

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

on behalf of the

Invasive Species Council of California

April 15, 2024

Revised October 16, 2024

**Rapid Response Funding for Emerging Invasive
Species Threats in California**
Application

www.iscc.ca.gov

About the Program

The California Department of Food and Agriculture (CDFA), on behalf of the Invasive Species Council of California, is pleased to announce funding for Rapid Response to Emerging Invasive Species Threats in California. The purpose of this funding is to support immediate actions to contain and/or eradicate invasive species before they become established and cause economic, ecological, or human health impacts. Priority shall be given to projects that are species-specific, time-sensitive, new to a geographic region, and likely to prevent the establishment of that species. Projects shall minimize the economic, ecological, and human health impacts caused by invasive species and restore and protect biodiversity and ecosystem health.

Funding, Timeline, and Reporting Requirements

The maximum funding award is \$100,000 per project. The minimum award is \$10,000 per project. Applications are accepted on a continuous basis, and funding is subject to project need and the availability of funding. CDFA reserves the right to offer an award different than the amount requested. Funding may supplement, but not supplant, existing activities/programs and funding. The timeline of the project is contingent on the nature of the funded actions, not to exceed 12 months from the date funds are awarded. Progress reports shall be submitted quarterly, and a final report is due within 60 days of completion of the project.

Project and Applicant Eligibility

- Projects must directly benefit California.
- Applicants from public or private colleges and universities, federal, state, and local government entities including Tribal entities, and special districts. Non-profits are encouraged to partner with eligible applicants.
- Project lead and lead entities must be based in California. Additional investigators and/or contractors may be out of state.
- It is the grantees responsibility to secure any and all permits necessary to implement their project.

How to Apply

Information and resources for applying can be found on the Invasive Species Council of California website (<http://www.iscc.ca.gov/>). Department of Food and Agriculture staff cannot assist in the preparation of application content. General questions or assistance with formatting may be submitted to cisac@iscc.ca.gov. To ensure that all potential applicants benefit from all submitted questions and responses, all questions and responses will be posted on the [ISCC webpage](#).

Applications should be submitted via email to cisac@iscc.ca.gov, with “Rapid Response Application” in the subject line. If an application cannot be submitted via email please call 916-654-0317 to make arrangements to submit via an alternative method. All files emailed should be in PDF format.

Application Review and Evaluation

A review committee consisting of California Invasive Species Advisory Committee members will review the applications and evaluate their merits. The guidance for evaluating funding requests can be found in Appendix A.

Any member of the committee with a financial conflict of interest with the project, or who prepared the application, or who will serve as the project lead will be excluded from any discussions or decisions regarding that application. Incomplete applications will be rejected within 10 business days of receipt. Incomplete applications can be resubmitted if deficiencies are rectified.

All applicants will be notified regarding the status of their proposal within 20 business days. Applicants whose projects are not funded may request comments from david.pegos@cdfa.ca.gov within 30 business days of transmittal of the funding denial.

Rapid Response Funding Application

Section One: Overview

1.1 Justify the need for rapid response funding, including:

- Brief description of the invasive species threat
- Purpose and key anticipated outcomes of your rapid response
- Region and/or communities served.

Not to exceed 500 words

Ludwigia decurrens or wingleaf primrose-willow was first discovered in the rice growing region of Northern California in 2011. Periodic monitoring has occurred for several years but recently this species has started to spread south along the irrigation ditches and canals, and into grower fields. Infestations in new areas of the region have also been reported. Wingleaf primrose willow is difficult to control due to its ability to spread rapidly, its affinity for aquatic environments, and the difficulty of scouting and mapping infestations. Additionally, other primrose species occupy similar habitats, including irrigation canals, thus making scouting difficult. This weed threatens vulnerable riparian and alluvial areas, which characterize the northern Sacramento Valley as well as the largely agriculturally-based communities therein. There is also a risk to water-recreation areas; the ability of this weed to spread rapidly through waterways increases risk to all regions in which canals, streams, and rivers exist. Based on pest ratings and the threat to agriculture, the California Crop Improvement Association (CCIA) has a zero-tolerance policy and will reject any rice seed lots when present.

Rapid response funding would aid efforts to contain the threat posed by wingleaf primrose-willow. Our objectives are: 1) to identify and assess infested areas in Northern California through mapping, 2) to determine the most efficacious treatment options, and 3) to educate the public, land owners, and various stakeholders on the best management practices. Expected outcomes include successfully updating current mapping, determining the level of infestations at each mapped site, testing of herbicides and alternative control options, disseminating BMPs and relevant information to stakeholders, and initiating eradication efforts. These efforts would serve the northern Sacramento Valley, including the at-risk Sacramento–San Joaquin River Delta, a vital source of recreational and agricultural activities.

Section Two: Proposal Details

2.1. Invasive species threat that you seek to address.

Not to exceed 300 words

Invasive aquatic species cost over \$100 million in annual expenditures in the United States, disrupting agriculture, irrigation, water navigation, and flood control structures. Wingleaf primrose-willow (*Ludwigia decurrens*) has recently been discovered in Tehama, Placer, and Shasta County, expanding past the previously identified invasion limited to Butte County. The extent of these recently discovered invasions is not well known, nor is how wingleaf primrose-willow is spreading to these new areas. Infestations have been documented in agricultural systems as well as irrigation canals, drainage ditches, and riverbanks. While other *Ludwigia* species have a plethora of published literature and robust integrated pest management recommendations, this species lacks the same level of information, especially in the United States. Unlike several other *Ludwigia* species, wingleaf primrose-willow does not form sprawling mats but dense stands of erect herbaceous plants. Wingleaf primrose-willow can produce thousands of seeds per plant and spread via stem fragments. There is also suspected allelopathy in this species and several others in the genus, as well as suspected herbicide-resistant populations of wingleaf primrose-willow in Sri Lanka. These characteristics indicate that wingleaf primrose-willow could rapidly displace native species in addition to threatening California agriculture and negatively impacting irrigation canals and flood control channels.

2.2. Objective(s). An objective is defined as a result/outcome that will be achieved with this funding.

Not to exceed 500 words

Objective 1: Mapping - This will focus on surveying the extent of winged willow-primrose in Placer, Tehama, and Shasta counties. Surveying is a critical step in Early Detection and Rapid Response (EDRR) efforts, particularly of new invasions and can allow for strategic and efficient use of resources and inform containment and eradication plans. Surveying can also help identify potential methods of spread through geospatial analysis. Multi-agency mapping efforts began in Butte County in 2025, but with newly recognized infestations in Placer and Tehama, as well as records in Shasta on Calflora, the extent of those infestations needs to be documented and verified.

Objective 2: Field trials - This will focus on herbicide management of *Ludwigia decurrens*. There is little verification of appropriate herbicide control management practices for this species. Several publications mentioning wingleaf willow-primrose are outdated and make recommendations for herbicides that are no longer registered in the United States. Without updated recommendations, some state agencies and growers are hesitant to use herbicide management strategies. Effective options are needed for eradication and to ensure proper herbicide stewardship. Initial greenhouse screenings and results from a rice levee trial indicate that triclopyr will be an effective foliar application and is registered for use in aquatic systems and rice. Flumioxazin is one of the few pre-emergent herbicides registered in aquatic systems and may provide an early-season control option for infestations outside of rice fields. Field testing the most effective options from preliminary studies will provide land managers with the necessary information while simultaneously attempting to control the species.

Objective 3 will focus on alternative management options to control *Ludwigia decurrens*. Current recommendations are to rogue fields where infestations are present. Alternative control options will provide additional options for organic growers, sensitive sites, and problematic locations. While alternative control options such as mowing and burning do not always provide long-term control and may not be as cost-effective, they can provide short-term control, and mechanical control has proven effective on other *Ludwigia* species. Mechanical control methods and other methods, such as burning or water management, may also provide effective control when herbicides are not a valid option.

Objective 4 will focus on critical extension efforts to inform landowners, agencies, and growers about identification and control efforts of this invasive pest. Outreach will include the use of Extension meetings, poster presentations, fact sheets, and podcast episodes.

2.3. Task(s). A task is defined as an action implemented to achieve (in part or in whole) the objective(s) defined above. If there is more than one objective, indicate which task(s) correspond to each objective.

Not to exceed 500 words

Objective 1: Task A - Travel to Shasta and Tehama Counties. Based on public access, shoreline surveys via boat may be required to appropriately map the extent of the species using the existing record as a starting point. Periodic surveying will occur during the growing season in the surrounding areas from the current records.

Objective 1: Task B: Surveys expanding from the infestation discovered in late 2025 are needed. Periodic surveying will occur during the growing season in the surrounding areas, focusing on following water sources upstream of the current infestation.

Objective 1: Task C: Expand mapping in Butte County. Surveys will use 2025 efforts as a framework and expand past the current known extent. Periodic surveys during the growing season will be dedicated to surveying new areas not covered in the 2025 survey.

For each task in objective 1, representative plant samples will be submitted to herbaria for identification and genetic testing will be performed to confirm plant identity.

Objective 2: Task A - Field applications will attempt control of wingleaf primrose-willow by comparing the efficacy of foliar herbicide (triclopyr) and pre-emergent herbicide (flumioxazin). Small non-treated areas will also be kept to serve as a non-treated check and comparison to highlight the impacts of non-treated areas. Treatment plots will be selected from infested areas where access can be secured to perform pre- and post-emergence of wingleaf-primrose willow. Number of plants, percent weed cover, and key plant characteristics will be recorded fortnightly, and six weeks after treatment, final data will be recorded to determine herbicide efficacy.

Objective 3: Task A - Like Objective 2, infested areas will be selected, and mowing will be performed with weed trimmers. In half of the treatment plots, cut wingleaf-primrose material will be collected and incinerated. Fortnightly monitoring will be performed to observe potential regrowth or re-sprouting, and final plant counts will be used to determine the efficacy of mowing.

Objective 4: Task A - Information regarding wingleaf primrose-willow identification and control options will be presented at the UCCE Rice Grower Meetings and rice pest management course, held in Butte, Colusa, Glenn, Yolo, and Yuba counties. These meetings are typically attended by rice producers, pest control advisors, land managers, and industry representatives. Information will also be shared at the Yuba-Sutter Weed Management Area meetings, which usually host land managers, pest control advisers, government agency representatives, and growers. Posters will be presented at the Annual Rice Field Day in Biggs, CA, which hosts rice industry members and other stakeholders. Posters will be presented at regional and national conferences as opportunities arise. Information will also be disseminated as podcast episodes to provide project updates to growers.

2.4. Timeline. Detail the timeline for each task, including its completion date relative to the funding award date (e.g., "Objective 1, Task A will be completed within 6 weeks of funding being awarded.")

Not to exceed 500 words

Objective 1: Tasks A through C will be completed within 6 months of funding being awarded. Wingleaf primrose-willow was most prominently observed in August and September during 2025 surveys. Due to common co-occurrence with other weed species, it may not grow fast enough for effective identification before this time period.

Objective 2: Task A and Objective 3 Task A will be completed within 12 months of funding being awarded. Post-emergent foliar applications will be performed once wingleaf primrose-willow has been identified. Sites will be selected based on accessibility and priority for landowners. Pre-emergent herbicides will be tested at sites identified in the 2025 survey and occur within 4 weeks of funding being awarded. Periodic monitoring will occur at treated sites, and re-application will be performed if necessary. Final plant counts will occur 9 months after funding is awarded.

Objective 4: Tasks A through D will be completed within 12 months of funding being awarded and will compile information gathered from Objectives 1-3

2.5. Metrics for Implementation. Define how implementation of each task will be demonstrated, and how their effectiveness is assessed. Identify all deliverables for each task (if applicable).

Not to exceed 300 words

Objective 1: Tasks A-C will be demonstrated and assessed based on development of effective maps detailing the extent of new *Ludwigia* infestations. These maps will serve as deliverables and be distributed to relevant stakeholders, state agencies, and presented at scientific conferences and grower meetings. Individual maps will be created for each county as well as a comprehensive map for Northern California. All relevant data will be uploaded to Calflora.org or the Consortium of California Herbaria as appropriate.

Objective 2 task A and objective 3 task A will be demonstrated through visual ratings and plant counts of herbicide and mowing treatments compared to non-treated checks.

Comparison to non-treated checks will provide a quantifiable metric for treatment efficacy. Data related to management options will be compiled into a technical report as a deliverable and a scientific manuscript will be submitted to a relevant peer-reviewed journal.

Objective 4: Tasks A through D will be assessed through evaluation of stakeholder knowledge through pre- and post-information session surveys. These surveys will ask if there is an increase in understanding of identification and if the stakeholders have implemented or are planning to implement any control practices in their areas of management.

2.6. Budget narrative justifying costs of PERSONNEL (salary and fringe benefits); OPERATING EXPENSES (Travel, Equipment, Supplies, Contracts); and INDIRECT COSTS. Note that indirect costs cannot exceed otherwise pre-negotiated rates, or 25%.

Narrative not to exceed 500 words.

Personnel covered by this agreement will include staff and student support operating expenses to be purchased with requested funds will include a weed trimmer/brush cutter herbicides (triclopyr and flumioxazin), crop oil concentrate surfactants (Agri-dex), and flagging supplies to mark treatment zone boundaries. The requested total for operating expenses is \$2500 to cover purchase of this equipment. Equipment to be purchased is required to complete objectives 2 and 3 and will be purchased from the lowest available source, following all applicable federal and state vendor requirements. Indirect costs are capped at 10% of total funding for incoming funds to USDA-ARS. USDA-ARS and UCCE will provide in-kind funding through salary of the project team and support staff.

2.7. Itemized Budget

Budget Category	Amount of Funds Requested (\$)	Description of Costs or Activities	Quarter* and Year to be Completed
PERSONNEL			
A. Salary and Wages Cost of salary and wages for time spent working on the tasks funded by this award.			
B. Fringe Benefits Cost of fringe benefits for time spent working on the tasks in accordance with the organization's established fringe benefits policy. Rate: <INSERT RATE>			
OPERATING EXPENSES			
C. Travel Cost of project related travel.			
D. Special Purpose Equipment Cost to purchase special purpose equipment (for items greater than \$5,000 per unit) necessary to achieve project objectives.			
E. Supplies Cost to purchase supplies (for items less than \$5,000 per unit) necessary to achieve project objectives.	\$ 2,500.00	Herbicide, surfactant, weed trimmer, flagging supplies	Quarter 3 2027
F. Contractual Cost of work by individuals/organizations other than the applicant (e.g., cooperators consultants, contractors, partners, etc.).	\$ 87,500.00	Salary for cooperator staff	Quarter 3 2027

G. Other Cost of all other expenses not captured above.			
INDIRECT COSTS			
H. Facilities and administrative costs. <INSERT RATE>	\$ 10,000.00		Quarter 3 2027
Total Funds Requested	\$ 100,000.00		

*Quarters are defined as 1st: January 1-March 31; 2nd: April 1-June 30; 3rd: July 1-September 30; 4th: October 1-December 31.

2.8. Project Team and institutional resources: List the names of the team members, and describe institutional resources and equipment (if applicable) that will be used for project implementation. Submit a CV/resume for each team member (not to exceed two pages) as a PDF file with this application.

Not to exceed 300 words

Jens Beets, a Research Ecologist with the USDA-ARS, will serve as PI for this project and provide staff, equipment, vehicles, and expertise in weed management of aquatic systems. USDA employees will continue scouting and mapping of infestations, as well as participate in treatment applications, data collection and analysis, and provide equipment and expertise as needed to support the research endeavors of this project.

Whitney Brim DeForest, a UCCE Rice Advisor, will provide staff, equipment, vehicles, and extensive knowledge in weed management, rice systems, and extension activities. Dr. Brim-DeForest will be responsible for coordinating collaboration with rice farmers, irrigation districts, and Agricultural Commissioner offices. Additionally, UCCE staff will participate in experimental set-up, application of treatments, data collection and analysis, and planning and execution of extension events and publications.

Luis Espino, a UCCE Rice Farm Advisor, will provide staff, supplies, and general support of the project. Dr. Espino will be responsible for coordinating activities to support this project's overarching goals and extension materials. Additionally, UCCE Staff will utilize vehicles and equipment provided for this project.

Sarah Marsh Janish, a UCCE Rice Farm Advisor, will provide project support, extension materials and audio podcast production, and aid with treatment applications, data collection and analysis.

2.9. Partners. List contributing partners on this effort. Substantiate their role with a one-page letter from each on their letterhead, submitted as a PDF file with this application.

Not to exceed 100 words

Butte County Agricultural Commissioner's Office: The organization will assist in the scouting and mapping of *L. decurrens* as well as communication with their clientele in Butte County (growers, pest control advisors, and irrigation districts). This includes organizing Weed Management Area meetings for Butte County.

Placer County Agricultural Commissioner's Office: The organization will assist in the scouting and mapping of *L. decurrens* as well as communication with their clientele in Nevada County (growers, pest control advisors, and irrigation districts). Currently collaborating on prelimin

2.10. Describe your anticipated long-term project plans after the grant funds are spent, and how those efforts would be financially supported.

Not to exceed 300 words

The intent of this project is to create and disseminate a comprehensive set of control options to combat invasive *Ludwigia* species found throughout the Northern Sacramento Valley. Anticipated long-term goals include a multi-agency coordinated response, detailed maps of infested areas and severity, reduction of infestations in those areas through a variety of control options, and continued extension focused on providing relevant information to land managers and owners, stakeholders, and the general public.

These goals will be partially funded by participation in Weed Management Area projects in collaboration with local Agricultural Commissioners' Offices. Additionally, funding will be sought by applying for grants to further support the research, control efforts, and extension publications as needed.

Section Three: Supplementary Information

3.1. Include any supplementary information/documents/maps which you feel are essential to the review committee in assessing this proposal. If including attachments, submit them as PDF files.

Not to exceed 1,000 words

The attached figure and figure caption are from a manuscript under review in the Journal for Invasive Plant Science and Management and not for external distribution. Please contact the submitters before sharing.

Section Four: Applicant Information

Project Lead

4.1. Name

Jens Beets

4.2. Institution

US Department of Agriculture Agricultural Research Service

4.3. Address

2705 Levee Road Davis, CA 95618

4.4. Phone number

(530) 750-6348

4.5. Email address

jens.beets@usda.gov

Contract Administration

4.6 Name

Mara Guttman

4.7. Institution

US Department of Agriculture Agricultural Research Service

4.8. Address

800 Buchanan Street Albany, CA 94710

4.9. Phone number

4.10. Email address

mara.guttman@usda.gov

EVALUATION GUIDANCE	Weight
Project Justification - The project is species-specific, time-sensitive, new to a geographic region, and likely to prevent the establishment of that species. - The defined need poses an imminent and significant threat to California's economy, environment, and/or human health. - A rapid response, inclusive of the objectives and tasks proposed, is likely to reduce future impacts and/or long-term management costs. - The rapid response restores and protects biodiversity and ecosystem health. Objectives - The proposed objective(s) effectively address the defined need. Tasks - The proposed task(s) are appropriate to achieve the defined objective(s).	50%
Project Team and Resources Team - The project team (leaders + collaborators) has complementary and integrated expertise, and their leadership approach/governance and organizational structure is appropriate for the project. - The project has strong support from relevant organizations/individuals. Resources - The organizational and institutional support, equipment, and other physical resources available to the project team are adequate for the proposed tasks. - The project will benefit from interdisciplinary, cultural, and/or collaborative engagement.	20%
Feasibility Implementation - The project tasks are achievable within their proposed timeline. - The overall strategy, work, and analysis methodology are well-reasoned and appropriate to accomplish the objectives of the project. - Measures to evaluate the project are sound. Fiscal Practicality - The project tasks are achievable within the proposed budget. - The proposed budget is clear, reasonable, and justified; the budget table detail is consistent with the narrative.	30%
Total	100%

Invasive Species Rapid Response Funding Quarterly Progress Report

<INSERT PROJECT NAME>
<INSERT DATE SUBMITTED>

Award # <INSERT AWARD NUMBER>

Award Term: <INSERT START DATE – END DATE>

Prepared by: <INSERT NAME OF PREPARER AND AFFILIATION>

Instructions: Complete a Quarterly Progress Report for each quarter as defined below, even if funding began mid-quarter.

Report Quarter (check only one):

- ☐ First: January 1-March 31, 202_
- ☐ Second: April 1-June 30, 202_
- ☐ Third: July 1-September 30, 202_
- ☐ Fourth: October 1-December 31, 202_

Funded Tasks:

1. Objectives and Tasks: List all project objectives and associated tasks.

Objective 1. ...

Task A. ...

...

2. Accomplishments: For each task funded from this award and during this reporting period describe what was accomplished toward implementation. If no progress was made during the quarter indicate "None." If the task was completed in a prior quarter indicate "Completed in <insert which quarter>". (Not to exceed 100 words per task.)

Task A. ...

...

3. Tasks not accomplished on schedule. Explain why they were not completed, and the revised plan to complete them before the end of the funding agreement.

...

4. Invoices submitted for payment.

Invoice #	Invoice Date	Invoice Amount (\$)
###	MM/DD/YY	\$\$\$\$\$

5. Comprehensive Effort (if applicable):

Appendix B.

Recognizing that most invasive species responses are collaborative and leverage funding from multiple sources, please share additional information about how others are contributing to this rapid response, inclusive of staff time, funding, and collective accomplishments. This information does not need to tie into the objectives/tasks of this award.

Sample

Invasive Species Rapid Response Funding Final Report

<INSERT PROJECT NAME>
<INSERT DATE SUBMITTED>

Award # <INSERT AWARD NUMBER>

Award Term: <INSERT START DATE – END DATE>

Prepared by: <INSERT NAME OF PREPARER AND AFFILIATION>

Instructions: Complete the Final Report within 60 days of the completion of funded work, or the expiration of the fund agreement, whichever comes first.

Funded Efforts:

1. Objectives and Tasks: List all project objectives and associated tasks.

Objective 1. ...

Task A. ...

...

2. Accomplishments: For each task funded from this award and during this reporting period describe what was accomplished toward implementation. If no progress was made during the quarter indicate "None;" if the task was completed in a prior quarter indicate "Completed in <insert which quarter>". (Not to exceed 100 words per task.)

Task A. ...

...

3. If any tasks were not accomplished, identify them and explain why not.

...

4. Unfunded/Comprehensive Effort (if applicable):

Recognizing that most invasive species responses are collaborative and leverage funding from multiple sources, please share additional information about how others are contributing to this rapid response, inclusive of staff time, funding, and collective accomplishments. This information does not need to tie into the objectives/tasks of this award.