

SCIENCE INSTITUTE

Progress Report 2018-2019



ensuring scientific quality and visibility
SCIENCE
Institute
California Department of Fish and Wildlife



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ABOUT THE CDFW SCIENCE INSTITUTE

The California Department of Fish and Wildlife's (CDFW) Science Institute helps to:

- support CDFW scientists by enhancing scientific capacity, promoting excellence in agency science, building community, and fostering internal and external scientific partnerships, and
- advance integrated initiatives to promote landscape-scale conservation with focus on biodiversity resilience and adaptation to climate change.

The Science Institute's expert staff team lead these initiatives by coordinating efforts with CDFW leadership, internal advisers, and programs, and by cooperating with external partners.

The Science Institute offers internal and external communication forums, guidance, training, and tools to support the CDFW community of scientists and their partners. With a new Science Advisor as the lead, the Science Institute has rapidly grown and evolved over the past 18 months. Beyond an initial focus on internal science support to *ensure scientific integrity, quality and transparency at CDFW*, its mission has expanded to include integrated science-informed initiatives on climate adaptation and biodiversity conservation to inform CDFW decisions. *Its updated mission is therefore to advance scientific capacity, excellence, and transparency in scientific practices in support of CDFW's mission-oriented decisions and statewide initiatives on climate adaptation and biodiversity conservation.*



The Science Institute's growing programs have high visibility and high potential for meaningful and exciting outcomes that support the CDFW mission and its scientists and improve the status of natural resources for all Californians.

In 2018/19, the Science Institute has conducted strategic planning, developed a Charter, coordinated an advisory team (SIAT), and organized five focus teams (SIFTs) on communication, climate change, scientific literature access, the 2020 Science Symposium, and data sharing & management. With support from the Data and Technology Division (DTD), it also developed two new internal online communication tools (CDFW Scientist Directory, the CDFW Scientist Directory (<https://cdfw.sharepoint.com/sites/ScientistDirectory/SitePages/SDHome.aspx>) and Science Institute HUB (<https://cdfw.sharepoint.com/sites/SIHUBSite>)). These tools and a Five-Year Strategic Action Plan for 2020-25 will be released in early 2020.

The Science Institute represents and promotes the interests and needs of all CDFW scientists. "Scientist" includes all science-oriented classifications at CDFW (including technicians, engineers, scientific aids and more) – in essence, all science and technical staff ARE the Science Institute.

HISTORY

The CDFW Science Institute officially emerged in 2012 from CDFW's 2006 strategic initiative #7 [Expand Scientific Capacity](#) to address the need to establish best standards and practices for all of the department's scientific endeavors. In addition, Assembly Bill 2376 (2010) aimed to develop a strategic vision for the (then) Department of Fish and Game and the Fish and Game Commission by 2012. It called for strategies and actions to improve agency scientists' access to scientific literature, heighten the visibility and awareness of existing internal science efforts, and create policies guiding the conduct of Department scientific practice (California Fish and Game Code - FGC §715).

Director Chuck Bonham officially launched the Science Institute in May 2012 with the initial mission to "*ensure quality, visibility and integrity of the science that is conducted and used within the California Department of Fish and Wildlife.*" In 2012, the Fish and Game Code §715 outlined objectives aimed to provide independent scientific guidance of the scientific research, monitoring, and assessment programs that support CDFW's work with fish and wildlife species and their habitats, and the best available independent scientific information and advice to guide and inform CDFW decisions. It also called for CDFW to promote and facilitate independent scientific peer review and science-based adaptive management and ensure scientific integrity and transparency in decision-making.

In May 2018, Director Bonham hired Dr. Christina Sloop as the CDFW Science Advisor. In this capacity, Christina also serves as Science Institute Lead, directing and coordinating the Science Institute programs.

Early accomplishments 2012-2018

From 2012-18, a dedicated volunteer team of CDFW scientists, led by Dr. Julie Yamamoto (Office of Spill Prevention & Response), made early strides in collaboration with the CDFW's Office of Communication, Education and Outreach (OCEO) and Office of Training and Development (OTD) to respond to FGC§715 objectives. Their accomplishments include:

- Producing several science-related policies and guidance documents.
- Launching the first CDFW Science Symposium in 2013, followed by two CDFW Science Symposia in 2015 and 2017.
- Offering department-wide access to several fisheries and wildlife journals, online search engines, and full-text access libraries.
- Holding quarterly scientific lectures/webinars through the [Conservation Lecture Series](#) to communicate the work of external and internal scientists across CDFW.
- Promoting CDFW Science Institute visibility to internal and public audiences by launching a [Science Institute webpage](#) with a continuing series of *Science Spotlight* and *Featured Scientist* posts to highlight science staff and their work.
- Providing access to scientific training through the [Scientific Community Development Program](#).
- Launching an internal science advisory team to provide scientific leadership within CDFW.
- Hiring of Dr. Christina Sloop in May 2018 as Science Advisor and first Science Institute Lead.



SCIENCE INSTITUTE TEAM



A staff team comprised of the Science Advisor, Climate Change Specialist, Biodiversity Coordinator, Conservation Science Specialist, and State Wildlife Action Plan (SWAP) Coordinator all work together to implement CDFW's and the Science Institute's missions. As part of an integrated team, each member combines a focus on their main duties with tasks to support other team members and the Science Institute's five-year strategic action plan, that in turn integrates all Science Institute initiatives on improved science capacity, climate, biodiversity, ecoregional stewardship, and SWAP implementation.

SCIENCE ADVISOR & SCIENCE INSTITUTE LEAD



Dr. Christina Sloop joined the Science Institute in May 2018, as Science Advisor and first official Science Institute Lead. Building on her scientific expertise in conservation, genetics, climate change adaptation, wetland restoration, strategic planning, and leading many multi-stakeholder decision-making processes, she advises CDFW leadership, chairs the SIAT, and works with CDFW scientists to establish and maintain a CDFW science support program to foster scientific excellence and expand CDFW's scientific capacity. She also guides her staff's programs, as part of an integrated initiative to expand CDFW's programmatic focus on climate change adaptation, biodiversity conservation, and landscape-scale conservation via SWAP and other tools.

CLIMATE CHANGE SPECIALIST



Whitney Albright joined the Science Institute in July 2018. An experienced Climate Science Specialist, her role includes integrating guidance on climate change vulnerability, resilience, and adaptation into CDFW's short- and long-term activities and operations. She also coordinates with other state agencies on statewide climate change initiatives, such as *Safeguarding California* (the state's climate change adaptation strategy), to address climate change-related risks to California ecosystems. Whitney also organizes the Conservation Lecture Series, and during the past year, she served part-time as the Service-Based Budgeting Project Lead to support CDFW's strategic planning. She also leads the Climate Change SIFT.

STATE WILDLIFE ACTION PLAN COORDINATOR



Dr. Junko Hoshi joined the Science Institute in September 2018, when the State Wildlife Action Plan (SWAP) Program was integrated with the Institute. As the CDFW SWAP Coordinator, she advocates for sustaining ecosystem health through partner-based strategic conservation planning, and developing, promoting and implementing priorities for SWAP 2015, SWAP companion plans and the future updates. Her current undertakings include leading the CDFW Biodiversity Initiative (CBI) pilot, which aims to leverage resources through public-private partnerships to identify marine, forest, and water projects that are multi-purpose and SWAP-driven for implementation. She also collaborates broadly with internal and external programs serving various committees, including the Association of Fish & Wildlife Agencies, Western Regional Partnership, Sonoran Joint Venture; CA Strategic Growth Council and Biodiversity Council.

BIODIVERSITY COORDINATOR



Dr. Kim Tenggardjaja joined the Science Institute in April 2019, as its Biodiversity Coordinator. Her primary focus is implementation of the [California Biodiversity Initiative](#) (CBI). In addition to serving as the Department's point of contact for biodiversity and habitat connectivity, she serves as the lead coordinating staff for the California Landscape Conservation Partnership (formerly the California Landscape Conservation Cooperative). Kim works closely with Science Institute staff, experts across CDFW, the California Department of Food and Agriculture's Biodiversity Coordinator, state and federal agencies, and other partners on issues related to preserving, managing, and restoring ecosystems to protect the state's biodiversity from climate change and other pressures. She also leads the Literature Access and 2020 Science Symposium SIFTs.

CONSERVATION SCIENCE SPECIALIST



Dr. Nicole Russell joined the Science Institute in July 2019, as its Conservation Science Specialist. She helps CDFW and its partners implement the ecoregional strategies identified in the SWAP 2015, in alignment with other conservation strategies. This includes the evaluation of completed projects' outcomes and work with CDFW grant and program managers to integrate those findings into grant application and project selection criteria for allocating future State Wildlife Grant (SWG) and other funds. In order to facilitate this work, Nicole is also developing a framework for managing SWAP 2015 project data. Additionally, she leads the Data Sharing & Management and Communication SIFTs.



STRATEGIC PLANNING 2018-19

The Science Institute conducted the following activities in 2018-19 to gather feedback regarding the ways in which it could support CDFW's scientific efforts and to inform a Five-Year Strategic Action Plan:

LEADERSHIP INTERVIEWS

MAY – JUNE 2018: Christina Sloop conducted one-hour phone interviews of all Branch Chiefs and Regional Managers, using a standardized questionnaire to solicit focused feedback, with time allotted for unstructured feedback at the end of each interview.

SCIENCE INSTITUTE ADVISORY TEAM

JUNE 2018 – ONGOING: As the Science Institute Advisory Team (SIAT) Chair, Christina Sloop leads a ~40-member internal science advisory team that meets every four to six weeks, in person (in Sacramento) and via Skype. The SIAT represents all CDFW Regions, Branches, and other CDFW units (Appendix I lists current members). SIAT members serve as communication liaisons between the Science Institute and science/technical staff they represent, to sustain a close-knit CDFW scientific community that regularly exchanges openly on important topics regarding departmental scientific practices. The SIAT identifies scientific capacity needs and solutions, coordinates scientific collaborations, and conducts outreach and education about CDFW's diverse scientific endeavors. Meetings include updates from the Chair, reports and feedback from all SIAT members, and discussions of topics in need of input from SIAT members (and their constituencies) to advance the Science Institute mission.



STRATEGIC PLANNING WORKSHOPS

AUGUST – SEPTEMBER 2018: Christina Sloop facilitated two strategic planning workshops with SIAT members. These started with short presentations about Science Institute history, accomplishments, and its mission, followed by breakout group activities to help define the purpose, vision, updated mission, charter, and focal areas of the Science Institute's science support program.



Above: SIAT members discuss Science Institute priorities at a 2018 planning workshop.

Below: CDFW Fisheries scientist Blythe Marshman exhibits features of white abalone reared at the captive breeding program CDFW conducts at BML.

ROADSHOW

OCTOBER 2018 – JUNE 2019:

Science Institute staff held a series of two- to three-hour meetings at 14 CDFW regional offices (covering all Regions) and five Branches, as well as the Elkhorn Slough National Estuarine Research Reserve, Bodega Marine Laboratory (BML), Wildlife Investigations Laboratory, Fisheries and Wildlife Genetics Laboratory, and San Joaquin and Nimbus Fish Hatcheries. The Science Institute solicited direct input from Branch and Region managers, supervisors, and staff in order to learn how best to support their scientific efforts. Meetings consisted of an introductory presentation on Science Institute history, accomplishments, mission, vision and potential focal areas, followed by an open discussion on needs for conducting high-quality science, expanding CDFW's scientific capacity, and potential opportunities for the Science Institute to assist. These meetings will continue in 2020 to introduce the Five-Year Science Institute Strategic Action Plan, online Science Institute HUB, and Scientist Directory; and to continue gathering feedback from CDFW staff, statewide.



FIELD STUDY SUPPORT

SPRING & SUMMER 2019: Christina Sloop accepted an invitation to help with mule deer capture efforts near Lee Vining, Eastern Sierra, in March 2019. It was a wonderful opportunity to meet CDFW scientists and volunteers and learn firsthand about one of the many scientific studies and monitoring efforts underway at CDFW.

During the summer of 2019, Nicole Russell and Kim Tenggardaja volunteered to assist with Fish Restoration Program fieldwork. They helped monitor fish, using beach and lampara net seines in the Sacramento-San Joaquin Delta.

The Science Institute team is interested to learn firsthand about the many research and monitoring efforts occurring at CDFW, ready to assist with field research and monitoring efforts. This helps build connections with CDFW scientists and field crews/volunteers and improves the teams' understanding of the objectives and challenges of these efforts. Please consider extending invitations to them via e-mail for your research/monitoring efforts. Thank you!





SCIENCE INSTITUTE TEAM RETREAT

SEPTEMBER 2019: Science Institute staff held a two-day strategic planning retreat at Pepperwood Preserve in Santa Rosa, during September 2019. This included team building, plus the development of strategies for carrying out the Science Institute’s integrated initiatives on biodiversity, climate change adaption, and landscape-scale conservation. Additionally, staff learned about the impacts of recent major wildfires (2017 Tubbs and 2019 Kinkade fires) on Pepperwood Preserve ecosystems, as well as post-fire recovery, from the Preserve Ecologist, Dr. Michelle Halbur.

PARTNER OUTREACH

Science Institute staff have engaged with many external partners. These include government representatives from the California Natural Resources Agency, California State Parks, Department of Water Resources, California Energy Commission, California Environmental Protection Agency, and U.S. Fish and Wildlife Service; scientists at academic institutions, including UC Berkeley, UC Davis, UCLA, UC Santa Cruz, the UC Natural Reserve System, and the California Academy of Sciences; non-profit partners, including the Transition Habitat Conservancy, Mojave Desert Land Trust, Point Blue Conservation Science, CA Native Plant Society, Pepperwood Foundation, San Diego Zoo; Association of Fish and Wildlife Agencies, and others.

Opposite Page:

Top left: CDFW Environmental Scientist Dave Contreras holds one of the many fish sampled in the Delta.

Bottom left: Kim Tenggardjaja assisting Dave Contreras with fish monitoring for the Fish Restoration Program in the Sacramento/San Joaquin Delta.

Bottom right: Christina Sloop volunteering with mule deer captures in the Eastern Sierra.

Current Page:

Left: SI staff brainstorming 2020 program priorities.

Right: Preserve Ecologist, Dr. Michelle Halbur (left), informs Science Institute staff about post-fire recovery at Pepperwood Preserve.

SCIENCE INSTITUTE STRATEGIC ACTION PLAN 2020-2025

The Science Institute Five-Year Strategic Action Plan (to be released in early 2020) sets goals with actionable strategies for implementation during 2020-25. It includes input from CDFW leaders and scientists (gathered through interviews, workshops, the SIAT, the roadshow, field support, and Science Institute team retreat), plus feedback from Science Institute Focus Team (SIFT) members (SIFTs are described in the following pages). The Strategic Action Plan will be reviewed and updated annually to reflect progress made and emerging opportunities.

SCIENCE INSTITUTE CHARTER

The Science Institute Charter was created alongside the 2020-25 Strategic Plan to outline a framework for the Science Institute's structure and function. It includes background on the Science Institute team and descriptions of the SIAT composition and process, as well as the coordination of Science Institute Focus Teams (SIFTs).

SCIENCE SUPPORT PROGRAM SCIENCE INSTITUTE FOCUS TEAMS (SIFTS)

Climate Change

The Climate Change SIFT, comprised of approximately 25 members from a variety of CDFW branches and regions, launched in March 2019. Its mission, as determined by SIFT members, is to "support the systematic integration of climate change considerations into Department policies and guidelines and empower CDFW staff to incorporate climate science and adaptation strategies into their respective projects."

The group meets every six weeks to exchange information, news, and announcements related to climate change. It has also launched several major projects, which are currently underway and slated for completion in early 2020:

1. *The development of a department-wide climate change survey.* The survey is intended to capture information on current climate-related projects taking place at the Department, and to evaluate staff resource needs related to climate change. Survey results will shape SIFT priorities going forward and ensure that its efforts are responsive to the needs of Department staff. Survey development is taking place in coordination with OTD and the Human Dimensions Unit.
2. *The production of ecoregional reports on fish, wildlife, and habitats that may be vulnerable to climate change.* The reports summarize climate change projections and related impacts to fish and wildlife in a manner that is easily accessible to Department staff. The SIFT recently facilitated the review of these reports by five different branches and all regions and is currently making revisions based on that feedback.
3. *The development and facilitation of a climate change forum* at the 2020 Science

Symposium. At the forum, SIFT members will disseminate information on select climate resources relevant to fish and wildlife and elicit input from staff on climate change priorities and resource needs at the Department. The forum will be open to all staff interested in attending.

Communication

The Communication SIFT laid the foundation of a CDFW science communication guide, based on needs identified by its members. The group also drafted detailed goals, strategies, and actions to address: *the need for scientific communication guidance; participation by CDFW scientists in professional exchange (e.g., conferences); coordinating partnerships with universities to collaborate on CDFW research; increasing public outreach by CDFW scientists; coordinating mixers for CDFW scientists to “cross-pollinate” with each other and external entities; developing an online communication exchange network; and developing conservation planning tools.* Additionally, it conducted a general evaluation of the feasibility of attaining those goals, based on available resources. The goals will be included in the Science Institute Strategic Action Plan 2020-25.





Scientific Literature Access

Since its February 2019 initiation, the Scientific Literature Access SIFT has concentrated on expanding CDFW's access to scientific literature, as a continuation of the efforts of an initial Science Institute committee to provide literature resources to CDFW scientists and address deficiencies in scientific journal accessibility. The SIFT used the results of an internal literature access survey from 2018 to inform the following activities:

1. *Expand access to the publications and journals that are most important to CDFW scientists.* With support from the Organizational Development Branch, Fisheries Branch, Region 3 Interagency Ecological Program, and the Executive Office, the SIFT provided continued access to literature search databases, reference libraries, and nine journals, while also subscribing to 16 additional journals. The scope of subjects covered by CDFW's journal subscriptions expanded from fisheries and wildlife to include limnology, oceanography, unmanned vehicle systems, animal health, wildlife diseases, mammalogy, ecology, ornithology, conservation biology, and conservation genetics. This information is currently accessible to all CDFW science staff, via the Science Institute intranet page.

2. *Brainstorm and pursue new avenues for the continued expansion of access to literature resources, via interagency collaborations.* The SIFT met with the Interagency e-Resources Working Group, led by the California Environmental Protection Agency and the State Library, to find a long-term solution to secure state scientists' access to scientific literature. This resulted in a partnership with the California Energy Commission librarian, which aims to provide shared literature access for departments and other entities under the California Natural Resources Agency, thereby expanding the suite of scientific resources available to CDFW scientists in 2020.
3. *Develop a draft literature access guidance document for the Department.* This document was included in and made a significant contribution to the official *Library Resources and Services for California Natural Resources Agency Employees* guidance document, which was requested by the California Natural Resources Agency and reviewed by the SIFT.

2020 Science Symposium

The Science Symposium SIFT coordinated the fourth CDFW Science Symposium, held February 25-27th, 2020, at the UC Davis Conference Center. This work includes *symposium venue planning and contracting; abstract review; symposium program and meeting schedule organization; procuring sponsorships and awards; technology coordination; and facilitating networking events.*

The 2020 Science Symposium theme was *Ecosystem Resilience through Biodiversity Conservation*. Dr. David Ackerly, Dean of the College of Natural Resources at UC Berkeley, delivered the keynote address. The Symposium also featured a full plenary session, including a panel on science and decision-making, followed by three concurrent technical sessions. Additionally, CDFW scientists from across the state presented more than 50 talks and 40 posters on their current studies and other science-related efforts. During the Symposium, the Science Institute also gave an overview of its science support program and initiatives on biodiversity, climate change, and landscape-scale conservation. Early Career Scientist awards were presented to Daphne Gille at the CDFW Genetics Research Laboratory for the best oral presentation, and to Francesca Batac at the OSPR Marine Wildlife Veterinary Care & Research Center for the best poster presentation.



Data Sharing & Management

The Data Sharing and Management SIFT made substantial progress towards implementing the *Scientific Data Governance Policy*:

1. *It brought together scientists from Regions and Branches to discuss opportunities and challenges for policy implementation.*
2. *It created guidance documents for the Data Management Plan (DMP) creation and submission processes.*
3. *It is reviewing the first 334 DMPs to look for items of interest; conduct quality control; determine which Branches/Regions may be underrepresented and which projects may still require DMPs; and inform the Department's data storage needs.*
4. *It is discussing plans to incorporate DMP processes into regular Departmental operations.*

Professional Development and Exchange (to start in 2020)

This SIFT will begin in 2020, with a goal of identifying and procuring professional exchange and development opportunities for CDFW's science staff. Its activities will span many different topics and thus may be split into separate work groups, as needed. Potential focal areas include:

1. *Increasing access to scientific trainings.* This will require the identification of staff training needs and exploration of options for expanding access to new courses, which may result in the development of an official (internal) science curriculum. Some courses will also help CDFW science staff get up-to-speed on the Department's science policies.
2. *Establishing a science mentorship program at CDFW.* CDFW science staff who are interested in sharing their institutional/scientific experiences with statistics, study design, scientific writing, scientific publishing, and/or climate change resilience will be matched with staff who are interested in learning from their expertise.
3. *Expanding opportunities for professional exchange.* Professional webinars, in-person events (e.g., regional symposia and regular science society mixers), professional society meetings, and conference events will be shared via the new *Science Institute HUB* SharePoint, which will allow all CDFW science staff to announce upcoming opportunities.

Other Potential SIFTs (to start in 2020)

Potential new SIFTs to start in 2020 include *Scientific Use of UAS* (Unmanned Aerial Systems), *Adaptive Management* (which would promote project-related and landscape-scale monitoring and evaluation), and *Science Partnerships* (which would focus on internships and Citizen Science).



Left: On October 9, 2019 Dr. Arthur Middleton (UC Berkeley) presented "The ecology and conservation of ungulate migrations in the American West."

Below: Dr. Brett Furnas works with statistics workshop participants at the 2019 AFS/TWS Joint Conference.

CONSERVATION LECTURE SERIES

Since 2019, the Science Institute has expanded the Conservation Lecture Series. This includes:

1. *An increased frequency of lectures from quarterly to monthly.* Between April and November of 2019, a total of 438 Department staff have attended the lectures.
2. *Featured internal and external guest speakers* who discussed wide-ranging topics including wildfire, drought, climate change, science communication, species migration, and the California Natural Diversity Database. The talks highlighted a variety of species and habitat types across terrestrial, aquatic, and marine environments.
3. *Regularly coordinated with IT, OCEO, and OTD in order to plan and host each talk.* Support from these branches is crucial to maintaining the series.



TRAINING

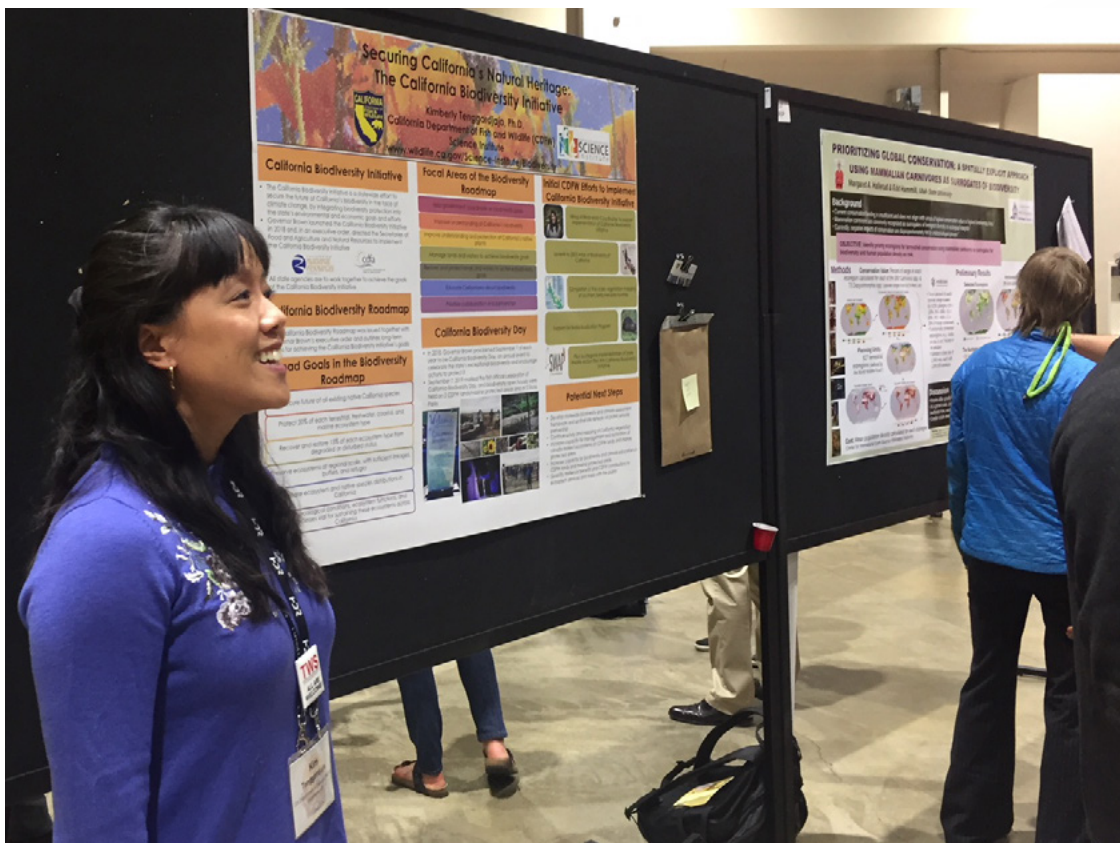
Statistics Consultation Workshop

The Science Institute coordinated a Statistics Consultation Workshop at the 2019 Joint Conference of the American Fisheries Society & The Wildlife Society (2019 AFS/TWS Joint

Conference) in Reno, Nevada, in October 2019, led by Brett Furnas, Lindsey Rich and Russ Landers. Dr. Furnas, a CDFW Wildlife Ecologist, gave an overview of statistical approaches for addressing common departmental research and monitoring activities. Workshop leaders also conducted consultation sessions with individual CDFW scientists to discuss their projects. In 2020, the Science Institute plans to host additional Statistics Consultation Workshops in two different locations, which will be open to interested CDFW scientists in those regions.

PROFESSIONAL EXCHANGE

Science Institute staff engaged in professional exchange at annual society meetings and conferences and hosted CDFW training sessions at the 2018 Bay-Delta Conference and 2019 Western Section Wildlife Society meeting in Yosemite National Park. They also participated in the 2019 AFS/TWS Joint Conference in Reno and attended the 2018 Climate Adaptation Forum and the 2019 International Conference on Road Ecology and Transportation in Sacramento.



Above: Kim Tenggardjaja shows her CBI poster at the 2019 AFS/TWS Joint Conference.

Christina Sloop presented the Science Institute's history and an overview of its growing program areas and goals, as outlined in the Five-Year Science Institute Strategic Action Plan, in Sacramento, Yosemite, and Reno. Whitney Albright gave an overview of available climate change projection tools to CDFW staff in Yosemite. In Reno, Whitney presented a poster describing recent efforts to evaluate climate projections in California and potential climate change impacts to fish, wildlife, and habitats on CDFW lands, by ecoregion.

In Reno, Kim Tenggardjaja's poster provided an overview of the CBI and the Department's initial efforts to implement it, as well as California Biodiversity Day. In Yosemite and Reno, Junko Hoshi's presentations focused on the SWAP 2015. She gave an overview of the main document and provided examples to show its versatility and power as a tool for implementing collaborative conservation strategies. In Reno, Junko also presented decision-making tools for developing integrated regional conservation plans. These included key standards, GIS tools, and logic-based decision-making tools for supporting the development and strategic prioritization of conservation areas and activities in the SWAP 2015 and the California Desert Advance Mitigation Strategy.

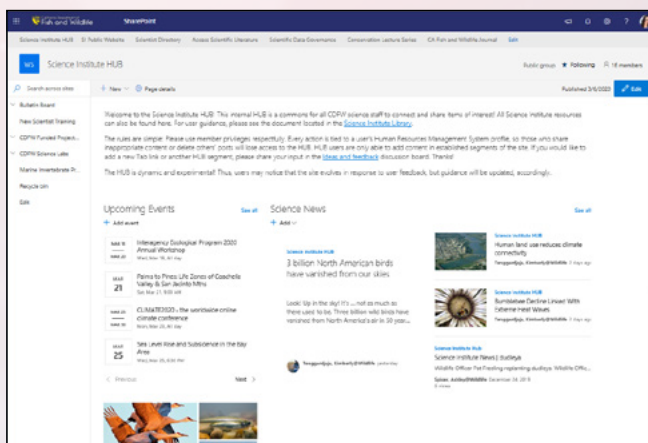


ONLINE COMMUNICATION TOOLS

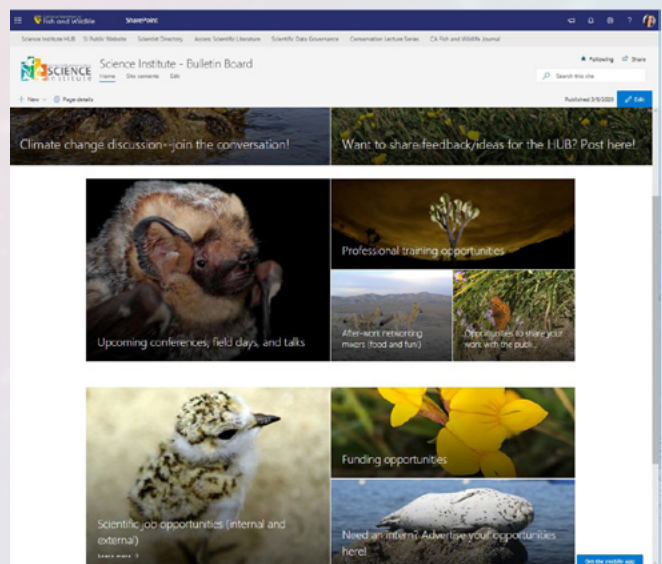
Science Institute HUB

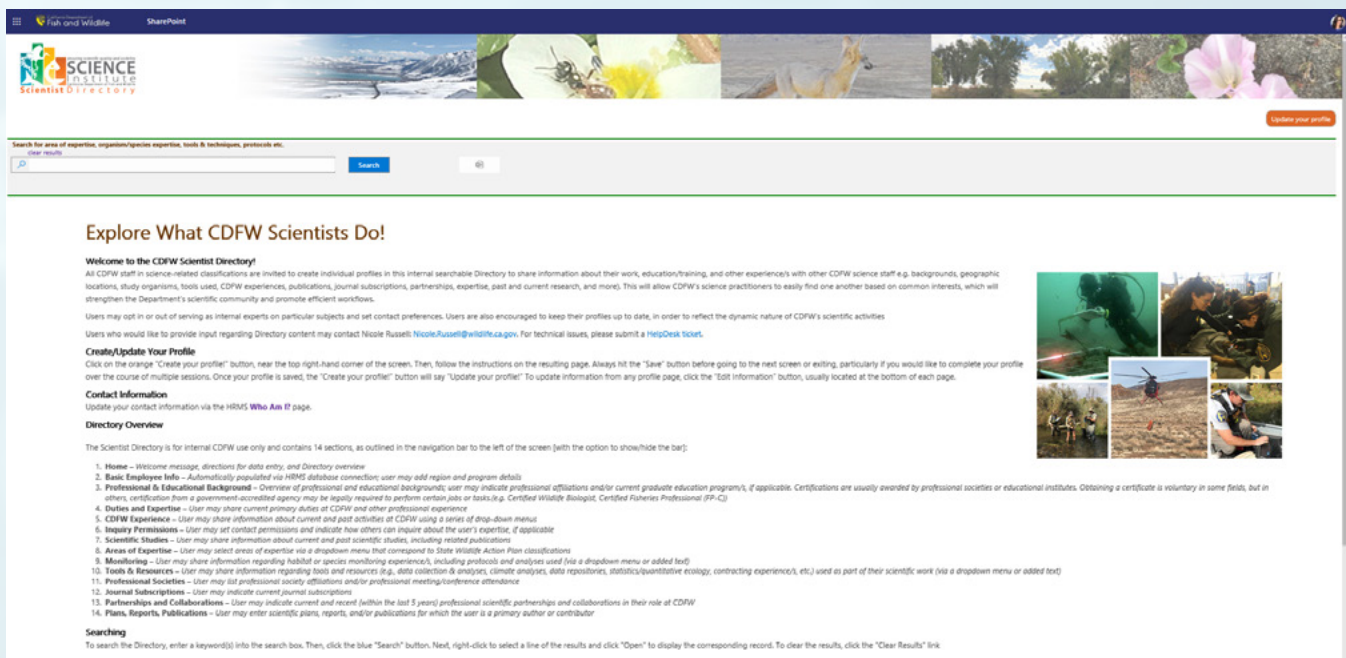
With technical support from DTD and testing by members of the Communication SIFT, the Science Institute has designed an internal online *Science Institute HUB* (<https://cdfw.sharepoint.com/sites/SIHUBSite>) to empower CDFW scientists to engage in information exchange and networking. Released in early 2020, this SharePoint features:

- Access to the *CDFW Scientist Directory*, *SI Public Website*, *Literature Resources*, *CA Fish & Wildlife Journal*, and *Conservation Lecture Series*
- A Bulletin Board for CDFW scientists to share and view announcements regarding upcoming events of interest, including scientific meetings, conferences, webinars, trainings, and workshops, as well as networking mixers and other get-togethers.
- The Bulletin Board is also a place for CDFW scientists to post and peruse scientific job and funding opportunities
- A science document library, including the CDFW scientific literature access guide, all Departmental science-related policies, information about peer review, internal reports of interest, and links to open access journals
- A community forum for CDFW scientists to pose questions to the broader CDFW scientific community and easily connect around topics of interest
- Links to the *California Fish and Wildlife Journal*, CDFW Scientific Data Governance Policy SharePoint, CDFW UAS (Drone) Program, Science Institute Scientific Community Development Program, CDFW Wildlife Forensics Laboratory, etc.



Screenshots of Science Institute HUB and Bulletin Board pages





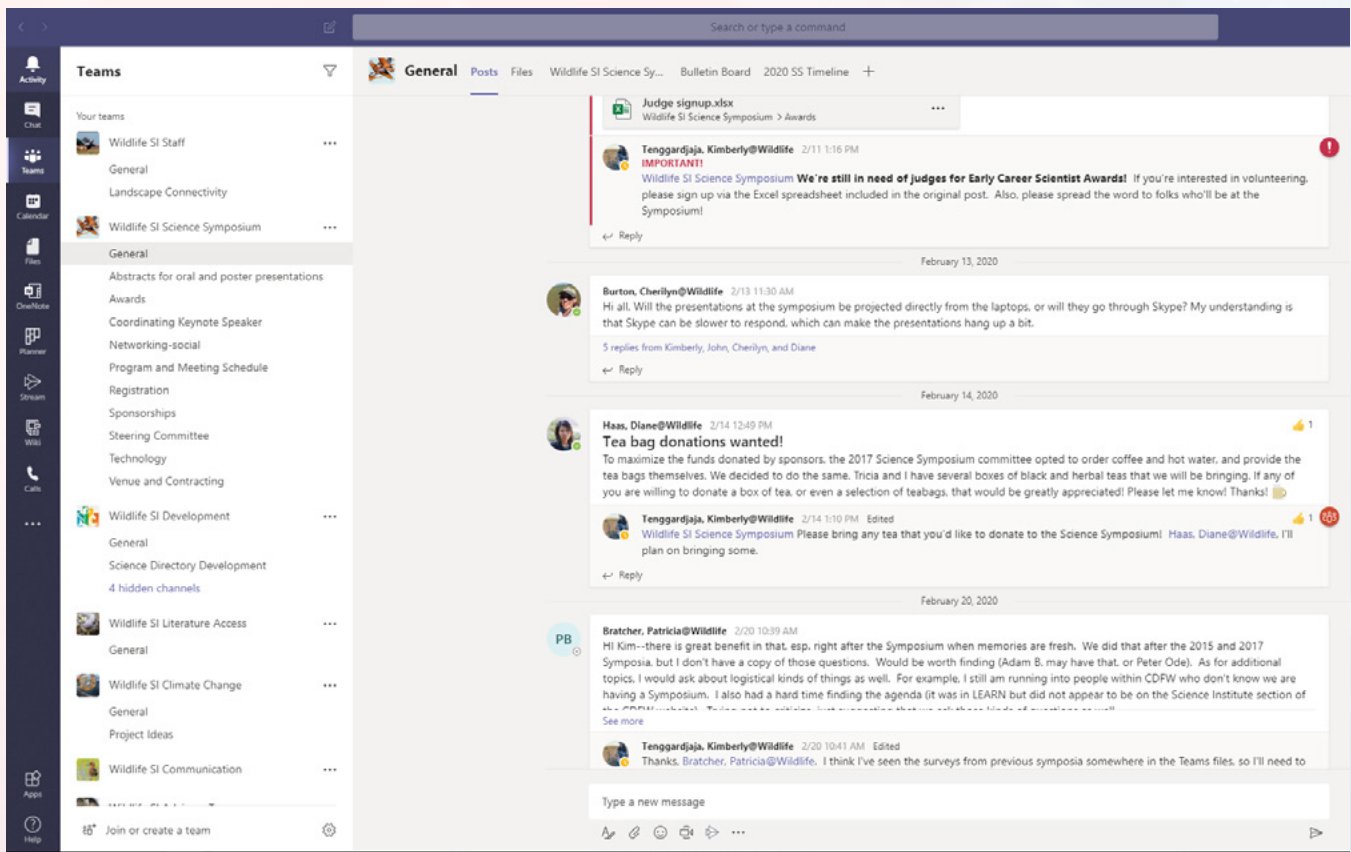
Screenshot of Scientist Directory page.

Scientist Directory

With support from DTD, the Science Institute has created an online internal *CDFW Scientist Directory*, released in early 2020. The *Directory* enables the Department's science staff to quickly and easily search for and contact colleagues regarding work-related information and internal collaborations. All science staff are invited to create their own profiles, featuring their work locations, programs, areas of expertise, and interests. They may also share information about their professional partners, experiences using tools, equipment, protocols, or sampling methods; experiences with processes (e.g., contract management or procurement); and publications. All science-related classifications, such as ES, SES, EPM, engineer, scientific aids, laboratory technicians, and fish & wildlife interpreters, are qualified to participate.

Microsoft TEAMS

In order to effectively communicate within each SIFT, the SIAT, and amongst the Science Institute team, the Science Institute tested the Microsoft Teams application (Teams) throughout 2019, with support from DTD. Teams also allowed for easy communication with DTD, which was especially helpful for developing the *Scientist Directory* and *Science Institute HUB*. Teams allows invited members to communicate with one another using a chat function, as well as group conversations. It also features a file directory, calendar, planner, and a Skype-like meeting call function, plus the option to integrate them with other Microsoft applications. While those using Teams faced an initial learning curve, working with the application has been an overall positive experience, making it easy for team members to be organized, stay connected through online discussions, and know where to find team-related resources.



Screenshot of Literature Access SIFT TEAMS page.

Website Updates

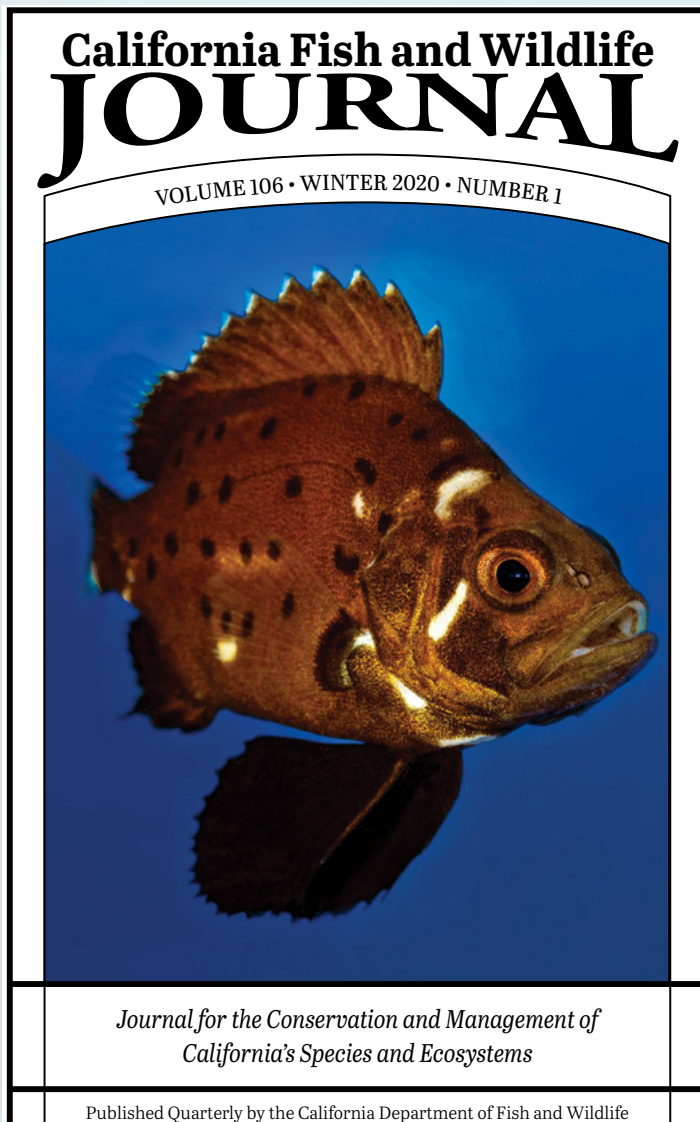
In 2019, the Science Institute provided a new series of public online resources to highlight CDFW's priority initiatives, including a scientific overview of [wildfire impacts](#) and an introduction to the [CBI](#). Additional webpages are planned for release in this series, with an initial focus on wildlife connectivity.

CALIFORNIA FISH AND WILDLIFE JOURNAL

In 2018-19, the *California Fish and Wildlife Journal* has seen several substantial changes:

1. *The Science Institute welcomed Dr. Angela Baker as the new Editor-in-Chief.* Under her leadership, the *Journal* returned to a quarterly publication schedule, catching up from a six-month delay.
2. *The Journal's website was updated* to add "Aim" and "Scope" sections. Additionally, outreach efforts resulted in increased article submissions and publications for each issue.
3. *Proper journal indexing is underway.* A procuring contract for permanent identifiers (DOIs), as well as an archival arrangement, are currently in progress. These will allow the *Journal* to be properly indexed as a scientific journal, which should increase its visibility, readership, and submissions.

4. *Submission guidelines were updated.* A new double-blind peer-review process is expected to result in reduced bias in the review process.
5. *Work is also underway to establish an online submission system* that will greatly reduce the time spent by editors, authors, and reviewers on manuscript processing.
6. *Publication of special issues* devoted to topics of importance and current relevance to California fish and wildlife resources is underway, in addition to the regular quarterly issues. Special issues in 2019 focused on the impacts of human recreation, fire, and cannabis on the state's resources; these will be published in early 2020. Next year, special issues will highlight climate change and the California Endangered Species Act (CESA).
7. *The title and subtitles of the Journal were updated.* Now, the *California Fish and Wildlife Journal* again matches the Department's name, while the subtitle was updated to "*Journal for the Conservation and Management of California's Species and Ecosystems*" to accurately reflect all species entrusted to CDFW's protection.
8. *The first issue of 2020 will feature a redesigned cover.*

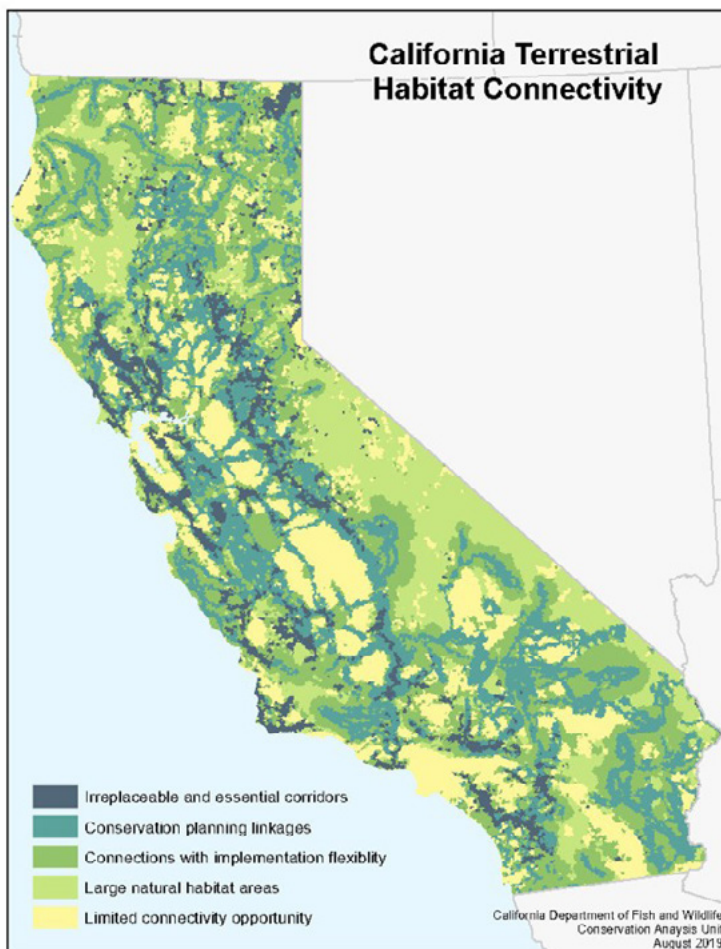


SERVICE-BASED BUDGETING

Science Institute staff are engaged in the Department's Service-Based Budgeting (SBB) effort to identify the tasks needed to accomplish the Department's mission, as well as the labor hours necessary to complete those tasks. As a result of Science Institute staff involvement, Science Institute initiatives are well-represented in the SBB task catalog, namely under the Science Integration program, within the CDFW "What We Do" Chart. The "What We Do" Chart provides an overview of the types of activities the Department performs, organized by services provided to the public.

CALIFORNIA BIODIVERSITY INITIATIVE

The CBI is a statewide effort launched by Governor Brown in 2018 to protect California's unique biodiversity from climate change and other threats. The initiative provided one-time support for CDFW to hire a Biodiversity Coordinator, update mapping resources for assessing statewide connectivity and the 2003 Biodiversity Atlas, complete fine-scale vegetation mapping of the southern Sierra Nevada foothills, and support invasive species early detection, eradication, and control, with a focus on nutria.



CONNECTIVITY, BIODIVERSITY ATLAS, VEGETATION MAPPING

One-time funding under the CBI was directed to multiple projects within the Biogeographic Data Branch (BDB). In June 2019, the terrestrial connectivity dataset was updated to include the results of statewide, regional, and other connectivity analyses. This dataset builds on a 2010 statewide assessment of essential habitat connectivity in California, which was produced by CDFW and the California Department of Transportation. It supports conservation planning efforts by allowing users to spatially evaluate the relative contribution of an area to terrestrial habitat connectivity. BDB is also creating a new edition of the Atlas of Biodiversity of California, which will include an online counterpart, estimated for completion in late 2020. Finally, BDB is working to complete fine-scale vegetation mapping of the southern Sierra Nevada foothills by late 2021.



INVASIVE SPECIES ERADICATION & CONTROL

The Invasive Species Program also received funding through the CBI. It is leading the initial response to invasive nutria by collaborating with other agencies and local partners to develop the most effective strategy for eradicating nutria from the state. The interagency *Nutria Response Team* includes representatives from CDFW, the California Department of Food and Agriculture, the State Parks Division of Parks and Recreation, the Department of Water Resources, the U.S. Department of Agriculture, the U.S. Fish and Wildlife Service, and county agricultural commissioners' offices. The Team is currently working to determine the full extent of the nutria infestation.

CALIFORNIA BIODIVERSITY DAY

As part of the CBI kickoff, Governor Brown designated September 7th as California's annual Biodiversity Day. This occasion celebrates the state's exceptional biodiversity, encouraging public awareness and actions to protect it. September 7, 2019 marked the first official celebration of California Biodiversity Day. In collaboration with regional staff, the California Academy of Sciences, and State Parks, the Science Institute coordinated biodiversity open houses on five CDFW lands/marine protected areas and five State Parks throughout the state. Additional partners included *iNaturalist*, One Tam, and the Bolsa Chica Conservancy.

Some open houses featured *bioblitz* events. *Bioblitz* participants were encouraged to use *iNaturalist*, a smartphone/tablet application that helps users learn about, record, and share data about their natural surroundings, in order to support the exploration and documentation of the state's biodiversity. This resulted in more than 14,000 observations by at least 2000 observers, with over 2600 species identified during California Biodiversity Day 2019. Planning is underway for Biodiversity Day 2020.



Kim Tenggardjaja and Secretary Crowfoot after the bioblitz at Yolo Bypass Wildlife Area.

STATE WILDLIFE ACTION PLAN

The State Wildlife Grant (SWG) Program provides federal grants to states for the development and implementation of programs to benefit wildlife (and their habitats), including species that are not hunted or fished. CDFW uses SWG funds to develop and implement its SWAP. SWAP identifies California wildlife “Species of Greatest Conservation Need” and prescribes actions to conserve those species and their habitats before they become too rare and costly to conserve. The 2015 update of the SWAP includes species that are particularly vulnerable to climate change.

CDFW CBI PILOT FOR SWAP IMPLEMENTATION

The CDFW CBI Pilot Project launched in January 2019, as part of the [SWAP 2015](#) implementation strategy and CDFW’s efforts to bolster biodiversity conservation. The main purpose of the pilot project is to advance recommended activities outlined in SWAP 2015, the associated [Companion Plans \(2016\)](#) and CDFW’s internal Operational Plan (2016), through leveraged funding via public-private partnerships. Junko Hoshi is co-leading the pilot with non-profit subcontractor Coastal Quest.

About 40 sector representatives (divided into three teams, corresponding to their sectors) joined the Pilot in October 2019, attending meetings in November 2019 and February 2020. The teams will each participate in a final series of in-person meetings, slated for March/April 2020, with the Pilot concluding in June 2020. For the remainder of the Pilot, the teams will discuss updates to previously identified sector priorities, share individual organizational priorities, brainstorm, and select projects that reflect mutual interests. They will then develop agreements to leverage funding for the implementation of one to three projects per sector. If the Pilot and its public-private partnership model are successful, projects will likely be developed and implemented for the other companion plan sectors (i.e., tribal lands, transportation, agriculture, consumptive and recreational uses, energy, and land use planning), following a similar model.

SWAP PROGRESS AND EFFECTIVENESS

CDFW grant programs fund projects intending to protect, restore, and enhance the state’s natural resources. Nicole Russell has initiated an evaluation of CDFW’s progress on SWAP 2015 implementation, through a collaboration with the Watershed Restoration Grants Branch (WRGB).

Her initial efforts focus on tracking and evaluating Proposition 1 grant projects to evaluate how they implement SWAP 2015 strategies. She intends to determine whether funded actions are achieving desired outcomes outlined in grant proposals. In a general sense, SWAP progress tracking goes beyond compliance monitoring, with the ultimate goal of developing ways to measure and evaluate the effects of restoration projects and resource management actions on biological resources of concern. It will therefore expand to other grant programs and include other CDFW program activities.

Nicole’s initial efforts indicate the need for an increased focus on status and effectiveness

monitoring in the context of CDFW's granting programs and land management efforts. She is developing an organized system for gathering and sharing SWAP-related project tracking data, as well as quantitative methods for determining whether SWAP 2015 recommendations are being addressed. This database will help determine how CDFW's efforts to conserve the state's fish and wildlife are progressing at the landscape scale. It also has the potential to support the need for coordination of long-term monitoring and more detailed project outcome tracking (an Adaptive Management SIFT would support this effort).

SWAP PARTNER COORDINATION AND COLLABORATION

Junko Hoshi engaged in the following partner coordination and collaboration efforts in 2019:

- [Association of Fish & Wildlife Agencies \(AFWA\) Wildlife Diversity Program Manager Committee Annual Meeting 2020](#) – co-coordination of annual meeting in San Diego January 27-30, 2020, hosted by CDFW. Major discussion topics will include SWAP, the SWG, the Recovering America's Wildlife Act, and will include a visit Tijuana River National Estuarine Research Reserve.
- [AFWA Relevancy Roadmap](#) – engaged in development of the AFWA [Relevancy Roadmap](#) to help overcome barriers to broad relevance, public engagement and support.
- [Recovering America's Wildlife Act \(RAWA\) Story Map](#) – contributed to this national effort by providing California-specific information, now highlighted by a [RAWA Base Story Map](#) released in November 2019. This interactive national map gives a snapshot of each state's success stories in the conservation of non-listed at-risk species through SWG projects guided by SWAP.
- [Renewable Energy Wind Facility Siting](#) – supported information-gathering for AFWA's study to understand concerns, needs, and interests related to wildlife and wind energy siting across the nation. The Final Report was released in November 2019. The study has been developed into the [Guidance for Potential Hosts of Wind-Wildlife Technologies and Strategies](#) .



- **Sonoran Joint Venture (SJV) Strategic Implementation Plan** – participated on SJV’s Management Board to advocate for strategic planning approaches and using relevant SWAP information to prioritize SJV activities to conserve arid and coastal landscapes in southern California.
- **California Water Plan 2018 Update** – engaged with the Water Plan State Agency Steering Committee to align DWR’s Water Plan with the SWAP Water Companion Plan. The California Department of Water Resources released the California Water Plan 2018 in June 2019.
- **Mojave Desert Regional Conservation** – brought together internal and external vegetation and wildlife biologists and the Transition Habitat Conservancy to rapidly assess species-habitat relationship on the CDFW SB34 mitigation lands. Conducted in April 2019, the pilot study developed baseline for BMP on the mitigation lands and advanced Mojave and Sonoran Desert Scrub conservation strategies outlined in SWAP 2015.

Other Efforts – engaged integrated natural resource conservation and management efforts led by the Western Governors’ Association, Western Regional Partnership and the Western AFWA (WAFWA); and contributed to WAFWA’s Sagebrush Strategies, which implement the SWAP 2015 sagebrush strategies for the Mono and Modoc Conservation Units.

SWAP PROJECT COORDINATION

The SWAP effort at CDFW is supported through the State Wildlife Grant and is approved by and administered by the U.S. Fish and Wildlife Service (USFWS). In 2019, the Science Institute amended the USFWS subcontract for the SWAP Phase IV Amendment III, to extend the CDFW CBI Pilot project timeline. In order to secure continued funding for the SWAP implementation effort, including project tracking and preparing for the 2025 SWAP Update, the Science Institute also submitted a full proposal for SWAP Phase V, under the 2020 SWG solicitation.



APPENDIX I - SIAT MEMBERS

This Appendix lists CDFW Region, Branch, and other program representatives serving on the Science Institute Advisory Team (as of March 2020).

THE SIAT INCLUDES REPRESENTATIVES FROM THE FOLLOWING CDFW ENTITIES:

- R1 – Northern Region
- R2 – North Central Region
- R3 – Bay Delta Region
- R4 – Central Region
- R5 – South Coast Region
- R6 – Inland Deserts Region
- R7 – Marine Region
- Office of Spill Prevention and Response (OSPR)
- Biogeographic Data Branch
- Fisheries Branch
- Habitat Conservation Planning Branch
- Information Technology Systems Branch
- Water Branch
- Watershed Restoration Grants Branch
- Wildlife Branch
- Wildlife Investigations Laboratory
- Wildlife Genetics Laboratory
- Forensics Laboratory (Law Enforcement Division)
- Aquaculture Unit
- Regulations Unit
- Native Plant Program
- Office of Communication, Education, and Outreach (OCEO)

THE FOLLOWING RECEIVE REGULAR SIAT COMMUNICATIONS:

- All Branch Chiefs and Regional Managers
- Office of the General Counsel (OGC)
- Organizational Development Branch (ODB)
- Ecosystem Conservation Division
- Fish and Wildlife Division
- Cannabis Program

REGIONS

Region 1

Dege, Michael
Found-Jackson, Christine

Region 2

Hermansen, Tim

Region 3

Sherman, Stacy
Erickson, Gregg

Region 4

Tennant, Erin

Region 5

Dillingham, Tim
Open

Region 6

Sharma, Shankar

Region 7

Rogers-Bennett, Laura
Aseltine-Neilson, Debbie

BRANCHES

Biogeographic Data Branch (BDB)

Miner, Karen
Nelson, Misty

Conservation Engineering Branch

Mann, Jon
Gard, Mark

Fisheries Branch (FB)

Marshman, Blythe
Koerber, Lea

Habitat Conservation Planning Branch (HCPB)

Mantor, Margaret
Wieland, Madeleine

Law Enforcement Division (LED)

Meredith, Erin

Office of Spill Prevention and Response (OSPR)

Yamamoto, Julie
Ode, Peter

Wildlife Branch

Furnas, Brett
Heeren, Alex

Water Branch (WB)

Drescher, Brionna
Jacobs, Brooke

Watershed Restoration Grants Branch (WRGB)

Lake, Vicki
Thompson, Helen

OTHER PROGRAMS & UNITS

Aquaculture

Lovell, Randy

Native Plants

La Rosa, Raffica
Lis, Richard

Office of Communication, Education & Outreach (OCEO)

Open

Regulations Unit

Selmon, Michelle
Alminas, Ona

Wildlife Conservation Board

Malchow, Kurt

APPENDIX II - SIFT MEMBERS (AS OF DECEMBER 2019)

CLIMATE CHANGE

Albright, Whitney, Science Institute
Aseltine-Neilson, Debbie, Region 7
Brown-Tapia, Diane, Sustainability Unit
Brusati, Elizabeth, Habitat Conservation Planning Branch (HCPB) - Invasive Species
Glushkoff, Serge, Region 3
Gogol-Prokurat, Melanie, Biogeographic Data Branch (BDB)
Hansen, James, Region 3
Haynes, David, Region 1
Hill, Ryan, Biogeographic Data Branch (BDB)
Hoeft, Adam, Biogeographic Data Branch (BDB)
Hofmeister, Jenny, Region 7
Holstege, Stephanie, Region 3
Ingrassia, Danielle, Water Branch (WB)
Johnson, Molly K., Region 7
Kelly, Audrey, Region 5
Leppig, Gordon, Region 1
Malchow, Kurt, Wildlife Conservation Board (WCB)
McGarry, Amanda, Region 5
McKibbin, Chris, Region 2
Ricker, Seth, Region 1
Rogers-Bennett, Laura, Region 7
Selmon, Michelle, Regulations Unit
Sharma, Shankar, Region 6
Spautz, Hildegard, Watershed Restoration Grants Branch (WRGB)
Stanford, Bronwen, Water Branch (WB)
Swanson, Brandon, Region 4
Thompson, Helen, Watershed Restoration Grants Branch (WRGB)

COMMUNICATION

Russell, Nicole, Science Institute
Sloop, Christina, Science Institute
Alminas, Ona, Regulations Unit
Amrhein, Brandon, HCPB
Chang, Annie, BDB
Damon, Lauren, Water Branch
Gibble, Corinne, OSPR - Marine Wildlife Veterinary Care & Research Center
Heeren, Alex, Wildlife Investigations Laboratory (WIL)

Johnson, Kathryn, Marine Region
Porzio, Dianna, Marine Region/Pelagic Fisheries and Ecosystem Project
Spicer, Ashley, Law Enforcement Division – Forensics Laboratory
Takata, Lynn, Region 2
Tavares, Eloise, South Coast Region, Fisheries/Aquatic Invasive Species/Dreissenid Mussels
Walters, Cristin, HCPB
Wieland, Madeleine, HCPB

DATA SHARING & MANAGEMENT

Russell, Nicole, Science Institute
Sloop, Christina, Science Institute
Bowles, Christy, Region 3
Burch, Doug, Cantara Field Office
Clipperton, Neil, Wildlife Branch
Damon, Lauren, Water Branch
Drescher, Brionna, Water Branch
Fiehler, Craig, San Luis Obispo Field Office
Gahan, Kari, Cannabis Program
German, David, Region 6
Gilroy, Michelle, Eureka Field Office
Goldman, Steve, Biogeographic Data Branch (BDB)
Grady, Katherine, Marine Region
Henkel, Laird, OSPR
Hill, Ryan, Biogeographic Data Branch, embedded within Fisheries Branch
Hoshi, Junko, Science Institute
Idrisi, Nasseer, Region 5
La Rosa, Raffica, Native Plant Program
Landers, Russ, Wildlife Branch/Game Conservation Program
Lupo, Tom, Data and Technology Division
Mastalir, Diane, BDB
McGarry, Amanda, Region 5/Non-Game Program
Miner, Karen, BDB
Mussulman, Sarah, North Coast Region/Fisheries
Neahr, Todd, Marine Region
Patterson, William, DTD-BDB
Peters, Charlotte, Region 1, Coast - HabCon
Ricker, Seth, Northern-Region 1
Shu, Jeffrey, Wildlife Branch/Lands Program
Souza, Levi, Wildlife Branch/Lands Program
Spautz, Hildegard, Watershed Restoration Grants Branch (WRGB)

LITERATURE ACCESS

Tenggardjaja, Kim, Science Institute
Sloop, Christina, Science Institute
Bahm, Sarah, Region 4
Barabe, Russell, Region 5
Chellman, Isaac, Region 2
Hoeft, Adam, Biogeographic Data Branch
Johnson, Molly, Region 7
Lis, Richard, Region 1
La Rosa, Raffica, Native Plant Program
Miller, Katherine, Wildlife Branch
Ode, Peter, OSPR
Peterson, Nicholas, Region 6
Rienecke, Steven, Region 7
Sharma, Shankar, Region 6
Swales, Stephen, Fisheries Branch
Swanson, Brandon, Region 4
Vasquez, Martice, OSPR
Yoshioka, Glenn, Fisheries Branch

2020 SCIENCE SYMPOSIUM

Tenggardjaja, Kim, Science Institute
Sloop, Christina, Science Institute
Algiere, Jesse, Information Technology Operations Branch
Berwith, John, Information Technology Operations Branch
Branine, Wendy, Organizational Development Branch
Bratcher, Tricia, Region 1
Brown, Chris, Information Technology Operations Branch
Buchalski, Michael, Wildlife Branch - Genetics Laboratory
Burton, Cherilyn, Native Plant Program
Clifford, Deana, Wildlife Investigations Laboratory
Crane, Dave, OSPR
Haas, Diane, Water Branch
Haynes, Samantha, Region 6
Henkel, Laird, OSPR
Holstege, Stephanie, Region 2
Idrisi, Nasseer, Region 5
Gahan, Kari, Habitat Conservation Planning Branch
Gogol-Prokurat, Melanie, Biogeographic Data Branch
Johnson, Molly, Region 7
Kern, Sara, Habitat Conservation Planning Branch
Khanna, Shruti, Region 2
Klip, Mario, Region 2

Koerber, Lea, Fisheries Branch
Miller, Katherine, Wildlife Branch
Ode, Peter, OSPR
Riley, Melissa, Region 2
Sharma, Shankar, Region 6
Shoup, Randy, Information Technology Operations Branch
Takata, Lynn, Region 2
Vieira, Harvest, Region 1
Wilson, Carrie, Region 7
Yamamoto, Julie, OSPR
Yang, Danny, Organizational Development Branch