

I. DESCRIPTION OF ORGANIZATION

- 1. Type of organization or business** – I am a University of California Cooperative Extension (UCCE) Human-Wildlife Interactions advisor in Napa County. In my program, I lead applied research projects to address emerging wildlife issues and offer community learning opportunities through field days, seminars, and extension materials. Topics are based on the needs of Napa County residents and businesses, and my goal is to provide measurable benefits to the Napa community. UCCE is housed under the University of California Agriculture and Natural Resources (UC ANR).
- 2. Purpose for which organization was formed** – UC ANR connects the power of UC research in agriculture, natural resources, nutrition, and youth development with local communities to improve the lives of all Californians.
- 3. Tax exempt status** – The University is qualified for tax-exemption as an organization described in Section 501(c)(3) of the Internal Revenue Code of 1986, as amended, and is also classified as a public charity under Code Section 509(a)(1).
- 4. Date formed as Non-profit** – March 23, 1868
- 5. Membership: restrictions, number of members, fees, etc.** – N/A
- 6. Names of Board of Directors; contact person (include phone number, email address, mailing address)** – Heidi von Geldern: hvongeldern@ucdavis.edu, 530-750-1304, 2801 Second Street, Davis, CA 95618-7774

II. NEEDS ASSESSMENT/PROBLEM STATEMENT

- 1. Clear statement of problem** – American Kestrels (*Falco sparverius*), North America's smallest native falcon, provide valuable ecosystem services and support sustainable farming practices by preying upon rodent and insect pests that impact agricultural production. However, Kestrel populations have declined across much of North America, and the causes remain poorly understood. Working lands, such as Napa County's vineyards and rangelands, can provide important foraging and breeding habitats for Kestrels, yet agricultural intensification, pesticide use, and increasing climate extremes may negatively impact populations attracted to these landscapes by reducing habitat quality and reproductive success. Because these drivers vary regionally, long-term monitoring is essential to identify local stressors and develop science-based management recommendations that support healthy Kestrel populations in Napa County.

Proposal: Napa County American Kestrel Nest Box Network

In 2023, we initiated the UCCE American Kestrel nest box network in partnership with Napa County landowners and agricultural producers, who now manage over 100 nest boxes across the county. Support from the Napa County Wildlife Conservation Commission allowed us to launch a long-term monitoring program in 2023-2024. Since then, we have expanded the project to include research on diet, habitat-use, dispersal, and responses to extreme heat across Napa, Solano, and Yolo counties. We have also delivered more than 20 field days, workshops, and presentations that connects research findings directly with Napa Valley winegrape growers and other agricultural producers.

Stakeholders across Napa and beyond consistently identify Kestrel conservation and management as an important component of farm sustainability and Integrated Pest Management (IPM) programs. They seek data-driven recommendations to attract and support Kestrels on their properties, as documented in a 2022 UCCE program needs assessment and through continued stakeholder engagement. This long-term program will integrate information on nest success, diet, habitat-use, and climate resilience to guide conservation and management. By supporting healthy Kestrel populations, this project promotes biodiversity while advancing sustainable agriculture in Napa County.



Left: American Kestrel nest box locations in the monitoring network across Napa County.

Right: (Clockwise) Breeding Kestrels-- adult male perched outside of nest box, adult female incubating in nest box, young nestlings, and nest box.

- 2. Specific objective & specific dollar amount requested** – Our objective is to monitor more than 100 American Kestrel nest boxes throughout Napa County while continuing to provide technical assistance to land managers on nest box installation and management. To accomplish this, we request support for a part-

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time technician who will coordinate research, monitoring, and outreach activities in Napa County.

The technician is essential to maintaining this large monitoring network and serves as the primary liaison between researchers, collaborators, participating land managers. They will coordinate site access, schedule monitoring visits, maintain communication with participants, provide technical guidance, and support continued expansion of the network in Napa County. The technician will communicate with new vineyards and land managers requesting assistance with nest box installation.

We request \$10,550 to support technician salary and benefits from July 2026 to June 2027. The technician (\$50,000 annual salary) will work 20% time on the project, equivalent to \$10,000 salary and \$550 benefits (5.5%). Previous support from the Napa County Wildlife Conservation Commission was instrumental in launching the program and sustaining its growth. Since the beginning of the program, we have raised over \$70,000 in additional grant funding for personnel, travel, and research equipment (See Budget), while also securing resources, such as vehicles and research supplies. **This request will support monitoring and outreach efforts through the 2027 field season in Napa County.**

3. Anticipated results with timeline –

Short-term: Improved understanding of American Kestrel ecology, nest box use, and their role within IPM programs in Napa County. Translated findings into practical recommendations applicable across land-use types and operational scales.

Medium-term: Increased adoption and expansion of well-managed nest box networks by agricultural producers and land managers. Improved nesting habitat and information on baseline Kestrel population health in Napa County.

Long-term: Increased agricultural sustainability by promoting alternatives to pesticide-use within an IPM framework. Preservation of California's natural resources and biodiversity. Nest box management guidelines which contributes to healthier and more resilient agricultural ecosystems.

Tangible products: Develop extension publications, fact sheets, webinars, and field demonstrations for Napa County land managers and agricultural producers. We will also produce scientific publications and stay active with the scientific community through conference presentations and attendance.

Timeline of events

Fall & Winter 2026: Organize and analyze data from 2026. Prepare and distribute the 2026 Annual Report summarizing findings and present results through annual meeting via Zoom. Continue to support land managers with nest box installation and management assistance while conducting outreach and educational programming.

Spring 2027: Monitor nest boxes and conduct field research throughout the breeding season. Continue outreach with agricultural producers, the public, and the scientific community.

Future: Continue long-term monitoring, research, and extension efforts to improve Kestrel conservation and science-based management throughout Napa County.

4. Detailed description of methods planned to achieve objective –

Communication and coordination: Napa sites pose a unique challenge for our team, as nests are distributed across many properties. The technician will manage a database of over 50 existing project participants and over 100 nest box locations in Napa County, and they will coordinate site visits and scheduling for monitoring and research. Importantly, they will maintain communication with participants regarding the status of their nest boxes and new participants who seek guidance on new nest box installations.

Boots-on-the-ground: The technician will lead monitoring and field data collection. They will use a bluetooth camera on an extendable pole to document occupancy, including the number and timing of eggs, nestlings, and fledglings in active nest boxes, in addition to assisting with other research activities. They will lead data entry and management of databases that result from field data collection.

5. Clear statement of benefit relative to the goals of the Commission – This project advances the Commission's goal of preserving and enhancing wildlife habitat in Napa County (Item 13103e). Many natural cavities have been removed for development and agriculture, although properly placed and maintained nest boxes can provide a viable alternative to natural cavities. The stewardship of American Kestrel nest boxes by land managers across Napa county will greatly increase nesting opportunities for the cavity nesting species in the region.

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This project also supports scientific research that improves wildlife conservation and management (Item 13103i). Long-term monitoring provides the data needed to develop science-based recommendations for nest box management, evaluate population trends, and guide conservation planning. By engaging agricultural producers, landowners, students, and community members, the project also strengthens local stewardship and trains the next generation of conservation professionals.

6. Describe how you intend to determine if the proposed activity is successful–

The success of the proposed project will be measured through three metrics:

- Successful monitoring of more than 100 nest boxes in Napa County, including repeated visits to conduct occupancy surveys and collect data for other research.
- Continued participation and expansion of the network, measured by participant retention, new enrollments, and requests for technical assistance.
- Delivery of extension programming and dissemination of science-based management recommendations through producer meetings, workshops, and field days, with participation tracked annually.

III. ATTACHMENTS

- 1. Expenditure detail** – See expenditure detail and budget below
- 2. List of other funding sources (i.e. matching funds)** – See attached expenditure detail and budget below
- 3. Completion/progress report of projects completed over past 5 years with the use of Fish & Game Fine Monies** – See attached Final Report for 2025-2026
- 4. For environmental education proposals: At least one (1) letter of support from a school board member, principal, teacher, etc.,** – N/A
- 5. For land acquisition proposals or capital improvement projects, include discussion on any public access component.** – N/A

ATTACHMENTS

1. Expenditure Detail

Budget

Personnel Salary		
Staff Research Assistant		\$10,000
Benefits		
Rate: 5.50%		\$550
Total Requested:		\$10,550

The amount requested is \$10,550. The technician (\$50,000 annual salary) will work 20% time during the project period (July 2026-June 2027). This equates to \$10,000 salary and \$550 benefits (5.50% rate).

2. Additional funding sources– This project is supported by grant funding and we seek funds for the 2027 year. In past years, we have received grants from Napa County’s Napa Wildlife Conservation Commission, University of California Sustainable Agriculture Research and Education Program, the Hrdy Family, UC Davis Ecology Graduate Student Fellowship, and the American Ornithological Society. The 2026 field season was supported by the Napa Wildlife Conservation Commission (2025-2026, \$5,000) and Yolo Bird Alliance (2026, \$5,000).

3. Progress Reports– 2025-2026 project report attached.

(SEE BELOW)



UCCE American Kestrel Program – 2026 Napa County Wildlife Conservation Commission Project Report



Project Summary: Our objective was to monitor American Kestrel nest boxes in Napa County as part of a long-term regional research and monitoring program established in 2023. The data we collect contributes to the larger understanding of the interactions of American Kestrels and working landscapes and supports the conservation of a declining species. To accomplish this, we employed a part-time technician and experienced raptor biologist, Robyn Boothby, to support the ongoing research, monitoring, and outreach efforts in Napa County. The NWCC funds partially supported Robyn's salary. Robyn worked at the interface of collaborators, landowners, and researchers and played a critical role in managing communication, coordination, and fieldwork efforts in Napa in the 2026 field season.

This project contributes to the enhancement of wildlife habitat and contributes to scientific research that can improve wildlife conservation and management in Napa County. Many natural tree cavities have been removed for development and agriculture, although properly placed and maintained nest boxes can provide a viable alternative for American Kestrel nest sites. The results of this project will generate science-based management recommendations to optimize American Kestrel nest box networks and inform us of their population status in Napa County. Involvement of local land managers and student researchers has fostered a wildlife conservation mindset within the community and helped train the next generation of scientists.



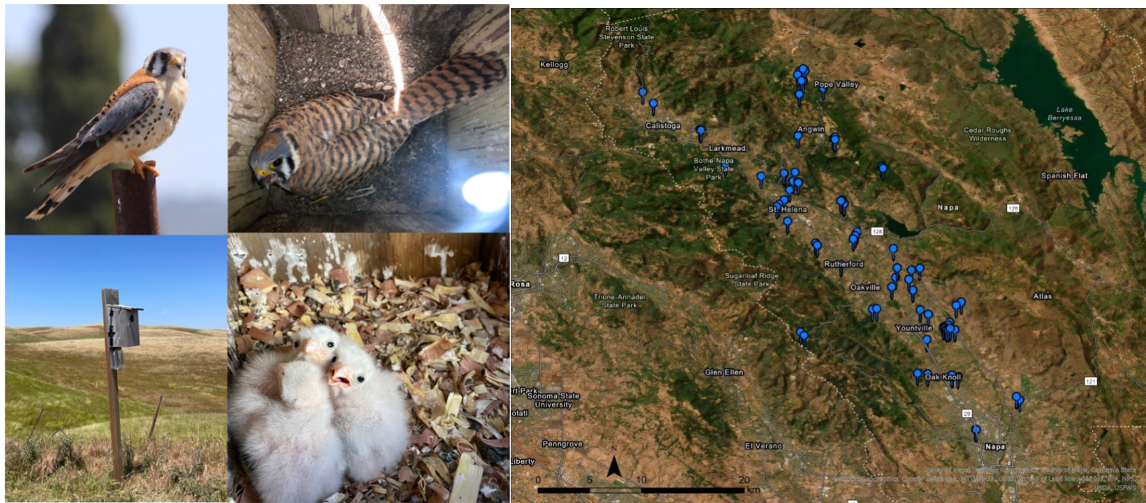
Photo: American Kestrel preys upon a rodent in a vineyard. Credit: R Bourbour

Project Accomplishments— 2026 Mid-season update:

Research

To date in the 2026 field season, we monitored over 73 nest boxes with more than 274 individual visits in Napa County, including 152 nests and over 707 visits by our team in the larger regional network. We closely monitored over 15 active American Kestrel and 5 Western Screech Owl nests in Napa County, where we gathered information on nest success and phenology. (Western Screech Owls use the same nest boxes.)

We partnered with UC Davis graduate student Mary Badger to deploy state of the art GPS tracking technology on over 15 breeding adult American Kestrels to learn about their home range and habitat selection for a second year. Research efforts also included placing cameras and nest temperature sensors to track provisioning rates related to temperature and land use. We banded and collected trace DNA for a diet study on over 100 American Kestrels. As part of this effort, we recruited four UC Davis student interns who participated in hands on field research efforts, important on the job training and experience for the next generation of wildlife scientists.



Right: (Clockwise) Breeding Kestrels-- adult male perched outside of nest box, adult female incubating in nest box, young nestlings, and nest box with camera set up. **Left:** American Kestrel nest box locations in the monitoring network across Napa County.

Extension and Science Communication

Over 10 new land managers joined the monitoring network, and we had over 15 existing land managers participate in the field during research and monitoring work. We spoke at three scientific conferences (a local, national, and an international conference) about research and gave two online presentations to local Bird Alliance chapters.

We engaged the Napa winegrape growing community at an in person vertebrate pest management workshop and the larger California viticulturist community online through a webinar. We also hosted a 3-part online seminar series geared towards general members of the public.



Top: Napa vineyard vertebrate pest workshop. **Bottom Left:** Interns and vineyard managers get hands on experience in the field. **Bottom Right:** Presentation at scientific conference.

Anticipated Impacts

The results of this project will continue to be translated into practical, science-based management guidelines and extension materials designed for land managers, agricultural producers, and the public. This research will be the focus of multiple peer-reviewed publications with a conservation and management in agroecosystems focus. These materials and recommendations will be broadly applicable across land use types and operational scales, supporting both agricultural and community-based stewardship of American Kestrel habitat.

At the local and regional scale, increased awareness and understanding of American Kestrels and their role in IPM on agricultural landscapes has already begun to facilitate the adoption and expansion of nest box networks by producers and land managers in the region. This work will increase the availability of nesting habitat, optimally managed landscapes, and will help establish baseline information on kestrel population health.

Thank you to the Hrdy Family, J Kreidler, T Slyker, T Clark, J McNerney, K Hunting, S Skalos, H Fendell Hummel, S Wilson, B Esquivel, A Heming, A Varni, A Gromperts, and all property owners and managers who have contributed to this work and allowed access for research and monitoring.