

SOLANO COUNTY WATER AGENCY

AGREEMENT FOR PROFESSIONAL SERVICES

THIS AGREEMENT, **effective July 1, 2023** is between SOLANO COUNTY WATER AGENCY, a public agency existing under and by virtue of Chapter 573 of the 1989 statutes of the State of California, hereinafter referred to as “Agency” and THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, hereinafter referred to as “Contractor.”

The Agency requires services for the **Temperature Impacts on Bird Nesting along Putah Creek and in Working Landscapes**; and the Contractor is willing to perform these services pursuant to the terms and conditions set out in this Agreement.

IT IS MUTUALLY AGREED, as follows:

1. SCOPE OF SERVICES

The Agency hereby engages the Contractor, and the Contractor agrees to perform the services for evaluating the **Temperature Impacts on Bird Nesting along Putah Creek and in Working Landscapes**, as described in Exhibit A, in accordance with the terms of this Agreement and any applicable laws, codes, ordinances, rules or regulations. In case of conflict between any part of this Agreement, this Agreement shall control over any Exhibit.

2. COMPENSATION

Compensation for services shall be as follows: Percentage of effort for personnel plus any allowed reimbursable expenses based on costs incurred as indicated on any allowed reimbursable expense in Exhibit B **not to Exceed \$84,010** for all work contemplated by this Agreement.

3. METHOD OF PAYMENT

Upon submission of an invoice by the Contractor and upon approval of the Agency’s representative, the Agency shall pay the Contractor quarterly in arrears for fees and allowed expenses incurred the prior month, up to the maximum amount provided for in paragraph 2 of this agreement.

4. TIME OF PERFORMANCE

This Agreement shall become effective as of **July 1, 2023** and continue until **June 30, 2025** as directed by the Agency.

5. WARRANTY

Except as provided herein, the University makes no warranty respecting the accuracy of data or materials furnished hereunder nor the results to be obtained from using such data or materials for intended purpose or any other purpose. University liability shall be limited

to the amount of this order. The Agency has relied upon the ability and training of the Contractor as a material inducement to enter into this Agreement. The Contractor hereby represents that all of its work will be performed in accordance with the requirements of applicable federal, state and local laws, it being understood that acceptance of the Contractor's work by Agency shall not operate as a waiver or release.

6. MODIFICATION AND TERMINATION

This Agreement may be modified or amended only by written instrument signed by the parties hereto, and the Contractor's compensation and time of performance of this Agreement shall be adjusted if they are materially affected by such modification or amendment.

Any change in the scope of the services to be done, method of performance, nature of materials or price thereof, or to any other matter materially affecting the performance or nature of the professional services will not be paid for or accepted unless such change, addition or deletion be approved in advance, in writing, by the Agency's General Manager.

This Agreement may be terminated by the parties at any time, without cause, upon written notification to the other.

Following termination by the Agency or the Contractor, the Contractor shall be reimbursed for all expenditures made in good faith, including any uncancellable obligations, in accordance with the terms of this Agreement that are unpaid at the time of termination.

7. PERMITS

Permits required by governmental authorities will be obtained at the Contractor's expense, and the Contractor will comply with local, state and federal regulations and statutes including Cal/OSHA requirements.

8. MUTUAL INDEMNIFICATION

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA shall defend, indemnify and hold harmless SOLANO COUNTY WATER AGENCY, its agencies, officers, employees, and agents from and against any and all liability, loss, expense, attorneys' fees or claims for injury or damages arising from the performance of this agreement, but only in proportion to and to the extent such liability, loss, expense, attorneys' fees or claims for injury or damages are caused by or result from the negligence or intentional acts or omissions of THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, its agencies, officers, employees and agent.

SOLANO COUNTY WATER AGENCY shall defend, indemnify and hold harmless THE REGENTS OF THE UNIVERSITY OF CALIFORNIA, its agencies, officers, employees and agents, from and against any and all liability, loss, expense, attorneys' fees or claims for injury or damages arising from the performance of this agreement, but only in proportion to and to the extent such liability, loss, expense, attorneys' fees or claims for injury or damages are caused by or result from the negligence or intentional acts or

omissions of SOLANO COUNTY WATER AGENCY, its agencies, officers, employees and agent.

9. INSURANCE

By his/her signature hereunder, Contractor certifies that he/she is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and that Contractor will comply with such provisions before commencing the performance of the professional services under this agreement. Contractor and subcontractors will keep workers' compensation insurance for their employees in effect during all work covered by this agreement.

Contractor will file with the Agency, before beginning professional services, certificates of insurance satisfactory to the Agency evidencing general liability coverage of not less than \$1,000,000 per occurrence (\$2,000,000 general and products-completed operations aggregate (if used)) for bodily injury, personal injury and property damage; auto liability of at least \$1,000,000 for bodily injury and property damage each accident limit; workers' compensation (statutory limits) and employer's liability (\$1,000,000) (if applicable); requiring 30 days (10 days for non-payment of premium) notice of cancellation to the Agency. Any insurance, self-insurance or other coverage maintained by the Agency, its directors, officers, employees, or authorized volunteers shall not contribute to it. The general liability coverage shall give the Agency, its directors, officers, employees, and authorized volunteers insured status using ISO endorsement CG2010, CG2033, or equivalent. Coverage is to be placed with a carrier with an A.M. Best rating of no less than A- :VII, or equivalent, or as otherwise approved by the Agency. In the event that the Contractor employs other contractors (subcontractors) as part of the work covered by this agreement, it shall be the Contractor's responsibility to require and confirm that each subcontractor meets the minimum insurance requirements specified above.

If any of the required coverages expire during the term of this agreement, the Contractor shall deliver the renewal certificate(s) including the general liability additional insured endorsement to the Agency at least ten (10) days prior to the expiration date.

10. COMPLIANCE WITH LAW

The Contractor shall be subject to and comply with all federal, state and local laws and regulations applicable with respect to its performance under this Agreement, including but not limited to, licensing, employment and purchasing practices; and wages, hours and conditions of employment.

11. SUBCONTRACT AND ASSIGNMENT

This Agreement binds the officers, employees and agents of the Contractor. The Contractor shall not enter into subcontracts for any work contemplated under this Agreement and shall not assign this Agreement or monies due or to become due, without the prior written consent of the General Manager of the Agency or his designee, subject to any required state or federal approval.

12. NONRENEWAL

The Contractor understands and agrees that there is no representation, implication, or understanding that the services provided by the Contractor under this Agreement will be purchased by the Agency under a new agreement following expiration or termination of this Agreement, and waives all rights or claims to notice or hearing respecting any failure to continue purchase of all or any such services from the Contractor.

13. NOTICE

Any notice provided for herein are necessary to the performance of this Agreement and shall be given in writing by personal delivery or by prepaid first-class mail addressed as follows:

AGENCY

Chris Lee, General Manager
Solano County Water Agency
810 Vaca Valley Parkway, Suite 203
Vacaville, CA 95688

CONTRACTOR

Ahmad Hakim-Elahi, Executive Director
Office of Research, Sponsored Programs
University of California
1850 Research Park Drive, Suite 300
Davis, CA 95618

The parties have executed this Agreement the day and year first above written. If the Contractor is a corporation, documentation must be provided that the person signing below for the Contractor has the authority to do so.

Solano County Water Agency
a Public Agency

University of California

By: _____
Chris Lee,
General Manager

By: _____
Ahmad Hakim-Elahi
Executive Director

FOR SCWA USE ONLY

Contract Period: 7/1/2023 to 6/30/2025
File Number: AG-U-1
Account Manager: Alex Rabidoux
G/L Account #: 6620SC
Job Cost #: 4728
Contract Type: Professional Services

EXHIBIT A

SCOPE OF SERVICES

Scope of Work

SCWA requires assistance with impacts on bird nesting along Putah Creek and in working landscapes.

Conduct Additional Bird Nesting Data Collection Along Putah Creek

SCWA requires assistance with additional bird nesting data collection along Putah Cree. Ongoing studies along Putah Creek and adjacent agricultural lands seek to assess the mechanisms by which temperature spikes affect bird reproduction, and thus identify specific conservation interventions that could make working landscapes more hospitable for birds. Specifically, we are leveraging a network of 165 songbird nest boxes established by the UC Davis Museum of Wildlife and Fish Biology in riparian forest, supplemented with 120 additional boxes that we placed in grassland, row crops, and orchards adjacent to Putah Creek. Our focus is on the two most common nest box species: Tree Swallow and Western Bluebird, both of which nest in nest boxes in all four studied land uses. In April-August 2021 and 2022, we recorded growth for nestlings, canopy cover at the nest, and nest temperatures throughout the nesting period at 231 boxes. We also tracked relative humidity at each site as a proxy for water availability. To quantify effects on avian stress physiology, we collected blood samples from adults and nestlings (N = 161 nests). Finally, we built custom Raspberry Pi-based motion-activated cameras to quantify parental food delivery rate at 48 nests.

Deliverables

Database-all project data

Technical Report-detailing findings and conservation recommendations applicable to Putah Creek

Presentations-2-3 presentations showcasing the work and findings

Katherine Lauck, PhD candidate & Daniel Karp, Associate Professor
Department of Wildlife, Fish, and Conservation Biology; University of California Davis

Background: Habitat conversion to agriculture and climate change will determine the fate of biodiversity in the Anthropocene. Habitat conversion (e.g., agricultural expansion, urbanization) often removes shaded tree canopies, thereby exposing organisms to ever more extreme heat caused by climate change. Increased heat and less vegetation cover also accelerate evaporation, reducing water available to organisms for thermoregulation. Correspondingly, after analyzing a database of >150,000 bird nesting attempts across the United States, we found that temperature spikes dramatically reduce bird reproductive success in agriculture but not in shaded forests (Lauck *et al.* In revision *Science*). Understanding exactly *how* temperature spikes affect birds is critical to developing forward-looking conservation plans in human-dominated landscapes. Extreme heat may cause nestlings to overheat and/or reduce their food supply. In contrast, irrigation and other sources of water may increase growth and survival of nestlings during hot periods by facilitating thermoregulation.

Completed work: Our ongoing studies along Putah Creek and adjacent agricultural lands seek to assess the mechanisms by which temperature spikes affect bird reproduction, and thus identify specific conservation interventions that could make working landscapes more hospitable for birds. Specifically, we are leveraging a network of 165 songbird nest boxes established by the UC Davis Museum of Wildlife and Fish Biology (MWFB) in riparian forest, supplemented with 120 additional boxes that we placed in grassland, row crops, and orchards adjacent to Putah Creek. Our focus is on the two most common nest box species: Tree Swallow and Western Bluebird, both of which nest in nest boxes in all four studied land uses. In April-August 2021 and 2022, we recorded growth for nestlings, canopy cover at the nest, and nest temperatures throughout the nesting period at 231 boxes. We also tracked relative humidity at each site as a proxy for water availability. To quantify effects on avian stress physiology, we collected blood samples from adults and nestlings (N = 161 nests). Finally, we built custom Raspberry Pi-based motion-activated cameras to quantify parental food delivery rate at 48 nests.

Proposed work: We are proposing to conduct a third field season in Spring and Summer 2023 to double the sample size of parental food delivery rate. In Fall 2023 and Winter 2024, Katie Lauck will use ELISA assays to quantify corticosterone content in the resulting nestling blood samples. In addition, they will use image recognition to quantify parental food delivery rate documented by the Raspberry Pi-based cameras. In Spring, Summer, and Fall 2024, they will write up our findings for publication and complete their dissertation.

We anticipate that our findings will suggest concrete avenues through which working landscapes in the Central Valley could be modified to better accommodate birds. If the direct effects of heat are more important than food-mediated effects, providing shade trees in agriculture or modifying nest boxes to reduce their internal temperature may increase nestling resilience. If food-mediated effects predominate, then maintaining patches of non-crop habitats in working landscapes to support food resources and provide thermal refuges for parents may be effective. Furthermore,

understanding the role that irrigation may play in mediating the effects of heat on wild birds living in agriculture could inform management of water resources for wildlife and people.

Deliverables: We propose to complete four deliverables over the course of the funding period:

1. **Field season:** We will complete a third field season in Spring/Summer 2023, monitoring ~50 additional nests in riparian forests, grasslands, orchards, and row crops within and adjacent to Putah Creek. In doing so, we will collect data on nestling survival, growth, stress hormones, and provisioning rates. Completion: August 1, 2023.
2. **Database:** We will clean, prepare, and compile all project data into a central data repository with appropriate meta-data and methods documentation. This will include: nest monitoring data, temperature/humidity data associated with specific nest attempts, canopy cover analyses, stress hormone results, and nest provisioning rates from remote cameras. Data will be made compatible with the ongoing Putah Creek Nestbox Highway initiative, using the same fields and project codes so that results from our project could be readily matched with long-term data available along the creek. The database will be sent to the Solano County Water Agency by the completion date (listed below) and then made publicly available upon publication. Completion: July 1, 2024
3. **Technical report:** We will write a comprehensive technical report detailing findings and conservation recommendations as applicable to the Putah Creek ecosystem and similar Central Valley landscapes. Specifically, the report will detail the effects of heat waves on avian nesting success, growth rates, stress responses, and food provisioning, across riparian forests, grasslands, row crops, and orchards along Putah Creek in Yolo and Solano counties. Completion: December 1, 2024
4. **Presentations:** We will organize 2-3 presentations where we showcase our ongoing work and findings. Possible audiences include the Solano County Water Agency (SCWA), the Solano Resource Conservation District, and others determined in consultation with the SCWA. Completion: Ongoing over the project period (July 1, 2023-June 30, 2025).

EXHIBIT B - BUDGET

Temperature Impacts on Bird Nesting along
Putah Creek and in Working Landscapes

UCD Contract #:

Start Date:	7/1/2023	Non-NIH	Title:	Extreme heat reduces nest success in agriculture	Proposal Due Date/Archive:					3/15/2023							
End Date:	6/30/2025		PI(s):	Daniel Karp	12 Months	12 Months	0 Months	0 Months	0 Months	24 Months							
PERSONNEL				Salary Basis	*	Escalation:					FY	Multi					
Name/Role:	Annual Salary			Project Period % Effort					Salary Basis and Type	Escal	Period 1	Period 2	Period 3	Period 4	Period 5	Total	
	Base	Summer	Total	Per 1	Per 2	Per 3	Per 4	Per 5			7/1/23-6/30/24	7/1/24-6/30/25	-	-	-	7/1/23-6/30/25	
1	Katie Summer 2023	82,333	#####	12.5%					CAL 12/12	3%	10,600	0	0	0	0	10,600	
2	Katie Winter 2024	87,603	#####	12.5%					CAL 12/12	3%	11,279	0	0	0	0	11,279	
3	Katie Spring 2024	87,603	#####	12.5%					CAL 12/12	3%	11,279	0	0	0	0	11,279	
4	Katie Summer 2024	87,603	#####		12.5%				CAL 12/12	3%	0	11,617	0	0	0	11,617	
Total Salaries											33,158	11,617	0	0	0	0	44,775
		FY Split:	12/0	12/0	0/0	0/0	0/0						scalations to fringe?	Yes			
Benefits by Person	UCPath CBR Group	%	%	%	%	%	Period 1	Period 2	Period 3	Period 4	Period 5	Total					
1	Katie Summer 2023	Grad and Undergrad	2.2	2.3			233	0	0	0	0	233					
2	Katie Winter 2024	Grad and Undergrad	2.2	2.3			248	0	0	0	0	248					
3	Katie Spring 2024	Grad and Undergrad	2.2	2.3			248	0	0	0	0	248					
4	Katie Summer 2024	Grad and Undergrad	2.2	2.3			0	267	0	0	0	267					
Total Benefits							729	267	0	0	0	996					
Total Personnel							33,887	11,884	0	0	0	45,771					
EQUIPMENT												Total					
Total Equipment												0					
TRAVEL							International?	Period 1	Period 2	Period 3	Period 4	Period 5	Total				
							Total Domestic Travel	0	0	0	0	0	0				
							Total International Travel	0	0	0	0	0	0				
Total Travel							0	0	0	0	0	0	0				
PARTICIPANT/TRAINEE SUPPORT C) Details/Notes:																	
Total Participant Support							0	0	0	0	0	0	0				
OTHER DIRECT CO:																	
Materials and Supp							Period 1	Period 2	Period 3	Period 4	Period 5	Total					
Total Materials and Supp							0	0	0	0	0	0					
Publication Costs																	
Total Publication C							0	0	0	0	0	0	0				
Consultant Services																	
Total Consultant Services							0	0	0	0	0	0	0				
Subaward Costs							Type of Subaward	Period 1	Period 2	Period 3	Period 4	Period 5	Total				
Total Subaward Co								0	0	0	0	0	0				
GSR Tuition/Fees																	
				Esc/Rates		P1	P2	P3	P4	P5	Academic Year Rate Split:						
Available Tuition Months (based on project dates):				9	9	0	0	0	9/0	9/0	0/0	0/0	0/0	Total			
Name or Notes	Use Buydown	AY	Rates	QRTs	#GSRs	#GSRs	#GSRs	#GSRs	10,658	0	0	0	0	10,658			
Katie Lauck	Resident	10%	19,378	2					10,658	0	0	0	0	10,658			
Single IRB Fees																	
				# per Period													
Site Name or Notes	Recharge Type (Choose:)	UC?	\$/per	P1	P2	P3	P4	P5	0	0	0	0	0	0			
	On-Boarding- No Agreement	Non-UC	\$2,974						0	0	0	0	0	0			
	Continuing Review	Non-UC	\$1,620						0	0	0	0	0	0			
	Continuing Review	UC	\$1,211						0	0	0	0	0	0			
	On-Boarding- No Agreement	Non-UC	\$2,974						0	0	0	0	0	0			
Primate Center Costs									Type: Federal	0	0	0	0	0			
Other Expenses																	
									Subject to IDC Calc (MTDC)?								
Other Expenses Subject to Indirect:									0	0	0	0	0				
Other Expenses Excluded from Indirect:									0	0	0	0	0				
Total Other Direct Costs									10,658	0	0	0	0	10,658			
Total Direct Costs									Choose Rate Type from Dropdown Below:	44,545	11,884	0	0	0	56,429		
Indirect Cost Base									Rate Type: On-Campus Research	33,887	11,884	0	0	0	45,771		
Indirect Costs									20,332	7,249	0	0	0	27,581			
Total Costs (Direct + Indirect)									\$64,877	\$19,133	\$0	\$0	\$0	\$84,010			