachers (Years 2 and 3 - 40 teachers x 4 workshops/year x \$160 which covers one night lodging & 4 meals per workshop)	40 teachers in years 2 & 3 (20 teachers per year for 2 years) will require one night lodging and 4 meals each workshop for four workshops per year, totaling 240 nights lodging and 960 meals. Lodging & meals will be provided at economical residential environmental learning centers or similar camp-like centers. Total cost will	X				\$25,600

			average \$160 per teacher per workshop x 4 workshops/year x 20 teachers/year.					
	Miles/ Meals/ Lodging	Meals for Staff & Participants at off-site locations (For Year 1 only - 28 people x 8 workshops x \$16)	20 teachers in Year 1 + 8 staff will require one working lunch for each of the 8 days of workshop at remote locations without dining facilities, such as wildlife refuges or similar venues.	X				\$3,584
							Sub Total	\$68,480
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.	Print 4 sets (1 set per workshop) of bird curriculum-related handouts per teacher @ \$12 per set of handouts = \$48 per person. Print one copy of University of Minnesota's Driven to Discover: Birding and eBird curriculum guide per teacher @ \$24 per book. Per participant printing cost = \$48 activity/lesson handouts + \$24 book = \$72 x 20 teachers = total of \$1440 per year x 3 years = \$4320					\$4,320
							Sub Total	\$4,320
Other Expenses								
		Teacher Stipend (60)	60 teachers (20 teachers per year for 3 years) will be provided with a \$200 per workshop day stipend for a total of \$1,600 per teacher. The stipend will be paid upon successfully fulfilling the requirements of the program, including participating in all four workshops, preparing and carrying out a program implementation plan, and completing workshop reflections. Teachers receive stipends to attend professional					\$96,000

			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.					
		Processing Fee for Graduate Credit	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.					\$9,000
		Rental Facilities for Year 1 (Twin Cities)	Year 1 for Twin Cities teachers will occur as four weekend events (day-only) at key bird hotspots found within the seven county metro area during targeted bird migration times. These locations may be at regional/local parks that require a rental fee to use the facilities at approximately \$700/per day x 6 days. (At least two days of the workshop series will be at a free wildlife refuge facility).					\$4,200
		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					\$1,344

			location = average of \$16 per person x 28 people = \$448 x 3 years = \$1344					
		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.). 60 participants x \$211					\$12,660
		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 bath, bird safe tape for windows, student binoculars etc.). 60 participants x \$288					\$17,280
							Sub Total	\$140,484
							Grand Total	\$535,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
Travel In Minnesota	Miles/Meals/Lodging	Meals & Lodging for Teachers (Years 2 and 3 - 40 teachers x 4 workshops/year x \$160 which covers one night lodging & 4 meals per workshop)	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.
Travel In Minnesota	Miles/Meals/Lodging	Meals for Staff & Participants at off-site locations (For Year 1 only - 28 people x 8 workshops x \$16)	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				
			State Sub Total	-
Non-State				
			Non State Sub Total	-
			Funds Total	-

Total Project Cost: \$535,000

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	1dcdcff3-88d.pdf
Flyway Fellows Promotional Flier (PNG)	6ef8c1d7-0e5.png

Administrative Use

Does your project include restoration or acquisition of land rights?

No

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 proposal:

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