



Headwaters Corporation
4111 4th Avenue, Suite 6
Kearney, NE 68845
TIN# 26-0298666
DUNS # 00-350-3758

Nebraska Community Foundation
PO Box 83107
Lincoln, NE 68501-3107
FEIN 47-0769903

FOURTH AMENDMENT

To the 2019 – 2023 Agreement Between the Nebraska Community Foundation, Acting as the Contracting Agent of the Governance Committee of the Platte River Recovery Implementation Program and Headwaters Corporation, Private Consultant.

Executive Director's Office (EDO)

This Fourth Amendment to the 2019 – 2023 Agreement between the Nebraska Community Foundation, acting as the contracting agent of the Governance Committee of the Platte River Recovery Implementation Program and Headwaters Corporation ("Consultant"), a private consultant of Kearney, Nebraska is made effective January 1, 2023.

The purpose of this amendment is to:

- (1) Amend Exhibit A to incorporate the scope of services and staffing plan for the period of January 1, 2023, to December 31, 2023.
- (2) Amend Exhibit B to incorporate hourly rate and reimbursable expenses price schedules for 2023. The 2023 project budget for the scope of work in Exhibit A is \$2,705,000.

All other terms of the original agreement remain in effect as originally written.

The following parties agree to the terms of this Amendment:

NEBRASKA COMMUNITY FOUNDATION

Jason D. Kennedy
Chief Financial and Administrative Officer

Date

HEADWATERS CORPORATION

Bridget M. Barron, Ph.D.
President

Date



EXHIBIT “A” SCOPE OF SERVICES

Platte River Recovery Implementation Program Executive Director’s Office (EDO)

Program Administration

Headwaters will maintain the Office of the Executive Director (EDO) in Central Nebraska (4111 4th Avenue, Suite 6, Kearney, Nebraska 68845) and provide the managerial, administrative, and technical assistance required of the Governance Committee (GC) to implement the Platte River Recovery Implementation Program (PRRIP). This includes providing the Executive Director (ED) and staff to perform all PRRIP functions as directed by the GC.

Program administrative duties include:

- Coordinate, attend, and provide support for scheduled meetings of Governance and Finance Committees, Land, Water, Technical, and Independent Science Advisory Committees, and other ad hoc committees or working groups as they occur.
- Coordination and communication among Program participants.
- Distribution of materials to Program committee members.
- Communication with state, federal, and local organizations as appropriate.
- Outreach and communication with the various stakeholder groups and various publics touched by the Program.
- Prepare work plan and budget for review by the Finance Committee and approval by the Governance Committee.
- Prepare agreements/contracts and amendments.
- Process contractor invoices.
- Coordination with Nebraska Community Foundation on contractual and financial matters.
- Coordination with Platte River Recovery Implementation Foundation on land interest holding matters.
- Prepare and provide outreach/public education activities for the Program.
- Provide a review of Program tasks and periodically report on the status and progress of each task to the Governance Committee.
- Advise GC on science policy and governance issues.
- Coordinate ISAC activities and facilitate the selection of new ISAC members.
- Coordinate activities of special advisor activities related to Structured Decision Making (SDM) and other aspects of GC decision-making.
- Maintain a library and archive of generated materials generated, collection may include hard and electronic copies. The materials in the archive/library will include documents and other items from the Cooperative Agreement, the First Increment, and the First Increment Extension.



Land Plan Implementation

Land Plan Administrative duties include:

- Manage Land Advisory Committee activities and ensure that Land Plan implementation activities are carried out in accordance with the direction of the GC.
- Provide contractor oversight during the design and construction of habitat/engineering projects.
- Coordinate Recreation Access Sub-Committee activities.
- Assist in evaluation of potential habitat parcels and develop land restoration and management plans for new acquisitions.
- Oversee land management budget development, procurement process and implementation of land-related activities performed by EDO and contractors.
- Oversee development of agricultural leases and coordination with tenants and farm management land special advisors.
- Represent the Program in regional invasive species control efforts including participation in the Platte Valley Weed Management Area and Platte River Resilience Fund.
- Evaluate Program activities to ensure they are consistent with the Good Neighbor Policy.
- Oversee land acquisition including initial landowner contacts, procurement of contractor services associated with appraisals and negotiations, presentation of potential acquisitions to committees, negotiation of acquisition terms, and completion and execution of contacts.
- Oversee annual payment of property taxes.

Land Plan Technical duties include:

- Develop habitat restoration engineering designs, plans, and specifications.
- Remote sensing analysis.

Water Plan Implementation

Water Plan Administrative duties include:

- Manage Water Advisory Committee activities and ensure that Water Plan implementation activities are carried out in accordance with the direction of the GC.
- Water Action Plan updates.
- Annual water leasing and accounting activities.
- Oversight and coordination of Scoring Sub-Committee.
- Oversee procurement and implementation tasks associated with WAP project engineering design and construction administration carried out by Program contractors.
- Oversee Water Plan special advisor activities related to WAP project implementation.
- Develop hydrologic conditions report monthly or in prescribed time period blocks.
- Choke point investigations and project design, permitting, and implementation activities.
- Operation of recapture wells and other water related facilities.

Water Plan Technical duties include:

- Water supply planning and permitting.
- Groundwater and surface water hydrologic modeling and data analysis.



- Wet meadows hydrology investigations including installation and maintenance of hydrologic instrumentation.
- Development of operations modeling and tools in support of Adaptive Management Plan update and implementation.
- Water project construction administration.
- Implementation of economic practices and processes for analyses of program related economic issues. Focus of Program efforts on developing fair market values for water and cash flow/financial analyses of water action plan projects.
- Uncertainty and risk analyses of management actions, employing statistical methods and Monte Carlo techniques.

Science Plan Implementation

Science Plan Administrative duties include:

- Manage the Technical Advisory Committee and ensure that Extension Science Plan (Science Plan) implementation activities are carried out in accordance with the direction of the GC.
- Manage the Adaptive Management Working Group and ensure Science Plan development activities are carried out in accordance with the direction of the GC.
- Oversee implementation of monitoring and research protocols implemented by the EDO and contractors.
- Oversee implementation of physical process monitoring and research by the EDO and contractors.
- Coordinate activities of special advisor activities related to geomorphology and other areas of expertise as necessary for implementation of adaptive management on behalf of the Program.
- Coordinate ISAC activities and facilitate the selection of new ISAC members.

Science Plan Technical duties include:

- Design of research and monitoring protocols and compilation and analysis of project-specific data.
- Manuscript preparation, review and publication.
- Assist in protocol development, experimental design and implementation of experiments.
- Analysis of Program data with emphasis on statistical analyses.
- Coordination, planning and implementation of least tern and piping plover monitoring protocol including maintenance of tern and plover monitoring database, statistical analysis of tern and plover monitoring data, and development of annual monitoring report.
- Collection of surface and groundwater measurements and maintenance of monitoring equipment.
- Coordination, planning and implementation of whooping crane monitoring protocol including maintenance of whooping crane monitoring database, statistical analysis of whooping crane monitoring data, and development of annual monitoring report.
- Coordination, planning and implementation of camera technology in relation to Program implementation. This includes applications related to tern and plover predation as well as in support of geomorphic investigations.



- Drone usage in support of Program activities.
- Develop sediment augmentation plans, and specifications and oversee augmentation operations and associated monitoring.
- Coordination, planning and implementation of geomorphology and vegetation monitoring protocol including data collection, analysis, and development of annual monitoring report.
- Hydraulic and sediment transport modeling for water supply conveyance and geomorphology aspects of Program research and monitoring.
- Coordination and implementation of phragmites research.

This scope of work will be completed by a team of 20 staff members (14.8 full-time equivalent¹) functioning as the Program EDO. Headwaters staff categories and organization of the EDO correspond to the central components of the Program: Program/Project Administration, Water Plan, Land Plan, and Science Plan. Headwaters will continue to maintain the central office in Kearney, NE; support offices in Lakewood, CO and Fort Collins, CO; the Program library; and all equipment, electronic records, and other materials necessary for the continued management and implementation of the Program.

¹ One full-time equivalent equals 2,080-hour work year.



STAFFING PLAN - POSITION DESCRIPTIONS

PROGRAM ADMINISTRATION

Executive Director (J. Farnsworth, BCES)

[Admin/Tech: Administrative PRRIP Hrs.: 1,800 Labor Category: Executive Director]

Responsibilities:

- Integrate Executive Director's Office, contractor and committee activities to ensure that the Program is being implemented in accordance with the Program Document and is consistent with the vision, goals and direction of the Governance Committee (GC).
- Oversight of Executive Director's Office (EDO) staff including direct supervision of Coordinators.
- Communication with local governments, the public, media, and federal/state agencies.

Executive Office Manager (A. Uribe)

[Admin/Tech: Administrative PRRIP Hrs.: 1,440 Labor Category: Administrative: Senior]

Responsibilities:

- Oversee PRRIP public outreach and education activities.
- Coordinate PRRIP disbursement request and reconciliation process.
- General office management.

Administrative Assistant (J. Liakos, B.S.)

[Admin/Tech: Administrative PRRIP Hrs.: 1,008 Labor Category: Administrative: Junior]

Responsibilities:

- Responsible for daily office operations, file maintenance, correspondence, scheduling and arranging meeting logistics, maintaining contractor and sub-contractor contract files.
- Assist in the processing of contractor payments.
- Processing employee and client paperwork.

**LAND****Land Plan Coordinator (T. Tunnell, M.S., CERP)****[Admin/Tech: Administrative PRRIP Hrs.: 1,800 Labor Category: Scientist: Senior]****Responsibilities:**

- Responsible for Program adherence to the Good Neighbor Policy.
- Oversee land management budget development, procurement process and implementation of land-related activities performed by EDO and contractors.
- Oversee development of agricultural leases and coordination with tenants and farm management land special advisors.
- Represent the Program in regional invasive species control efforts including participation in the Platte Valley Weed Management Area.
- Oversee annual payment of property taxes.
- Develop and oversee construction of habitat restoration projects on Program lands.

Engineering/CO Coordinator (J. Brei, B.S., P.E.)**[Admin/Tech: Administrative PRRIP Hrs.: 1,080 Labor Category: Engineer: Senior]****Responsibilities:**

- Manage Colorado staff in the implementation of administrative and technical work associated with Water Plan implementation and engineering/geomorphology-related aspects of Science Plan implementation.
- Provide contractor oversight during the design and construction of habitat/engineering projects.
- Develop habitat-related engineering designs, plans, and specifications.
- Serve as the staff resource for analysis and program development with respect to GIS, CAD, and related applications.

Water Resources Engineer (E. Weschler)**[Admin/Tech: Technical PRRIP Hrs.: 1,080 Labor Category: Engineer: Junior]****Responsibilities:**

- Assist senior engineering staff in technical analyses, development of engineering design documents, and construction observation.

**WATER****Water Plan Coordinator (S. Turner, M.S., P.E.)****[Admin/Tech: Administrative PRRIP Hrs.: 1,800 Labor Category: Engineer: Senior]****Responsibilities:**

- Lead in developing, revising, and communicating Water Action Plan to committees.
- Meet with ED and other Coordinators and support technical staff to ensure that land and water implementation activities are carried out in accordance with the direction of the GC
- Oversee annual water leasing and accounting activities.
- Oversee and coordinate activities of Scoring Sub-Committee.
- Assist in water supply planning and permitting.
- Hydrologic modeling, system operations modeling, conformance with environmental regulations.
- Data synthesis, report writing, and providing technical leadership and quality control review for water resources-oriented tasks.

Geohydrologist (K. Cognac, M.S., Ph.D. Candidate)**[Admin/Tech: Technical PRRIP Hrs.: 720 Labor Category: Scientist: Mid-Level]****Technical Responsibilities:**

- Lead for groundwater modeling and data analysis.
- Oversee wet meadows hydrology investigations including installation and maintenance of hydrologic instrumentation.

**SCIENCE****SCIENCE ADMINISTRATION****Science Policy Coordinator (C. Smith, Ph.D., M.P.A.)****[Admin/Tech: Administrative PRRIP Hrs.: 900 Labor Category: Scientist: Senior]****Responsibilities:**

- Advise ED and GC on development and implementation of the Extension Science Plan.
- Advise ED and GC on science policy and governance issues.
- Oversee independent science review process including facilitation of ISAC candidate selection process and facilitation of annual work of the ISAC.

Science Plan Coordinator (M. Henry, Ph.D.)**[Admin/Tech: Administrative PRRIP Hrs.: 1,980 Labor Category: Scientist: Senior]****Responsibilities:**

- Manage Technical Advisory Committee activities and support technical staff in the implementation of administrative and technical work.
- Meet with ED and other Coordinators and support technical staff to ensure that Science Plan implementation activities are carried out in accordance with the direction of the GC.
- Oversee design of research and monitoring protocols and compilation and analysis of project-specific data.
- Manuscript preparation, review and publication.

TARGET SPECIES**Species Monitoring Coordinator (J. Bruggeman, Ph.D.)****[Admin/Tech: Technical PRRIP Hrs.: 1,800 Labor Category: Scientist: Senior]**

- Assist in protocol development, experimental design and implementation of target species research and monitoring.
- Oversee implementation of target species monitoring and research protocols implemented by the EDO and contractors.
- Target species manuscript preparation, review and publication.

Statistical Ecologist (P. Farrell, M.S.)**[Admin/Tech: Technical PRRIP Hrs.: 1,800 Labor Category: Scientist: Mid-Level]****Technical Responsibilities:**

- Assist in protocol development, experimental design and implementation of experiments.
- Lead data analysis efforts with emphasis on statistical analyses.
- Assist in manuscript preparation, review and publication.

**Whooping Crane Biologist (M. Jaymes, M.S.)**

[**Admin/Tech:** Technical **PRRIP Hrs.:** 1,800 **Labor Category:** Scientist: Junior]

Responsibilities:

- Field-lead for implementation of whooping crane monitoring protocol.
- Assist Land Manager in completion of land stewardship activities.
- Assist in implementation of least tern and piping plover monitoring protocol.

Spatial Biologist (K. Keldsen, M.S.)

[**Admin/Tech:** Technical **PRRIP Hrs.:** 1,800 **Labor Category:** Scientist: Junior]

Responsibilities:

- Responsible for coordination, planning and implementation of camera technology in relation to Program implementation. This includes applications related to tern and plover predation as well as in support of geomorphic investigations.
- Licensed drone pilot responsible for use of drone in support of Program activities.
- Assist in implementation of least tern/piping plover and whooping crane monitoring protocols.

Biological Technician (M. Steele)

[**Admin/Tech:** Technical **PRRIP Hrs.:** 1,494 **Labor Category:** Scientist: Technician]

Responsibilities:

- Assist biologists in protocol implementation and data analysis.
- Assist Land Coordinator in general land management activities.

Biological Technician (J. Wentz)

[**Admin/Tech:** Technical **PRRIP Hrs.:** 1,800 **Labor Category:** Scientist: Technician]

Responsibilities:

- Assist biologists in protocol implementation and data analysis.
- Assist Land Coordinator in general land management activities.

RIVER SCIENCE**Hydraulic Engineer (L. Casavant, M.S.)**

[**Admin/Tech:** Technical **PRRIP Hrs.:** 1,440 **Labor Category:** Engineer: Mid-Level]

Responsibilities:

- Lead hydraulic and sediment transport modeling for water supply conveyance and geomorphology aspects of Program research and monitoring.
- Assist in manuscript preparation, review and publication.

**Geospatial Analyst (H. Davis, M.S.)****[Admin/Tech: Technical PRRIP Hrs.: 1,800 Labor Category: Scientist: Mid-Level]**

Responsibilities:

- Remote sensing and GIS lead.
- Oversight of system-scale geomorphology and vegetation monitoring implementation and assessment.
- Coordinate and assist in geospatial analysis tasks associated with land, water, and science implementation and assessment activities.

Fluvial Geomorphologist (S. Hinshaw, Ph.D.)**[Admin/Tech: Technical PRRIP Hrs.: 1,620 Labor Category: Scientist: Mid-Level]**

Responsibilities:

- Assist in coordination, planning and implementation of geomorphology and vegetation monitoring protocol.
- Oversight of sediment augmentation research.
- Assist in manuscript preparation, review, and publication.

Riparian Ecologist (M. Volke, Ph.D.)**[Admin/Tech: Technical PRRIP Hrs.: 1,800 Labor Category: Scientist: Mid-Level]**

- Oversight and implementation of phragmites research.
- Assist in assessment of system-scale geomorphology and vegetation monitoring.
- Assist in manuscript preparation, review and publication.

**Summary of Headwaters Corporation Staff Serving as the PRRIP EDO and their Titles.**

Name	Title	Time Category	Hours
J. Farnsworth	Executive Director	Admin	1,800
A. Uribe	Executive Office Manager	Admin	1,440
J. Liakos	Administrative Assistant	Admin	1,008
T. Tunnell	Land Plan Coordinator	Admin	1,800
J. Brei	Engineering/CO Coordinator	Admin	1,080
E. Weschler	Water Resources Engineer	Tech	1,080
S. Turner	Water Plan Coordinator	Tech	1,800
K. Cognac	Hydrogeologist	Tech	720
C. Smith	Science Policy Coordinator	Admin	900
M. Henry	Science Plan Coordinator	Admin	1,980
J. Bruggeman	Species Monitoring Coordinator	Tech	1,800
P. Farrell	Statistical Ecologist	Tech	1,800
M. Jaymes	Whooping Crane Biologist	Tech	1,800
K. Keldsen	Spatial Biologist	Tech	1,800
M. Steele	Biological Technician	Tech	1,494
J. Wentz	Biological Technician	Tech	1,800
L. Casavant	Hydraulic Engineer	Tech	1,440
H. Davis	Geospatial Analyst	Tech	1,800
S. Hinshaw	Fluvial Geomorphologist	Tech	1,620
M. Volke	Riparian Ecologist	Tech	1,800
TOTAL			30,762

Focus Area	Administrative Time	Technical Time	Total Time
Program Administration	4,248	-	4,248
Land	2,880	1,080	3,960
Water	1,800	720	2,520
Science	2,880	17,154	20,034
TOTAL	11,808	18,954	30,762
PERCENTAGE	38.4%	61.6%	100%

NOTE: Resumes for all Headwaters Corporation staff serving as the PRRIP EDO follow in Exhibit "D".



EXHIBIT “B”
HOURLY RATE AND REIMBURSABLE EXPENSES PRICE SCHEDULE

2023 Labor					
Labor Category	Admin. Hours	Tech. Hours	Admin. Cost (\$)	Tech. Cost (\$)	Total Cost (\$)
Program Administration	4,248	-	\$409,195	\$0	\$409,195
Land Plan Implementation	2,880	1,080	\$248,623	\$61,214	\$309,838
Water Plan Implementation	1,800	720	\$199,386	\$46,238	\$245,624
Science Plan Implementation	2,880	17,154	\$329,512	\$1,011,885	\$1,341,397
Subtotal Labor	11,808	18,954	\$1,186,716	\$1,119,338	\$2,306,055

2023 Other Direct Costs (ODC)			
Item	Unit Rate	Months or Units	Cost (\$)
Office Rent	\$17,100	12	\$205,200
IT, Computers & Software	\$7,000	12	\$84,000
General Expenses (equip, supplies, shipping)	\$1,500	12	\$18,000
Services (payroll, legal)	\$530	12	\$6,360
Professional & Civic (registrations, dues)	\$600	12	\$7,200
Program Travel	\$6,500	12	\$78,000
Subtotal Other Direct Costs			\$398,760

Rounded Total 2023 EDO Budget (Labor Costs + ODC)	\$2,705,000
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Average Hourly Rate by Labor Category	
Category	Average 2023 Billing Rates (\$)
Executive Director	\$153
Administrative: Senior	\$62
Administrative: Junior	\$44
Engineer: Senior	\$106
Engineer: Mid-Level	\$84
Engineer: Junior	\$57
Scientist: Senior	\$92
Scientist: Mid-Level	\$69
Scientist: Junior	\$46
Scientist: Technician	\$37

Note: Direct costs such as rent, utilities, and insurance shown above represent the proportionate share of total such costs attributable to PRRIP based primarily on fee distribution amongst all of Headwaters Corporation’s clients. In the case of shared resources, proportionate factors which provide a



conservative buffer to all clients is used to ensure that no client pays a disproportionate share of billable direct costs.

Labor rates include salary, vacation, holiday, professional development, health insurance, dental insurance, vision insurance, life insurance, FICA, retirement, unemployment insurance and other similar items, and profit.

Reimbursable Expenses Price Schedule

All direct costs will be supported by invoice and billed at actual cost. There will be no computer usage charges. The Program may be charged for big ticket IT-related equipment like data servers with prior approval of the Finance and/or Governance Committees. Travel-related mileage will be charged at the IRS approved rate for Business.



EXHIBIT "C"

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, on behalf of Consultant, that to the best of his or her knowledge and belief:

1. No federal appropriated funds have been paid or will be paid, by or on behalf of Consultant, to any person for influencing or attempting to influence an officer or employee of any federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any federal contract, the making of any federal grant, the making of any federal loan, the entering into of any cooperative agreement, or the extension, continuation, renewal, amendment, or modification of any federal contract, grant, loan, or cooperative agreement.
2. No registrant under the Lobbying Disclosure Act of 1995 has made any lobbying contacts on behalf of the Consultant with respect to the federal grant or cooperative agreement under which the Consultant is receiving monies.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who makes an expenditure prohibited by Section 1 above or who fails to file or amend the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

HEADWATERS CORPORATION ("CONSULTANT")

By:

Bridget M. Barron, Ph.D.
President

Date



1 **EXHIBIT “D”**

2 **RESUMES FOR HEADWATERS CORPORATION STAFF SERVING AS THE PRRIP EDO**



Jason Farnsworth

Senior Partner/Owner

Certifications:

Board Certified Environmental
Scientist, 2016
AAEES

Education:

Bachelor of Science (B.S.)

Biology
May 2000
Chadron State College

Career History:

Headwaters Corporation

Kearney, NE
2008 – Present

Olsson Associates

Omaha, NE
2001 – 2007

Professional Involvement:

American Academy of Environmental Engineers and Scientists

Active Member

Biography:

Jason is an environmental scientist with over twenty years of experience in natural resources management including restoration of riparian habitats, design and implementation of adaptive management experiments, project/program management and administration of a large-scale endangered species recovery program. Jason was born and raised in the panhandle of Nebraska. During college, he worked as a water resources technician at the Upper-Niobrara White Natural Resources District. After graduating, he spent time teaching overseas before moving to Omaha, NE where he joined Olsson Associates, an engineering consulting firm. At Olsson he managed community-based watershed management planning projects and served as technical manager for reservoir design and aquatic habitat restoration projects. Jason joined Headwaters Corporation in 2008. He originally served as the Director of Habitat Management and Rehabilitation for the Platte Program, focusing on implementation and assessment of large-scale adaptive management experiments to inform habitat management. In 2018 he assumed the role of Executive Director, shifting from a primarily technical role to a focus on broader aspects of Program implementation.

Skills:

Administration & Collaboration

- Program Management
- Negotiations and Contracting
- Budgeting and Procurement
- Project Management
- Adaptive Management
- Structured Decision Making

Technical

- Hydrology & Hydraulics
- Fluvial Geomorphology
- Restoration Ecology
- Habitat Design & Permitting
- Assessment of Man. Experiments
- Scientific Writing/Communication

Platte Program Role & Responsibilities:

Executive Director

Jason is responsible for overseeing day-to-day operations of the Platte Program. This includes directing staff and contractors that implement land, water and science components of the Program. He is also responsible for oversight of staff activities with Program committees, communicating with stakeholders and the public, preparing contracts and agreements, overseeing staff and contractors, and providing recommendations and advice to the Governance Committee.

Example Projects & Technical Publications:

Interior Least Tern and Piping Plover Habitat Synthesis Chapters

Peer Reviewed Synthesis Report, 2015

Responsible for oversight of design, implementation and assessment of tern and plover management experiments implemented during the period of 2008 – 2014. This included construction and monitoring of mechanical off-channel and on-channel nesting habitats as well as evaluation of the Program's ability to create and maintain habitat through peak flow releases. Data and analyses were published in the scientific literature and translated into modeling tools that were used as part of a structured decision making process to adjust Program management actions.

Technical Lead – Leigh Dam & Pigeon/Jones Watershed Site 15

Olsson Associates, 2001 - 2007

Technical manager for feasibility studies, grant/funding applications and design of two multi-purpose flood control and recreation reservoirs in eastern Nebraska. See: Leigh Dam ([Maple Creek Rec Area](#)) & Site 15 ([Kramper Lake](#)).



Alicia Uribe

Executive Office Manager

Certifications:

Licensed Real Estate Salesperson in the state of NE

Education:

Bachelor of Science (B.S.)

Business

May 2015

Bellevue University

Career History:

Headwaters Corporation

Kearney, NE

2021 – Present

Adam Marshall Land & Auction

Kearney, NE

2022 – Present

Berkshire Hathaway Home Services

Kearney, NE

2018 – 2020

Parker Hannifin

Kearney, NE

2013 – 2021

Community Involvement:

Leadership Kearney - Class #28, 2020

AARP Foundation - Volunteer Tax Preparer, 2013

Biography:

Alicia is the Executive Office Manager administering the daily operations of the business. This includes the management of Human Resources, including benefits, payroll, retirement accounts, and insurance. She is also responsible for overseeing accounting, invoicing, receipts, and audits. Alicia has a diverse background extending across Human Resources, Accounting, Customer Service, Product Management, and Marketing disciplines. Her skill set is the right amount of mix for her role at Headwaters as it is a balance between analytical and precision with numbers and communication and planning with the internal team and external public.

Skills:

- Business Administration
- Accounting
- QuickBooks
- Outreach & Public Relations
- Supervisory Management
- Invoicing
- Real Estate
- Bilingual (English/Spanish)
- Customer Service

Platte Program Role & Responsibilities:

Executive Office Manager

Alicia is responsible for the reporting and accounting processes for the program. She enters and monitors the contractor invoices into the database for processing of the disbursement request. She also compiles all of the EDO's monthly expenses to create the Headwaters' invoice. She works collaboratively with the Nebraska Community Foundation to ensure the finances for the program remain accurate. Alicia is also responsible for outreach and public relations through continued involvement with the community utilizing educational programs, exhibits, and sponsorships.



Tim Tunnell
Land Coordinator

Certifications:

Certified Ecological Restoration Practitioner
#0053, 2017, SER

Certified Wildland Fire Manager, 2017, AFE

Education:

Master of Science (M.S.)

Range Ecology & Management
May 2002
Oklahoma State University

Bachelor of Science (B.S.)

Wildlife Management
May 1994
Texas Tech University

Career History:

Headwaters Corporation

Kearney, NE
2009 – Present

The Nature Conservancy (NE Chapter)

Aurora, NE
2002 – 2009

Oklahoma State University

Stillwater, OK
1998-2002

Texas Agricultural Experiment Station

Vernon, TX
1994-1998

Professional Involvement:

Society for Ecological Restoration &
Association for Fire Ecology
Active Member

Biography:

Tim has over twenty-five years of experience with a variety of native grassland/rangeland resource planning, management and restoration strategies including prescribed fire planning and implementation, ecological grazing, herbicide & mechanical control of invasive/ noxious vegetation and grassland restoration design and implementation. After graduating from TTU in 1994, he worked as a Research Technician I at the Texas Agricultural Experiment Station on a grant funded by USDA-NRI entitled "Sustainable management strategies for mesquite and redberry juniper rangelands". He assisted with the implementation of field and laboratory research, experimental prescribed burning of rangeland, moving and handling livestock, and completing an intensive vegetation survey of the Kite Camp Research Site on the Waggoner Ranch each spring, summer, and fall. While working at TAES, a Senior Agriculturalist position provided an opportunity to move to Stillwater in 1998. While at OSU, in addition to pursuing a MS degree, he was responsible for providing technical support for rangeland scientist conducting research in rangeland ecology and management. Responsible for field collection of livestock weight data, moving and handling, fecal nitrogen data, vaccination and health, and vegetation cover, structure, and biomass data collection on 3 long term research sites in the Cross Timbers, Mixed and Tall Grass Prairie Regions of Oklahoma. He assisted with the application of experimental treatments including prescribed burning, various herbicide, and grazing strategies on research sites. In January 2002, Tim joined The NE TNC chapter and was responsible for developing and coordinating a comprehensive community-based conservation effort (Platte River Habitat Partnership) on private lands. In collaboration with private and governmental partners, projects were developed on privately owned Platte River lands to improve native grasslands for livestock production and wildlife habitat. In January of 2009, he joined Headwaters Corporation. He has served as the Land Manager for the Platte Program and in 2021 he assumed the role of Land Coordinator. All his recent work has focused on the planning, coordinating and implementation of the restoration and management projects on over 13,500 acres of habitat lands acquired through the Platte River Recovery Implementation program (PRRIP) located within and 80-mile stretch of the Big-bend Reach of the Platte River.

Skills:

- Grassland Restoration and Grazing Management
- Rx Fire Planning and Implementation Oversight (RxB2, IC type 4)
- Land Management, Habitat Restoration, and Infrastructure Planning and Implementation
- Noxious Weed/ Invasive Species Control Planning and Implementation Oversight
- Request for Proposal/ Quote/ Bid Package Development
- Project Development and Construction Oversight
- Budget Development and Project Tracking
- Knowledge of GIS applications and Programs

Platte Program Role & Responsibilities:

Land Coordinator

Tim is responsible for overseeing day-to-day operations of the habitat lands acquired through the Platte Program. This includes directing staff and contractors that implement the land component of the Program. He is also responsible for oversight of activities with Program Land committee (LAC), communicating with the public and neighboring property owners, preparing management plans, ag. leases and property tax, land budget development and end of year reporting and RFP and RFQ development, overseeing staff and contractors, and providing recommendations to the ED and Governance Committee on land related items.



Justin Brei
Water Resources &
Engineering Manager

Certifications:

Professional Engineer (NE and CO)

Education:

Bachelor of Science (B.S.)

Biological Systems Engineering

May 2005

University of Nebraska – Lincoln

Career History:

Headwaters Corporation

Kearney, NE

2008 – Present

Rainwater Basin Joint Venture

Grand Island, NE

2006 – 2008

Professional Involvement:

American Society of Civil Engineers

Member

American Water Resources

Association – Colorado Section

Member

Colorado Riparian Association

Member

Biography:

Justin is a biological systems engineer and the water resources/engineering manager at Headwaters and has over fifteen years of experience with project management, endangered species habitat creation and maintenance, stream and wetland restoration/enhancement design, construction administration and oversight, project permitting and stakeholder engagement and coordination. Justin was born and raised in central Nebraska and graduated from the University of Nebraska – Lincoln. Justin has been around construction and construction planning/management since grade school, and worked in estimating and contractor sales for a home improvement store during college. Justin joined Headwaters in 2008, primarily working on the Program's Land Plan and habitat restoration projects and keeping up PRRIP's extensive GIS portfolio. In 2020, Justin moved to Colorado to lead Headwaters' water resources team on both PRRIP and non-PRRIP natural resources science and engineering projects. In addition to PRRIP habitat projects, Justin has led design and construction of restoration projects on the Big Thompson River, South Platte River, and Boulder Creek in Colorado.

Skills:

Administration & Collaboration

- Project Management
- Stakeholder Coordination
- Contract Administration
- Interdisciplinary Team Coordination
- Bid Package Preparation and Process Oversight

Technical

- Wetland and Riverine Restoration Design & Construction
- Hydrology & Hydraulics
- Ecological Project Permitting
- Construction Oversight
- Grading & Plan Production
- ArcGIS, AutoCAD Civil3D

Platte Program Role & Responsibilities:

Colorado Office Leader

Justin is responsible for managing Colorado's water, science, and engineering staff in implementation of administrative and technical work for the Program associated with the Water Plan and geomorphology aspects of the Adaptive Management Plan implementation. Justin serves as the Program's lead engineer and oversees staff engineers and contractors during design and construction of Program habitat and engineering projects. Justin is responsible for administration of the Program's website & database, and the Program's remote sensing data acquisition program.

Example Projects:

Interior Least Tern and Piping Plover Nesting Islands

Elm Creek Area, NE, 2012

Designed, bid, and oversaw construction of in-channel sandbar nesting island complexes created for the threatened and endangered interior least tern and piping plover at two sites on the Platte River in central Nebraska. Worked with PRRIP technical committees to develop constructable design criteria based on interior least tern and piping plover biological needs and designed habitat islands of appropriate size and elevations above various river stages in order to test PRRIP hypotheses about species use and success.

PRRIP Website & Species Database

2009-Present

Guided Program staff, stakeholders, and contractors through initial development of the Program's website in 2009, major support and revisions through full redevelopment in 2018. This website is the central repository for PRRIP documents, committee coordination, and houses the Program's species monitoring data, and is the primary tool for facilitating PRRIP financial transactions.



Ed Weschler

Water Resources Engineer

Certifications:

Engineer Intern, CO, #78064

CDOT Soil and Embankment
Inspector

OSHA 10-hour Construction Safety
and Health

Education:

Bachelor of Science (B.S.)

Civil Engineering

May 2021

Colorado State University

Career History:

Headwaters Corporation

Lakewood, CO

2021 – Present

Professional Involvement:

American Society of Civil Engineers

Active Member

Biography:

Ed is a water resources engineer with experience in off-channel and riverine wetland restoration/enhancement design, hydrologic data analysis and synthesis, implementation of groundwater recharge project, and construction administration on projects involving wetlands. Ed grew up north of Chicago but spent summers in Hebron, Nebraska, fishing and exploring the Little Blue River, sparking his fascination with water. As team lead for his undergraduate capstone project, he led the design process, utilizing Civil3D and ArcGIS pro throughout. Ed joined Headwaters Corporation shortly after graduating in 2021. He has been in a technical role as a design engineer for the Platte River Recovery Implementation Program.

Skills:

- ArcGIS Pro
- AutoCAD Civil3D
- Wetland Restoration Design
- Hydrologic Analyses
- Grading and plan Production
- Surveying
- Data Synthesis
- Earthwork Calculations
- Construction Administration

Platte Program Role & Responsibilities:

Junior Design Engineer

Ed is responsible for the design and construction administration of small- and large-scale projects on Platte Program Property. For example, he helped implement the 6th consecutive of full-scale sediment augmentation from initial drawings in Civil3D to final grade checks in the field. Additionally, Ed helps collect ECOG training data along the Associated Habitat Reach via Trimble survey equipment.

Example Projects:

Full-Scale Sediment Augmentation, Platte River Recovery Program, Lexington, Nebraska

Responsible for the design, bid selection, and implementation of a large-scale earthwork project downstream of the Johnson-2 hydropower clear-water return. This design augmented approximately 65,550 tons of sandy material into the south channel of the Platte near Jeffreys Island, with the intention of slowing incision. Tasks included intermittent grade checks, general construction administration, and performing final As-Built survey upon completion.

Lower Boulder Creek – Wetland Restoration, City of Boulder Open Space and Mountain Parks, Boulder, Colorado

Assisted with the design of a wetland restoration project that will reclaim 251 acres of land that was historically mined for sand and gravel. Tasks included attending stakeholder meetings, the collection and analysis of site-wide groundwater well monitoring data, data collection via survey of existing wetland elevations on-site, invasive vegetation mitigation research, creation of ESA species habitat and existing wetland figures in ArcGIS Pro, development of 60%, 90%, and 100% level designs in AutoCAD Civil3D, earthwork volume calculations, and production of sitewide grading plans.



Seth Turner

Senior Water Resources Engineer

Certifications:

Professional Engineer, CO, #41303

Education:

Master of Science (M.S.)

Civil Engineering

May 2003

University of Colorado at Boulder

Bachelor of Science (B.S.)

Agricultural Engineering

May 2001

University of Illinois at Urbana
Champaign

Career History:

Headwaters Corporation

Lakewood, CO

2014 – Present

CDM Smith

Denver, CO

2009-2014

HDR

Denver, CO

2002-2003 and 2004-2009

Meurer & Associates

Lakewood, CO

2003-2004

Professional Involvement:

Colorado Riparian Association & AWRA

Colorado Section

Active Member

Colorado Foundation for Water Education –
Water Leaders Program 2011-2012

Biography:

Seth is a water resources engineer with more than 20 years of experience, primarily in water resources planning and management in Nebraska and Colorado. A native of rural central Illinois, Seth completed his undergraduate studies at the University of Illinois and promptly moved to Colorado for graduate school. Seth began his professional career with HDR in 2002, compiling diversion, seepage, and irrigation delivery data for Platte Basin canals for a groundwater model supporting Republican River Compact litigation. Starting in 2004 and continuing through both the Draft EIS (2008) and Supplemental Draft EIS (2015), Seth was part of the third-party EIS team for the Northern Integrated Supply Project (NISP) in Colorado. Associated tasks included the analysis and screening of water supply concepts, alternatives development, hydrologic modeling, surface water impacts analysis, and operations analysis. Seth was the lead author of numerous NISP EIS technical reports. During 2008-2009, Seth developed an early version of the STELLA surface water operations model for the Central Platte Conjunctive Management Project. While with CDM Smith, Seth worked extensively with the Colorado Water Conservation Board on the Statewide Water Supply Initiative 2010 and the initial round of Basin Implementation Plans, in particular completing the municipal & industrial gap analysis and work related to alternative agricultural water transfer methods (ATMs). Seth joined Headwaters Corporation in 2014 and has dedicated most of his efforts to implementation of the Platte Program's Water Action Plan (WAP). Over the course of 8 years with the Platte Program, Seth has been deeply involved in the development of new water projects such as broad-scale recharge and recapture wells, score analyses and operations accounting for water projects, periodic updates to the WAP, administrative duties associated with groundwater recharge projects and surface water leases, and efforts to improve flow capacity at the North Platte chokepoint.

Skills:

- Water Supply Planning
- Water Operations Planning, Coordination, and Analysis
- Hydrologic modeling
- Flow analyses/impacts assessment
- Data analysis and synthesis
- Technical writing/communication
- Project Management
- Budgeting
- Meeting planning and facilitation

Platte Program Role & Responsibilities:

Water Plan Coordinator

As the Water Plan Coordinator for the Platte Program, Seth oversees the operations and analysis of the projects developed under the Platte Program's Water Action Plan. These projects, mostly groundwater recharge and surface water leasing, provide increased streamflows for channel maintenance and habitat improvement for the benefit of threatened and endangered species that utilize the central Platte River. Seth is also responsible for coordinating the activities of the Water Advisory Committee and Scoring Sub-Committee, and he assists with the planning and coordination of releases from the Lake McConaughy Environmental Account.

Example Projects & Technical Publications:

Platte River Recovery Implementation Program

[Water Action Plan Update Report: First Increment Progress, 2007-2019](#)

Report traces the evolution of the WAP from the original 2000 version through 2009 and 2014 updates to the end of the Program's First Increment in 2019. Provides a status update on all projects considered under the WAP and documents progress towards fulfillment of the Program's First Increment Water Objective.

[PRRIP Water Projects Accounting Update Memo](#)

Documents Program water project operations and quantifies reductions to USFWS target flow deficits at Grand Island provided by Program water through the end of 2020.



Kristen Cognac
Hydrogeologist

Education:

Doctor of Philosophy (Ph.D.) Candidate
Hydrogeology
Expected May 2023
Colorado State University

Master of Science (M.S.)
Hydrogeology
May 2019
Colorado State University

Bachelor of Science (B.S.)
Geology
May 2012
Northeastern University

Career History:

Headwaters Corporation
Lakewood, CO
2021 – Present

Colorado State University
Fort Collins, CO
2016 – Present

Geosyntec Consultants
Acton, MA
2012-2016

Professional Involvement:

**Colorado Groundwater Association
& Geological Society of America**
Active Member

Biography:

Kristen is a hydrogeologist with 10+ years of experience conducting groundwater investigations and research to support environmental, ecological, and water supply projects. She has a strong background in data analysis, field investigations, groundwater flow and transport modeling, and geostatistics. Prior to graduate school, she spent 5 years in environmental consulting where she performed extensive fieldwork for groundwater, soil, and vadose zone remediation. Her work west of the Mississippi focuses primarily on water supply, conservation, and ecological restoration. She currently works part-time while finishing her Ph.D. in Hydrogeology at Colorado State University where her ongoing graduate research seeks to understand changing fluxes within the Denver Basin Aquifer System due to long-term pumping through groundwater flow and geostatistical modeling.

Skills:

- Hydrogeologic investigation
- Data visualization
- Technical writing
- Science communication
- Statistics / geostatistics
- GIS and geospatial analysis
- Coding (Python, MATLAB)
- Modeling (MODFLOW, VS2DH)

Platte Program Role & Responsibilities:

Kristen provides general hydrogeologic support for a range of ecological, habitat, and wetland restoration projects across Nebraska and Colorado. Tasks have included data and geospatial analysis, study design, hydrogeologic mapping, groundwater modeling, and report writing. She employs efficient workflows and reproducibility by incorporating python into data analysis and modeling tasks, including geospatial analysis and calibration.

Example Projects and Technical Publications:

Platte River Valley wet meadow hydrologic study. *Headwaters Corporation, 2022* - Kristen is leading an ongoing hydrologic study to evaluate controls, constraints, and associated management implications for wet meadows throughout the CPRV.

Upper Laramie Aquifer Water Rights Cases, Northern Colorado. *KC Hydrogeology, 2020* – Kristen conducted a hydrogeologic investigation that led to non-tributary water rights determination for a property overlying the Upper Laramie aquifer in Northern Colorado. She developed cross-sections, groundwater maps, and conceptual model to support the case.

Cognac, K. E., and Ronayne, M. J., 2020. Changes to inter-aquifer exchange resulting from long-term pumping: implications for bedrock groundwater recharge. *Hydrogeology Journal*, 28(4), 1359-1370.

McConnell, L., Karimi Askarani, K., **Cognac, K. E.**, Mack, E. E., Bartlett, C., Ronayne, M. J., & Blotevogel, J., 2022. Forecasting Groundwater Contaminant Plume Development Using Statistical and Machine Learning Methods. *Groundwater Monitoring & Remediation*.



Chadwin B. Smith
Senior Partner/Owner

Doctor of Philosophy (Ph.D.)

Natural Resource Sciences

December 2020

University of Nebraska-Lincoln

Master of Public Affairs (M.P.A.)

*Environmental Policy & Natural
Resources Management*

May 1996

Indiana University - Bloomington

Bachelor of Science (B.S.)

Fisheries & Wildlife

May 1994

University of Nebraska-Lincoln

Career History:

Headwaters Corporation

Kearney, NE

2007 – Present

American Rivers

Washington, D.C. & Lincoln, NE

1996-2007

Biography:

Chad specializes in working at the nexus of science and policy in large, complex resource management programs. He has worked on several large-scale endangered species recovery and ecosystem restoration programs throughout the United States over the past 25+ years. His technical expertise includes adaptive management (AM), adaptive governance (AG), review of restoration program structure and function, decision analysis, data synthesis, and engaging multiple stakeholders. As part of his PhD research, Chad developed a five-step framework to serve as a repeatable tool for large-scale restoration programs to assess components of governance and adaptive management and recommend refinements to help those programs move forward in achieving their goals and objectives.

Skills (Administration, Collaboration, & Technical):

- Program Management
- Negotiations and Contracting
- Budgeting and Procurement
- Adaptive Management
- Adaptive Governance
- Structured Decision Making
- Scientific Writing/Communication
- Data Synthesis & Reporting
- Restoration Ecology

Platte Program (PRRIP) Role & Responsibilities:

Science Policy Coordinator

Chad is responsible for working with the Governance Committee (GC) and Executive Director (ED) on issues related to policy, management, and decision-making. Provides support to the ED and Science Plan Coordinator on implementation of AM, use of Structure Decision Making (SDM), and communicating the results of PRRIP science activities to the GC for use in decision-making. Facilitates independent science for the PRRIP, including managing the Independent Scientific Advisory Committee (ISAC) and peer review of PRRIP documents utilizing the PRRIP Peer Review Guidelines. Assists the ED by providing general oversight in the form of administrative support for the GC and Finance Committee (FC); contracting and performance against the PRRIP Procurement Policy; and development and management of the annual PRRIP budget and work plan.

Example Projects:

**Trinity River Restoration Program (TRRP), California
(2017-2023)**

Refinements Coordinator for the TRRP. Led Headwaters' successful effort to review TRRP mandates, goals, objectives and processes with a focus on identifying refinements to TRRP management and functions to better serve the goals and mandates. Developed implementable recommendations for TRRP Refinements. Provided expert guidance on program governance, AM, and how to link science and decision-making. Led process to develop a Program Document and Science Plan for the TRRP, to be finalized in 2023.

**Middle Rio Grande Endangered Species Collaborative Program, New Mexico
(2010-2011)**

Co-led team that developed Adaptive Management Plan (AMP) v.1 for the MRGESCP. Tasks included facilitating, coordinating and leading technical meetings and workshops, drafting conceptual models, hypotheses, management objectives, monitoring and research priorities, and other key aspects of the AMP.

Expert advice on AM and AG to other large-scale restoration programs:

- Louisiana Coastal Restoration, Louisiana (2018-2019)
- Gulf of Mexico Restoration Program, Louisiana (2015)
- Comprehensive Everglades Restoration Program (CERP), Florida (2010)



Malinda Henry
Science Lead

Certifications:

MSHA Certification, 2022

Education:

B.S. Biology, 1992
Doane College, NE
M.S. Zoology, 1998
Miami University, OH
Ph.D. Behavior, Ecology, Evolution, and Systematics, 2011
University of Maryland, MD

Post-doctoral Research:

Eppley Institute for Research in Cancer and Allied Diseases, University of Nebraska Medical Center, NE, 2011-13

Graduate Program in Ecology and Natural Resources, North Fluminense State University (UENF), RJ, Brazil, 2014-2016

Career History:

Headwaters Corporation
Kearney, NE
2020 – Present

Institute of Biodiversity and Sustainability, Federal University of Rio de Janeiro (NUPEM/UFRJ)
Macaé, RJ, Brazil
2016-2020

Professional Involvement:

Golden Lion Tamarin Association
Associação Mico-Leão-Dourado (AMLD)
Scientific Advisory Board Member

Biography:

Malinda is an ecologist working to evaluate the response of plants and animals to environmental change. She brings a diverse skill set with her to evaluate mechanisms behind species response, adaptability, and limits of tolerance. Malinda is a Nebraska native who began her career with native tall-grass prairie restoration and comparing forest communities from East to West Germany. She has worked for over twenty years with endangered primates occupying highly anthropomorphic landscapes to identify the cascade of effects that habitat loss and fragmentation have upon these species, mechanisms by which species adapt, and the effectiveness of efforts to improve habitat connectivity. Malinda has used what she has learned to teach Ecology and Conservation Biology at the Federal University of Rio de Janeiro; but also as a Scientific Advisory Board member of the Golden Lion Tamarin Association, using adaptive management to improve population viability of golden lion tamarins in the São João River Basin of Rio de Janeiro state. Malinda joined Headwaters Corporation in 2020, focusing her efforts on reviewing Platte Program science and developing new ways to document response of terns, plovers, and whooping cranes to Program land and water management. Malinda coordinated a technical work group to develop a Science Plan for the Platte Program that provides a roadmap for Program science implementation through 2032.

Skills:

Administration & Collaboration

- Team Leadership
- Project Management
- Adaptive Management
- Collaborative Research
- Budgeting

Technical

- Ecology, Animal Behavior, Endocrinology, & Genetics
- Species Monitoring & Mngmt
- Experimental Design & Analysis
- Scientific Writing/Communication

Platte Program Role & Responsibilities:

Science Lead

Malinda coordinates a multi-disciplinary team that implements the Program's Science Plan. She works with staff, research collaborators, and contractors to plan, implement, evaluate, and report Program science. Malinda is responsible for the communication of Program science to stakeholders and the public. She organizes and facilitates Technical Advisory Committee meetings, prepares collaborative research and data sharing agreements between the Program and external scientists, and develops the annual science budget.

Example Projects & Technical Publications:

Platte River Recovery Implementation Program

[First Increment Extension Science Plan](#)

Approved by PRRIP Governance Committee, 2022

Led adaptive management working group meetings to develop priority questions and hypotheses. Revision of conceptual ecological models. Development of monitoring protocols, implementation, and evaluation plans.

Connect Project, Petrobras, RJ, Brazil

Evaluation of the effect of gas ducts on landscape connectivity for arboreal mammals and analysis of effectiveness of canopy bridges as mitigation.

UFRI/ AMLD 2018 - 2020

Collaborative project development, implementation, analyses, and reporting. Collection of vegetation and capture/recapture field data. Determination of locations for installation of canopy bridges based upon capture/recapture data.

Recent Publications

Gonçalves, PR, Di Dario, F, Petry, AC, Martins, RL **Henry, M.D., et al.** 2020. [Brazil undermines parks by relocating staff](#). *Science*, 12 Jun 2020: 1199.

Dietz, JM, Hankerson, SJ, Alexandre, BR, **Henry, M.D., et al.** 2019. [Yellow fever in Brazil threatens successful recovery of endangered golden lion tamarins](#). *Scientific Reports*, 9:12926.



Jason Bruggeman

Endangered Species
Monitoring Coordinator

Education:

Ph.D. Fish and Wildlife Biology, 2006

Montana State University, MT

**B.S. Biology—Fish and Wildlife
Management, 2002**

Montana State University, MT

M.E. Chemical Engineering, 1999

University of Delaware, DE

B.S. Chemical Engineering, 1998

University of Minnesota, MN

Post-doctoral Research:

University of Minnesota

2007 – 2009

Montana State University

2006 – 2007

Career History:

Headwaters Corporation

Kearney, NE

2023 – Present

Beartooth Wildlife Research

Savage, MN

2008 – 2022

University of Minnesota

St. Paul, MN

2007 – 2022

Professional Involvement:

American Ornithological Society

Active Member

Biography:

Jason is a wildlife research biologist and biometrician that has worked in both the private consulting and academic arenas. He has extensive experience with spatial and population data of avian and mammalian species. Through his own consulting business, Beartooth Wildlife Research, Jason led and designed studies involving pikas, grassland specialist birds, and Northern Goshawks. As a researcher at the University of Minnesota, Jason worked with existing data from Arctic Peregrine Falcons to assess occupancy and population dynamics; Bald Eagles to assess lead concentrations in nestlings; and black-tailed prairie dogs to assess colony areal dynamics. He also served as coordinator for a Northern Goshawk monitoring effort in the western Great Lakes region. Jason has experience with collaborative research and monitoring studies involving state, federal, and non-government partners. Jason obtained his Ph.D. at Montana State University with dissertation research on bison spatial dynamics in Yellowstone National Park during winter.

Skills:

Administration & Collaboration

- Collaborative Research
- Project Management
- Team Leadership
- Project Budgeting

Technical

- Study Design for Species Monitoring and Research
- Statistical Analyses of Wildlife Population and Spatial Data
- GIS Data Analysis & Visualization
- Scientific Writing/Communication

Platte Program Role & Responsibilities:

Endangered Species Monitoring Coordinator

Jason will be joining Headwaters in 2023 to coordinate field work, monitoring, and research for piping plovers, interior least terns, and whooping cranes under the Platte River Recovery Implementation Program. Jason will be responsible for supervising field crews, analyzing and interpreting data, designing new studies, writing reports and publications, and presenting results to stakeholders.

Example Projects & Technical Publications:

Principal Investigator / Biometrician

Evaluation of Northern Goshawk nest-site habitat suitability in the Black Hills

Beartooth Wildlife Research, 2019 – 2021

Led retrospective analyses of >50 years of Northern Goshawk nest location data from the Black Hills National Forest. The efforts included evaluating factors affecting Goshawk nest-site habitat suitability, assessing changes in forest attributes related to nest-site use over time, and using a predictive model for nest-site habitat suitability to design a sampling protocol for future monitoring. Partners included South Dakota Game, Fish & Parks and the U.S. Forest Service.

Principal Investigator / Wildlife Research Biologist

Factors affecting pika populations in North Cascades National Park

Beartooth Wildlife Research, 2009 – 2013

Designed and led a five-year study to evaluate abiotic and biotic factors affecting pika populations in North Cascades National Park. The research provided novel insights into the role of winter weather variability on pika populations at high latitudes and the beginning of a pika monitoring program for the park.

Recent Publications and Reports

Bruggeman, J.E., and P.L. Kennedy. 2021. Evaluation of Northern Goshawk nest-site data and population status in the Black Hills National Forest of South Dakota and Wyoming: changes in nest-site habitat suitability and related forest attributes. Unpublished report. Beartooth Wildlife Research, Savage, MN.

Bruggeman, J.E., T. Swem, D.E. Andersen, P.L. Kennedy, and D. Nigro. 2015. Dynamics of a recovering Arctic bird population: the importance of climate, density dependence, and site quality. *Ecological Applications* 25:1932-1943.



Patrick Farrell
Statistical Ecologist

Certifications:

Associated Wildlife Biologist, 2018, The Wildlife Society

Data Analysis, Colorado State University Graduate Program, 2017

Education:

M.S. Wildlife Sciences, 2015
Auburn University

B.S. Biology, 2012
Central Michigan University

Career History:

Headwaters Corporation
Kearney, NE
2015 – Present

Auburn University, Auburn, AL
2013 - 2015

Central Michigan University, Mt Pleasant, MI
2010-2012

Professional Involvement:

The Wildlife Society
Active Member

Biography:

Patrick is a Statistical Ecologist for Headwaters Corporation with over ten years of experience in applied scientific research to support natural resource management including large-scale habitat prioritization, riparian habitat restoration, and management action trade-offs. Patrick grew up in Michigan and worked as a researcher during his time at Central Michigan University studying avian migration and shorebird reproduction on Lake Michigan. Patrick then joined the Alabama Cooperative Fish and Wildlife Research Unit and developed grassland bird habitat relationships to understand landscape suitability and habitat connectivity for these birds in the Southeastern U.S. to aid large-scale grassland conservation efforts. Patrick then joined Headwaters Corporation in 2015 in his current position.

Skills:

Administration & Collaboration

- Project Management
- Collaborative Research Planning and Evaluation
- Adaptive Management
- Structured Decision Making

Technical

- Generalized Linear Regression
- Machine Learning
- Geospatial Modeling
- Avian Ecology
- Fluvial Geomorphology
- Study Design
- Scientific Writing/Communication

Platte Program Role & Responsibilities:

Statistical Ecologist

Patrick works together with a multi-disciplinary team to provide statistical input shaping experimental design, implementation, and geospatial modeling. He develops and conducts statistical analyses for geomorphic, hydrologic, and endangered species monitoring projects. Patrick is responsible for developing relevant and robust analyses to reduce uncertainties around target species response to land and water management to inform decision-making.

Example Projects & Technical Publications:

Lead Researcher - Interior Least Tern and Piping Plover Nest Site Selection

Peer Reviewed Publication (<https://doi.org/10.1111/jofo.12206>), 2019

Directed data compilation effort of tern and plover nest locations at central Platte River off-channel sites from 2001-2015. Quantified characteristics associated with nest locations and compared those with random available locations with discrete-choice modeling to identify patterns of nest placement within off-channel sites. This research was published in the scientific literature and future Platte Program off-channel nest site designs incorporated results to increase the availability of suitable nesting conditions at newly managed sites.

Researcher – Whooping Crane Riverine Habitat Selection

Peer Reviewed Publication (<https://doi.org/10.1371/journal.pone.0209612>), 2018

Led analysis of Platte Program whooping crane monitoring data and satellite telemetry data to identify and quantify habitat characteristics important to explain patterns of riverine use on the central Platte River and other Great Plains river systems. This research was published in the scientific literature and results were used to amend Program land management plans to include established minimum unforested corridor width and unobstructed channel width to promote whooping crane use along Program managed riverine areas.



Mallory Jaymes
Wildlife Biologist

Certifications:

Wetland Delineation, 2022
MSHA, 2022
Nebraska Forest Service Wildland
Fire Academy: S-215, S-290, S-219,
S131, S-212, S-130, S-190, L-180

Education:

M.S. Organizational Management in
Natural Resources, 2015
Chadron State College

B.S. Rangeland and Wildlife
Management, 2013
Chadron State College

Career History:

Headwaters Corporation
Kearney, NE
2018–Present

Pheasants Forever Inc.
Red Cloud, NE
2016–2018

Nebraska Game and Parks
Crawford, NE
2014-2016

Biography:

Mallory is a wildlife biologist with over ten years of experience in wildlife and land management including coordinating and implementing endangered species monitoring efforts, collecting monitoring data, wetland delineation, managing farm bill program contracts for wildlife benefits, big game aging and trapping, wildfire and prescribed burning, and equipment operating. Mallory was born and raised on a family farm near Ravenna, Nebraska. During college, she worked as a technician for U.S. Forest Service and as a tech for U.S. Fish and Wildlife Service. While getting her masters at Chadron State College, she worked for Nebraska Game and Parks gaining experience in big game management and large-scale land management overseeing forest thinning, grazing, and weed spraying contracts. She farmed food plots, sprayed weeds, fenced, cut trees, planned/performed prescribed burns, and restored native grasslands. At Pheasants Forever Inc. Mallory worked directly with the Farm Service Agency and the Natural Resources Conservation Service helping producers select governmental programs such as the Conservation Reserve Program, brush management, and/or prescribed fire to best fit their needs and provide benefits to wildlife. Mallory joined Headwaters Corporation in 2018. She serves as the Platte River Recovery Implementation Program's lead biologist coordinating efforts to monitor whooping crane use of the central Platte River. In addition, she assists with monitoring of interior least terns and piping plovers during the nesting season. She also conducts the Program's wetland mitigation monitoring.

Skills:

Administration & Collaboration

- Project Management
- Field Crew Management
- Request for Bids and Contract Development
- Project Budgeting

Technical

- Land Management
- Herbicide Application
- Grazing/Fire Ecology
- Vegetation Sampling
- Wetland Delineation
- Wildlife Population Surveying
- Database Management
- Big Game Aging/Trapping
- Equipment Maintenance and Operation

Platte Program Role & Responsibilities:

Wildlife Biologist

Mallory is responsible for overseeing whooping crane monitoring each spring and fall for the Platte Program. This includes directing temporary staff and contracted pilots along with organizing the collected data, report writing, and communicating results. She is also responsible for assisting with least tern and piping plover data collection and conducting wetland mitigation monitoring and report writing. Additionally, Mallory works together with the Program's land manager, providing her insights on grazing, prescribed fire, grassland restoration, fencing, and forestry.

Example Projects & Technical Publications:

Implementation of the Whooping Crane Monitoring Protocol

[PRRIP Whooping Crane Monitoring Report, Fall 2019-Fall 2022](#)

Responsible for budgeting, contracting, training, and overseeing temporary employees and contractors while implementing the whooping crane monitoring protocol each spring and fall. Responsible for database management as well as reporting each season's monitoring results.

Speidel Wetland Mitigation monitoring

Responsible for annual wetland delineation and results reporting for Program wetland mitigation monitoring.



Kaley Keldsen
Wildlife Biologist

Certifications:

Certified Remote Pilot – Small UAS,
2019 FAA
MSHA Certification—2022

Education:

M.S. Biology, 2021
University of Nebraska at Kearney
B.S. Biology, 2016 University of
Nebraska at Kearney

Career History:

Headwaters Corporation
Kearney, NE
2015 – Present

University of Nebraska
Kearney, NE
2017-2021

Biography:

Kaley is a wildlife biologist with over seven years of experience implementing biological studies, monitoring the federally threatened piping plover, and predatory animals along the central Platte River in Nebraska. Kaley was born and raised in central Nebraska. During college, she volunteered at Iain Nicolson Audubon Center at Rowe Sanctuary and worked as a part time biological technician at Headwaters Corporation in Kearney, NE. After graduating, Kaley became a full-time wildlife biologist at Headwaters Corporation. At Headwaters, she collected piping plover and interior least tern band resighting data and conducted outside monitoring. Kaley currently leads a research study that identifies potential predators and those responsible for piping plover and least tern nest predation. She quantifies predator presence and evaluates effectiveness of predator management actions at plover and tern off-channel nesting sites along the central Platte River.

Skills:

Administration & Collaboration

- Project Management
- Team Member Training
- Budgeting
- Collaborative Research Design and Implementation

Technical

- Animal Behavior & Biology
- Bird and Mammal Species ID
- Remote Camera/Video
Experimental Design and Troubleshooting
- Data Collection, Database Management, QA/QC
- UAV Monitoring and Research
- Airboat Pilot, Off-road Vehicle Operation and Maintenance

Platte Program Role & Responsibilities:

Wildlife Biologist

Kaley is the lead scientist for the predator management study. This includes participating in experimental design, developing camera monitoring protocols, coordinating camera monitoring efforts, deploying research equipment, collecting, reviewing, and analyzing data. She is also responsible for UAV surveys and airboat tours of Program properties for land management purposes and to provide Program committee members the opportunity to view Program projects firsthand.

Example Projects & Technical Publications:

Piping Plover and Interior Least Tern Predator Monitoring

[PRRIP 2021 Piping Plover and Interior Least Tern Monitoring and Research Report](#)

Analyses of additional predator monitoring data, detailed methodology, results and conclusions, and development of tables and figures.

MS Research - [Efficacy of predator exclusion methods and identification of nest predators for interior least terns and piping plovers at off-channel nesting sites along the central Platte River, Nebraska.](#)

University of Nebraska at Kearney, 2017-2021

Utilized remote cameras to monitor predator presence and evaluate predator exclusion techniques used to protect Piping Plover and Interior Least Terns at constructed and managed off-channel nesting sites. Specifically, I identified potential predators of piping plover and least tern nests, documented the number of unique potential predator registers, determined the most frequent potential predators present, and identified potential relationships between potential predator registers and landcover classifications. This research demonstrated the importance of implementing predator exclusion techniques necessary to protect threatened shorebird species.



Michael Steele

Biological Technician

Certifications:

CPR, Emergency Medical Responder, and Wilderness and Remote First Aid, American Red Cross, 2021-2026
MSHA Certification, 2022

Education:

B.S. Recreation Management, Natural Resources Emphasis
Anticipated May 2023
University of Nebraska-Kearney

Career History:

Headwaters Corporation
Kearney, NE
2022 – Present

University of Nebraska
Kearney, NE
2020-Present

Biography:

Michael joined Headwaters as a biological technician assisting with seasonal monitoring of Least Tern, Piping Plover, and Whooping Crane use of the central Platte River. Michael has experience monitoring terns and plovers and their potential predators on nesting sites utilizing remote cameras and video equipment. He also performs general land management and equipment maintenance tasks. Michael was born and raised in central Nebraska spending much of his time outdoors in the Loup and Platte Rivers. An avid outdoorsman, Michael utilizes much of the public land available in Nebraska for sport and recreation. Michael spent his years after high school working in the ethanol industry as an operational team lead before deciding to return to college and pursue Recreation Management, selecting coursework that integrates administration of outdoor recreation with a base in ecology and natural resource management. Michael is currently doing an independent historical study of the interaction between National Parks and American culture.

Skills:

- Implementation of Endangered Species Monitoring Protocols
- Remote Camera/Video Monitoring
- Bird/Mammal Identification
- Data Collection, Entry, QA/QC, Descriptive Statistics
- Ecology, Natural Resource Management, Environmental Conservation Map Reading
- Motorized Vehicle and Large Equipment Operation
- First Aid/Outdoor Safety

Platte Program Role & Responsibilities:

Biological Technician

Michael is part of the team that monitors Interior Least Tern and Piping Plover nesting activities and potential predators that threaten their productivity on the central Platte River. He is primarily responsible for data collection from remote camera and video imagery. He performs QA/QC on these data and provides data summaries through descriptive statistics. Michael also participates in aerial surveys to document whooping crane presence during the spring and fall migratory seasons. He assists Headwaters Corporation with equipment maintenance and land management tasks.

Example Projects & Technical Publications:

Interior Least Tern and Piping Plover Predator Monitoring

Platte River Recovery Implementation Program
2022-Present

Responsible for review of remote camera/video imagery captured at Tern and Plover nesting sites for identification and quantification of predation pressure and losses due to predation. Performs track surveys to identify predators present at nesting sites. He is responsible for remote camera equipment maintenance and operation.

Interaction of National Parks with American Culture

University of Nebraska at Kearney
2022

Independent study of the interaction between the U.S. National Parks system (including public visitation and ecotourism) and American culture and how that interaction shapes natural resource and parks management and, in turn, U.S. public knowledge of natural resources, feelings of national pride, and conservation beliefs and actions. Responsible for literature review, data synthesis, and drawing conclusions. Responsible for written project summary and oral presentation.



Jonathan Wentz
Biological Technician

Certifications:

MSHA Certification, 2022

Education

B.S. Biology, 2022
University of Nebraska at Kearney

Career History:

Headwaters Corporation
Kearney, NE
2020 – Present

University of Nebraska
Kearney, NE
2018-2022

Biography:

Jonathan is a biologist with an emphasis in wildlife. He has five years of experience collecting biological data in the field, especially on birds, reptiles, and fish. Jonathan was born and raised along the Big Bend region of the Platte River. Early in his career Jonathan published a natural history note expanding the known range of Cope's gray treefrog to include Nebraska. As an undergraduate research assistant at the University of Nebraska Jonathan counted and identified waterbird species for a waterfowl survey, banded birds for a site fidelity study, and participated in fish surveys of canals, rivers, and ponds. Jonathan joined Headwaters in 2020 as a summer technician assisting with turtle trapping for a capture/recapture study at piping plover and interior least tern nesting sites. Following graduation, Jonathan was hired as a full-time biological technician. He works with a team of biologists to monitor whooping crane, piping plover, and interior least tern use of the central Platte. Jonathan also contributes by performing land management tasks, collecting groundwater monitoring data, and maintaining equipment.

Skills:

- Implementation of Endangered Species Monitoring Protocols
- Wetland Bird Surveys
- Bird Banding
- Mark-Recapture of Turtles using Hoop Traps
- Fish Surveys: Seining, Hoop Netting, Electroshocking (Boat and Backpack)
- Track Surveys
- Bird/Mammal/Fish Identification
- Remote Camera/Video Monitoring
- Data Collection, Entry, QA/QC, Descriptive Statistics
- Zoology, Plant Taxonomy, Ecology, Range & Wildlife Management
- Off-Road Vehicle Operation and Maintenance

Platte Program Role & Responsibilities:

Biological Technician

Jonathan is part of the team that monitors piping plover and interior least tern nesting activities on the central Platte River. He conducts weekly track surveys to document potential predators at nesting sites. Jonathan also participates in aerial surveys to document whooping crane presence during the spring and fall migratory seasons. He assists with land management tasks, collecting groundwater monitoring data, and equipment maintenance.

Example Projects & Technical Publications:

Species Geographic Distribution

Jonathan contributed to expanding the documented range of Cope's gray tree frog to include Buffalo and Burt counties in Nebraska. He was also part of the research team that documented the first record of glass lizards reproducing in Nebraska.

Wentz, J. and Geluso, K. (2022) *Hyla chrysoscelis* Geographic Distribution. Herpetological Review 53(1), pg. 71.

Geluso, K. *et al.* (2022) "First reproductive evidence for the Slender Glass Lizard (*Ophisaurus attenuatus*) in Nebraska." Transactions of the Nebraska Academy of Sciences and Affiliated Societies. <https://digitalcommons.unl.edu/tnas/537/>

Wentz, J. and Geluso, K. (2017) *Hyla chrysoscelis* Geographic Distribution. Herpetological Review 48(3), pg. 584.



Libby Casavant
Water Resources Engineer

Certifications:

EIT
Rosgen II Stream Restoration

Education:

M.S. Civil and Environmental Engineering, University of Iowa, 2022

B.S.E Environmental Hydrology, University of Arizona, 2012

Career History:

Headwaters Corporation
Lakewood, CO
2022 – Present

University of Iowa
Iowa City, IA
2019 – 2022

Michael Baker International
Alexandria, VA
2016 - 2019

Professional Involvement:

AWRA
Active Member

Biography:

Libby recently joined the Headwaters team after finishing her graduate work at the University of Iowa and moving to Colorado. She is a water resources engineer with a background in hydrology, hydrodynamic modeling, sediment transport, and flood mitigation. She has professional experience in the assessment and design of stream restoration, constructed wetlands, and stormwater improvement projects intended to decrease pollution in the Chesapeake Bay. While earning her master's as an NSF fellow, she collaborated with Dutch researchers to investigate the feasibility of diverting excess sediment from a braided channel system in India. She enjoys the complexity and dynamism of these systems and the unique challenges they present.

Skills:

- Hydrology
- Hydrodynamic Modeling
- Scour Analysis
- Stream Restoration
- Scientific Writing/Communication
- Field data collection/survey
- Green infrastructure design
- Stormwater Design

Platte Program Role & Responsibilities:

Libby leads hydraulic and sediment transport modeling efforts for water supply conveyance and geomorphology aspects of Program research and monitoring. She also assists with evaluation and design of the sediment augmentation project, manuscript preparation, review, and publication.

Example Projects & Technical Publications:

Casavant, E. Evaluating Diversion Channels for Mitigating Super-Elevation on the Middle Kosi River Using Delft 3D. May 2022.

Prince George County, MD Stream Restoration

Project Engineer, 2018

Assisted in design and construction monitoring of an urban stream restoration project near Washington D.C. The stream was re-routed away from an endangered house and reconnected with its floodplain.

Naval Station Newport Stormwater Investigation

Authored technical memorandum, 2018

Field investigation and modeling of a storm sewer system that drains over 500 acres in Newport, Rhode Island was required to discover the causes of manhole blow-outs and severe coastal scour. Authored a technical memorandum defining the issues and proposed solutions.

Tennessee River, Montgomery County, Alabama FEMA floodplain mapping

Project Engineer, 2018

Completed HEC-RAS modeling to establish updated floodplain maps for a 60-acre site north of the Tennessee River. Coordinated with FEMA to revise maps based on recent construction.

VDOT Multi-Barrel Culvert Replacement

Lead Design, 2018

Completed design and authored the H&H report for replacement of substandard culverts at a county road crossing.



Helen Davis
Geospatial Analyst

Education:

M.S. Wildlife and Fisheries Sciences,
2017
Texas A&M University

B.S. Wildlife Biology, 2008
Colorado State University

Career History:

Headwaters Corporation
Fort Collins, CO
2022 – Present

Colorado State University, CEMML
Fort Collins, CO
2018-2022

Oaks and Prairies Joint Venture
Austin, TX
2017-2018

Professional Involvement:

International Association for
Landscape Ecology

The Wildlife Society

Raptor Research Foundation

Biography:

Helen is a Geospatial Analyst with over a decade of experience managing and implementing natural resources projects. She has extensive experience leveraging geospatial tools to help inform and guide management actions targeting threatened and endangered species. Before coming to Headwaters Corporation, Helen was a Project Manager at Colorado State University's Center for Environmental Management of Military Lands. Helen managed a variety of natural resources projects for the Department of Defense including managing project deadlines and deliverables, developing Air Force-compliant geospatial products, designing project methodology and overseeing data collection in the field, analyzing data, and synthesizing data into technical reports and publications.

Skills:

- GIS
- Spatial analysis
- Statistical data analysis
- Database management
- Study design
- Ecological monitoring
- Project management
- Landscape ecology

Platte Program Role & Responsibilities:

Helen oversees Platte Program geospatial data and products. This includes performing spatial analyses on Program data, managing data in spatial and aspatial databases, performing statistical analyses, cartographic production, managing cloud-based data collection and data hosting, and providing geospatial support to other Headwaters staff.

Publications and Reports:

Davis, H. and S. Kramer. 2022. Bat Monitoring and Management at King Salmon Airport, Alaska. Prepared by Center for Environmental Management of Military Lands, Colorado State University, Fort Collins, Colorado, for 611th Civil Engineer Squadron, King Salmon Airport, AK, Agreement no. W9126G-19-2-0066, U.S. Army Corps of Engineers-Alaska District.

Ley, M. and **H. Davis**. 2022. Golden-cheeked warbler habitat classification report for Joint Base San Antonio, Camp Bullis, Texas. Prepared by Center for Environmental Management of Military Lands, Colorado State University, Fort Collins, Colorado, for the 802nd Civil Engineering Squadron Natural Resources Office, San Antonio, TX. Agreement no. W911KN-20-2-0512, U.S. Army Corps of Engineers-Fort Worth District.

Mueller, J., S. Sesnie, S. Lehnen, **H. Davis**, J. Giocomo, J. Macey, John, and A. Long. 2022. Multi-scale species density model for conserving an endangered songbird. *Journal of Wildlife Management* 0.1002/jwmg.22236

Baumgardt, J.A., M.L. Morrison, L.A. Brennan, **H.T. Davis**, R.R. Fern, J.M. Szewczak, and T.A. Campbell. 2022. Monitoring occupancy of bats using acoustic data: power and sample size recommendations. *Western North American Naturalist* 82(1): 36-49.

Davis, H.T., A.M. Long, T.A. Campbell, and M.L. Morrison. 2019. Factors affecting nest success and predator assemblage of breeding birds in semiarid grasslands. *Journal of Rangeland Ecology and Management* 72(2):385-395.

Fern, R.R., **H.T. Davis**, J.A. Baumgardt, M.L. Morrison, and T.A. Campbell. 2018. Summer activity patterns of four resident south Texas bat species. *Global Ecology and Conservation* 16:e00500.

Davis, H.T., A.M. Long, T.A. Campbell, and M.L. Morrison. 2018. Nest defense behavior of Greater Roadrunners (*Geococcyx californianus*) in south Texas. *Wilson Journal of Ornithology* 130(3):788-792.



Sarah Hinshaw
Fluvial Geomorphologist

Education:

Ph.D. Geosciences, 2022
Colorado State University

Graduate Certificate in Data Analysis
Colorado State University, 2021

M.S. Geosciences, 2019
Colorado State University

B.S. Geology, 2015
University of North Carolina at
Chapel Hill

Career History:

Headwaters Corporation
Fort Collins, CO
2022 – Present

New York City Department of
Environmental Protection
Kingston, NY
2016

Professional Involvement:

Colorado Riparian Association
Active Member

Biography:

Sarah is a fluvial geomorphologist with ten years of research experience and a passion for engaging in the river restoration community. Sarah is originally from the mountains of western North Carolina, where she developed a love for the outdoors and natural science. An internship after college led her to Kingston, NY, where she became interested in river restoration and learned fluvial geomorphology field skills while revising regional hydraulic geometry relationships in the water supply region for New York City. Sarah's success in the Stream Management Program of the New York City Department of Environmental Protection (NYCDEP) led to a partnership with NYCDEP to earn a Master's degree at Colorado State University (CSU) under the guidance of renowned scientist Dr. Ellen Wohl. For her Master's, Sarah investigated relative influences of wood and valley geometry on sediment distribution in a Catskill Mountain stream after a flood of record. Continuing in the CSU Fluvial Geomorphology Group for her PhD, Sarah developed an innovative monitoring strategy for a large stream restoration project on the South Fork McKenzie River in Oregon and estimated carbon sequestration potential in river restoration projects throughout Oregon, Utah, and Colorado. Sarah is heavily involved in the Colorado stream restoration community and hopes to expand her involvement to the larger Platte River watershed in her recent position at Headwaters.

Skills:

- Field investigation
- Data visualization
- Scientific writing
- Science communication
- Statistical data analysis
- GIS
- Ecological monitoring
- Community engagement

Platte Program Role & Responsibilities:

Sarah evaluates sediment augmentation efforts from 2017-2021 to assess the efficacy of past sediment augmentation methods and determine future sediment needs. Sarah utilizes elevation data from topobathymetric LiDAR and historical elevation and imagery datasets to detect trends in incision surrounding the J2 Irrigation Return. Sarah is leading a team of Headwaters colleagues to approach sediment augmentation evaluation from multiple angles using various data analysis techniques.

Publications and Reports:

Hinshaw, S., Wohl, E., Burnett, J.D. and Wondzell, S., 2022. Development of a geomorphic monitoring strategy for stage 0 restoration in the South Fork McKenzie River, Oregon, USA. *Earth Surface Processes and Landforms*.

Hinshaw, S., 2022. The Colorado Beaver Management Prescription. Report prepared for Colorado Parks and Wildlife, 30 pp.

Hinshaw, S., and Wohl, E., 2022. Beaver Belong: Impacts of beaver ecosystem engineering. Report prepared for World Wildlife Fund Canada, 47 pp.

Hinshaw, S. and Wohl, E., 2021. Quantitatively estimating carbon sequestration potential in soil and large wood in the context of river restoration. *Frontiers in Earth Science*, p.975.

Hinshaw, S., Wohl, E. and Davis, D., 2020. The effects of longitudinal variations in valley geometry and wood load on flood response. *Earth Surface Processes and Landforms*, 45(12), pp.2927-2939.

Wohl, E., **Hinshaw, S.,** Scamardo, J.E. and Gutiérrez-Fonseca, P.E., 2019. Transient organic jams in Puerto Rican mountain streams after hurricanes. *River Research and Applications*, 35(3), pp.280-289.



Malia Volke, Ph.D.

River Scientist

Certifications:

Certified Ecologist, Ecological Society of America, 2017

Education:

Ph.D. Biological Sciences, 2015
South Dakota State University

B.S. Ecology, 2006
University of Idaho

Career History:

Headwaters Corporation
Fort Collins, CO
2022 – Present

Washington Department of Natural Resources
Spokane, WA
2020 – 2022

New Mexico Environment Department
Los Alamos, NM
2019 – 2020

New Mexico Department of Game and Fish
Santa Fe, NM
2015 – 2019

Professional Involvement:

Society of Wetland Scientists
Active Member

Biography:

Malia is a river scientist with over a decade of experience conducting ecological research, restoration, and management projects in river systems across the American West and Midwest, with a particular focus on riparian and wetland vegetation. She has expertise with collecting, analyzing, and interpreting biophysical data in riverine ecosystems to examine interactions between vegetation, hydrology, and sediment. During and between her undergraduate and graduate school years, Malia spent many seasons as a field technician collecting data in support of wildlife species monitoring and field vegetation ecology studies. Her doctoral research investigated riparian forest dynamics on a reservoir backwater within the Missouri River system. Before joining Headwaters Corporation in 2022, Malia worked for state agencies as a habitat specialist, environmental scientist, and research ecologist, providing technical guidance and leading research related to the conservation, management, restoration, and monitoring of aquatic and riparian ecosystems.

Skills:

- Riparian plant ecology
- Field investigation
- Technical writing
- Scientific communication
- GIS & remote sensing
- Data visualization
- Experimental design
- Ecological restoration

Platte Program Role & Responsibilities:

Malia is responsible for developing and implementing the *Phragmites* study for the Platte Program. This study investigates the effectiveness of Program management actions, including flow and herbicide, for controlling the spread of non-native *Phragmites australis* as a means of creating and/or maintaining suitable Whooping Crane habitat.

Example Projects & Technical Publications:

Habitat restoration and management of native and non-native trees in southwestern riparian ecosystems. *New Mexico Department of Game & Fish publication*, 2017. ([link](#))

Technical guidebook providing conservation measures to minimize the impacts of non-native riparian vegetation management on wildlife and wildlife habitats. Includes guidance and resources for improving the success of native riparian revegetation projects.

Emerging reservoir delta-backwaters: biophysical dynamics and riparian biodiversity. *Ecological Monographs publication*, 2019. ([link](#))

Conducted field vegetation inventories, GIS mapping, hydrologic analysis, and geomorphic analysis to understand the biological and physical processes influencing riparian forest composition, structure, and age over time and space. Provided recommendations for facilitating passive and active riparian restoration for maintenance of biodiversity and ecosystem functions in regulated river systems.