

Conservation of *Aechmophorus* Grebe Colonies at Clear Lake

PUBLIC OUTREACH AND EDUCATION
COLONY PROTECTION
JULY 1, 2010 – APRIL 30, 2020

FINAL REPORT
BY MARILYN WAITS, PROJECT MANAGER
REDBUD AUDUBON SOCIETY, INC



**Aechmophorus Grebe Conservation Project at Clear Lake
Redbud Audubon Society**

**Final Report on Public Outreach and Education
and Colony Protection 2010-2020**

Table of Contents

Background

I. Strengths of the Project Design

- Leadership and Coordination from Audubon California
- Involvement of Several Chapters Working Together
- Flexibility in Annual Objectives that Allowed for Local Innovation

II. Redbud's Outreach and Education Activities

A. Scope of Work for Outreach/Education

B. Methods of Outreach and Education Used by Redbud

- Exhibit Booths at Community Events
- Presentations to Local Organizations
- Children's Classroom Presentations
- News Media Articles (print and online)
- Radio Interviews
- Webcam Streaming of Grebe Nests on Clear Lake
- Other Online Outreach

C. Ongoing Outreach Gifts from the Grebe Project

- to Lake County and Redbud Audubon Chapter
- Grebe Interpretive Panels at Five Shoreline Parks
- Grebe Outreach Materials for Continuing Redbud Use

III. Colony Protection Activities

- Speed Limit Buoys and Bridge Sign
- Fishing Line Recycle Bins

Conclusions and Recommendations

Appendices:

- A** 2010-2020 Outreach and Colony Protection Activities
by Category and Year
- B** Photographs of Outreach and Colony Protection Activities

Conservation of *Aechmophorus* Grebe Colonies at Clear Lake
Redbud Audubon Society
Final Report

Public Outreach and Education
Colony Protection
July 1, 2010 – April 30, 2020

Background

Redbud Audubon and two other Audubon chapters in Northern California (Altacal and Plumas) have conducted ten years of a grebe conservation project. Funding came from the Luckenbach Trustee Council, using oil spill mitigation funds from spills off the Northern California coast. These three chapters are located near the largest breeding lakes for Western and Clark's Grebes in the northern half of the state.

The overall goal of the project was to increase the breeding success of these two species to mitigate the losses of these species in the oil spills.

The objectives to accomplish that goal were to educate the public on how to protect the floating colonies during the summer nesting season and to monitor each year's breeding success in numbers of colonies, nests, and offspring. For the first five years of the project, there was also a stated objective to protect the colonies from human disturbance.

I. Strengths of the Project Design

The success of this project derived from several factors:

- Leadership and coordination from Audubon California
- Involvement of several chapters working together
- Flexibility in annual objectives that allowed for local innovation

Each of these factors has been crucial to the project's effectiveness.

Leadership and Coordination from Audubon California

All three of these chapters are small rural chapters, and at the inception of the project all were run entirely by volunteers, with no full-time staff. The entire initiative for the project came from Dr. Gary Langham, Audubon California's Director of Bird Conservation at that time, who saw the RFP requesting proposals for this grebe project. Dr. Langham thought through how Audubon could use its network of chapters to accomplish the project goals. He designed the overall structure, approached each chapter to solicit their participation, wrote the grant proposal, and worked with each chapter to implement the funding once it was secured. Without his leadership, the project would not have happened.

For each of the ten years, Audubon California provided a designated staff member who handled financial management of the grant; combined the individual chapter's written reports into a consolidated report to the funders; and interacted as needed with the funders on the Luckenbach Trustee Council. In addition to providing support to the individual chapters, Audubon California also brought together the three project

teams on a regular basis to collectively address progress and plan for the coming grant period. At several points in time, the support to individual chapters included connecting the chapter teams with members of the Audubon California Board of Directors and with relevant Audubon staff members elsewhere in California.

Involvement of Several Chapters Working Together

The common Scope of Work required of all three chapters defined the project objectives in broad-enough terms that all the chapters worked within a similar framework. This encouraged significant sharing of ideas and resources. At the same time, the design of the project allowed each chapter to have full responsibility and autonomy for implementing its own approach to the shared Scope of Work.

For small chapters like Redbud, this enabled us to essentially triple the people and ideas we could call upon for assistance. Moreover, although project team members changed over the ten years, there was sufficient continuity that strong permanent relationships have been created between our three chapters. In turn, this ongoing communication has led to cooperation extending beyond just the grebe project. For example, after seeing that Redbud's Heron Festival and Altacal's Snow Goose Festival were extremely effective outreach events for grebe education, Plumas organized two successful first-time Grebe Festivals.

Flexibility in Annual Objectives that Allowed for Local Innovation

While providing a common framework, the objectives were general enough to allow great flexibility in how each chapter could utilize its own geography, its local community organizations, the extent of available volunteers, and the differing skills of the project team members from one chapter to another. The result of this flexibility was that a much wider range of activities and materials were generated by the project than would have been produced by one chapter alone.

These differing ingredients among the three chapters led to different local partnerships for the project. For Redbud, the project meant creating for the first time a relationship with the County of Lake Department of Water Resources. For Altacal, it meant working with local staff of the California Department of Fish and Wildlife. For Plumas, it meant developing communication with PG&E about the impact on the grebe colonies from managed changes in water level at Lake Almanor.

II. Redbud's Outreach and Education Activities

A. Scope of Work for Outreach/Education

Three objectives for Redbud public outreach were consistently required each year:

- Distributing outreach materials at local lake communities and participating in 1-3 local festivals with a grebe exhibit booth.
- Giving 1-3 classroom presentations to students and distributing outreach materials to students and young people
- Conducting general public outreach about grebes at Clear Lake, including locations on Clear Lake itself.

Redbud Audubon carried out these objectives through a variety of activities. The four-page "Redbud Grebe Outreach Activities" chart in the Appendix details the extensive range of activities the chapter accomplished over the ten years. The next section of the report discusses the effectiveness of each category of Redbud's activities.

B. Methods of Outreach and Education Used by Redbud

Before discussing the types of outreach, it helps to provide some context about Lake County. Clear Lake is the county's dominant feature and draws both residents and tourists to enjoy its beauty and recreational opportunities. It is the largest natural lake in California: 19 miles long, with 100 miles of shoreline around its perimeter. Six of the 13 separate towns in the county are located along this shoreline.

Clear Lake is widely known for the presence of Western and Clark's grebes. During the ten years of this grebe project, Clear Lake has had 37 different nesting colony sites and, in the highest year, over 8,000 grebes during a breeding season. The winter totals from the Christmas Bird Count data are even higher because grebes that nest further north in the summer often spend the winter on Clear Lake. Between 1997 and 2019, there were five years when more than 25,000 Aechmophorus grebes were seen on Clear Lake, and in 2004 there were 63,776 grebes of these two species.

As a consequence of these dramatic numbers of grebes present on Clear Lake, a very large number of Lake County residents and visitors have seen the grebes on the lake and love watching them. Many tourists have this same awareness of the grebes when they come to fish, boat, or water-ski and jet-ski on the lake. Thus, the grebe conservation project frequently reached people who wanted to learn more about these amazing birds and the protections they need during breeding season.

Redbud chapter members have a special connection to the grebes because the chapter selected the Western Grebe as its logo when the chapter began in 1974, and its monthly newsletter has that name and logo on the masthead.

Exhibit Booths at Community Events

As detailed in the Outreach Activities chart, Redbud designed, set up, and staffed a grebe exhibit booth at 52 separate community events in six towns during the ten years of the project. (Five additional events would have been held by April 30 of this year, but were cancelled because of the coronavirus.)

The exhibit booth utilized both visual and print materials that were created specifically for the grebe project and that focused on the unique behaviors of Western and Clark's Grebes and how to protect their colonies on Clear Lake. Large laminated photos, life-size wood carvings, a color brochure, posterboard displays, and a banner with the message "Protect Baby Grebes" all were effective in drawing people over to the exhibit booth. Having knowledgeable Redbud members staffing the booth enabled individual conversations that could focus on the specific questions and interests of attendees at the festival or community event.

Redbud's annual Heron Days event deserves special mention because for 24 years, it has enabled us to take residents and visitors out on 90-minute pontoon boat tours at two different locations on Clear Lake. An expert Redbud bird guide on each boat gives information about the various bird species seen. Although the event originally focused on the tree-top rookeries of Great Blue Herons, egrets, and cormorants, during these years of the grebe project, Heron Days has provided the opportunity for guests to also view up-close the courtship and nesting behaviors of the grebes. Because these behaviors are so unusual and dramatic, the tour experience often creates a deep impression on people and opens them to being receptive to the need for bird conservation efforts.

Presentations to Local Organizations

Redbud held 16 presentations to community organizations during the project years. These included business-related groups like the two Chambers of Commerce and a Rotary Club. The County Board of Supervisors received a major presentation in 2014 that was broadcasted over the local public television station. In each of the first three years of the grebe project, the Project Manager met with and updated the Clear Lake Advi-

sory Committee, designated by the Board of Supervisors to handle matters related to the lake. In January 2014 the Redbud and Plumas Grebe Project Managers made a joint presentation to the National Audubon Board of Directors at a meeting in Sacramento. Beginning in 2011 and every subsequent year of the grebe project, the three chapters each provided an update to the Northern California Chapters Regional Council, a group totaling seven Audubon chapters.

Depending on the size of the presentation group, the talks often included showing the 2012 video of Redbud's grebe project, as well as the use of PowerPoint slides and a handout brochure.

Redbud's project team also made four formal presentations directly to the chapter's members at one of the monthly public meetings. The team managers for outreach and monitoring were the featured speakers providing project updates in 2010, 2013, 2015, and 2016. Because these meetings are publicized in local news media, members of the general public also came to these talks. A final presentation of the full ten years of the project was scheduled for April 2020, but the meeting had to be cancelled due to the coronavirus restrictions on group meetings. That meeting is being tentatively-scheduled for September 2020.

Children's Classroom Presentations

Redbud made eight classroom talks to local students at four schools in Lake County, including 4th grade, 7th grade, and 9th grade students. At the high school level, two talks were given to the "Bird Nerds" activity club at Lower Lake High School and one talk to the Sea Scouts troop that helped with the fishing line recycle bins project.

In 2017 and again in 2018, Redbud participated in a first-time education event in Lake County. The new Agricultural and Natural Resources Day was held at the County Fairgrounds, where over 1,000 students in K-6th grades from four school districts spent five hours touring displays to introducing them to local farming and outdoor resources. Redbud's grebe wood carvings and large photos of grebe courtship and nesting generated lots of questions from the students that were answered by the Redbud volunteers staffing the exhibit tables.

Redbud also participated in the first-time Children's Science Fair in the City of Clearlake in 2018. This event was held on a Saturday so that parents could bring their children to a family-centered education event. Again, the wood carvings and large grebe photos generated a lot of interest from both the children and their parents.

News Media Articles (print and online)

A total of 18 news articles about the grebe project appeared in the ten years;. Most of the printed articles appeared in the county's largest print newspaper, the Lake County *Record-Bee*; many were prominent front-page articles with color photographs. Three major articles with photos were featured in the online *Lake County News* delivered daily via email to local residents. One article appeared in the Clearlake *Observer-American* newspaper. One online article appeared on the San Francisco *Chronicle's* *SF Gate* website. The cover of *Bay Nature* magazine for April-June 2013 featured an article "The Wild Side of Clear Lake" with a prominent photo of a Clark's Grebe with a baby on its back.

The extensive local coverage in Lake County was the result of both the general public's widespread interest in Clear Lake's grebes and also the Redbud's chapter's long-time strong relationships with local reporters and editors.

In addition to coverage of the project in local news media, the Redbud team also wrote 12 articles that appeared in the chapter's monthly newsletter *The Western Grebe*. About half of the articles summarized that year's breeding season and half described successful outreach events.

Radio Interviews

Two radio interviews were conducted with Redbud's Grebe Project Manager. The first was in 2011 on the KXBX Outdoors Show program. This commercial radio station covers both Lake County and Mendocino County in its listening audience. The other interview was done in 2012 on KPFZ, the local public radio station, where the transmitter reaches only Lake County, our primary audience for the grebe project.

Webcam Streaming of Floating Grebe Nests on Clear Lake

In both 2011 and 2012, Redbud had the unexpected opportunity to set up a web-camera on a small off-shore group of grebe nests. This was possible because the nests happened to be located a short distance from a shoreline home where the camera could be attached to a deck railing. We discuss in some detail below the process of getting the webcam operational, as it shows the complexity a small rural chapter encountered trying to do this for the first time.

In 2011 the grouped nests were at the south end of Clear Lake at Sunrise Shores. The second year the available nests were in Corinthian Bay at the north end of the lake. The webcam opportunity was identified both years by Dr. Floyd Hayes during his monitoring surveys on the lake. He notified the Grebe Project Manager, who initiated the first step by contacting the homeowners to secure their participation in the effort. Audubon California put us in touch with Pete Desimone, an Audubon sanctuary manager in Southern California, who annually has nest webcams on three separate bird species at the sanctuary. He graciously shipped Redbud an unused camera and connection cables to use for the experiment and provided technical support by phone throughout the ensuing process.

Operating a webcam requires five elements: a video-camera, a laptop, an internet connection, a firm that provides high-speed, high-definition streaming capability, and volunteers to turn the camera on in the morning and off at dusk. Camera position sometimes needs to be moved to adjust to the sun's changing position over the daytime. In rural Lake County's mountainous area, the signal strength for cell phones and internet service can vary significantly from one location to another. The first year, Verizon had the best signal at Sunrise Shores, so Redbud established an account there. The next year, Verizon had too weak a signal in Corinthian Bay to support streaming, so we had to establish a new account with U.S. Cellular.

Volunteers to operate the camera proved another challenge. The first year, we were fortunate that the co-operating homeowner happened to be a techie, a bird-lover, and an amateur photographer; thus, he was both knowledgeable and willing to spend the time needed to turn the camera on/off and adjust its functioning when needed. The second year, the homeowners were willing to have us set up the camera on the deck railing of their gazebo, but they did not have the time or interest to operate it. Redbud had to recruit and train six volunteers from that neighborhood to take turns coming over each morning and evening to turn the camera on/off, and the volunteers had to learn how to do the technical adjustments when the streaming signal had problems.

Finally, the grebes and Mother Nature had to cooperate. In both years, the number of grebe nests was minimal, with only 4-6 nests within camera range. The first year, the webcam operated for a few days, and online viewers could watch the grebes coming and going from the nest, adding nest material, and sitting on the nests. Then, on the third morning, the nests were deserted. No grebes in sight. Neighbors reported having seen river otters the previous evening, so we assumed that was the cause for the nest-desertion. End of webcam. The second year, there were only a few nests within camera range, and, over several days, they gradually drifted apart, and the grebes again deserted them. End of webcam.

Final conclusion: It was an interesting experiment, but webcams make more sense for stationary nests on land, rather than floating nests on offshore open water.

Other Online Outreach

High-definition Video on YouTube. A 20-minute video about Redbud's grebe conservation project has been available on YouTube since 2012. During that summer's breeding season, Dr. Floyd Hayes took extensive video-camera footage of the grebes unique courtship displays, nest-building, parenting, egg predation by gulls and crows, and other actions. He interviewed the head of DWR and their deployment of speed limit buoys around colonies. He filmed the Outreach Project Manager explaining the project's public education activities, including video footage of the webcam in operation. The completed video has been a valuable ongoing tool for outreach presentations to both community groups and classrooms. It is an extremely valuable educational tool, as photos cannot fully communicate the surprising and fascinating behaviors of these grebe species during breeding season. The video shows and explains in detail the types of human disturbance that can affect breeding success.

Audubon California Social Media Coverage. During the 2012 operation of the webcam, Audubon California staff came to Lake County and filmed information about the grebe project that was featured on the Audubon blog and social media.

Redbud Chapter Website. The website www.redbudaudubon.org has also been an online source of information about the grebe project and efforts to protect the grebes. For the website, Redbud prepared a four-page photographic essay in a question-and-answer format to explain grebe behaviors and the grebe conservation project. A pdf document of the essay, entitled "Those Amazing 'Dancing' Grebes," was put up on the Redbud website at the webcam link page so that viewers could read about each stage of breeding activities. It has remained a permanent feature on the website. Some of the annual monitoring and outreach reports are also posted on the website, and the two final reports covering the full ten years of the project will be added this month. In recent years there has also been information posted about the fishing line recycle bins that protect birds and wildlife from discarded fishing line.

C. Ongoing Outreach Gifts from the Grebe Project to Lake County and Redbud Audubon Chapter

Grebe Interpretive Panels at Five Shoreline Parks

Five beautiful outdoor interpretive panels explaining grebe behaviors and how to protect their breeding colonies were installed in 2014 at public parks around the shoreline of Clear Lake. At each park, the large signs are located near the boat launch ramps, where they have high visibility to both boaters and park visitors. Donating these educational panels required working with four different government jurisdictions responsible for the parks.

The two panels installed at County of Lake parks are at Lakeside County Park in Kelseyville and at Lucerne Harbor Park in Lucerne. The City of Lakeport sign is at Library Park, the City of Clearlake sign is at Redbud Park, and the fifth panel is at Clear Lake State Park in Kelseyville. Official presentations of the panels were done for the County's Board of Supervisors and for the City Councils of Lakeport and Clearlake. Each of the three governments expressed great appreciation for the grebe conservation grant that provided these permanent public education gifts to Lake County residents and visitors.

The interpretive panels are also one example of how all three chapters maximized the benefits of working together on the grebe grant. Redbud initiated the idea to create this avenue of outreach and worked with a design firm on the text and drawings for the panel. The other two chapters then ordered the completed signs for their selected locations, requiring only minimal expense to incorporate the logos of their chapters and local partners.

Grebe Outreach Materials for Continuing Redbud Use

Over the ten years of the grebe project, a number of visual outreach materials were created that Redbud will continue to use for many years for public education about birds and conservation in Lake County.

Life-size Wood Carvings of Aechmophorus Grebes. Early in Phase One of the grebe project, Redbud located and purchased from a California wood carver a life-size carving of a Clark's Grebe parent with a chick on its back. Altacal then located a Canadian carver of a Western Grebe, and all three chapters purchased this visual outreach tool. For all of the various methods of outreach that Redbud used – exhibit booths, public talks, and classroom presentations – the grebe carvings provided a tangible focus to draw people's attention and elicit their questions. Especially with children, the models were a great success.

Framed Photo Montage of Grebe Breeding Behaviors. A Redbud member who is an expert photographer put together a 25"x20" framed montage of photographs showing each stage of the grebe breeding process: courtship, nest-building, egg incubation, and parenting. This large display was usually centered on the exhibit tables so that the Redbud members staffing the exhibit booth could point to each stage while explaining grebe conservation.

"Protect Baby Grebes" Banner. A 6'x4' bright green banner with white lettering was created to hang from the exhibit table or at the back of the exhibit booth to draw attention at public events, especially the large festivals where crowds of people move along a series of exhibit booths and vendors, and something large is needed to attract attention and draw individuals to the exhibit. In many of its written materials, Redbud deliberately used the word "babies" rather than "chicks," because both adults and children unconsciously connect more emotionally with animals when they see them in the context of human parents protecting their children.

Five laminated 20"x25" grebe photos of courtship and parenting behaviors. Another Redbud member-photographer provided five large action photographs showing grebe "rushing" displays and grebe parents feeding small fish to their babies. These enlarged photos were laminated and hung from the exhibit booth canopy on three sides, again helping to draw attention to the booth. Lake County residents who have seen the courtship displays frequently wanted to come over to share their amazement at the grebes' unique behaviors, and visitors who had never seen a grebe wanted to learn more about these unusual birds.

"Those Amazing Dancing Grebes" four-page 8"x11" color handout. As mentioned earlier, during the second summer of installing a webcam on a group of grebe nests, Redbud wrote and designed in a question-and-answer format a four-page explanation about grebes, how to protect them, and about the grebe conservation project. A pdf of this information with photographs was put up on the Redbud chapter website that year and will continue there permanently. The photo-essay was also printed as a four-page color handout that was distributed at the Grebe Summit Meeting in 2012 and has since been used for local outreach. Additional copies of the handout can be made at any time in the future when Redbud has the opportunity to talk about bird conservation in Lake County.

"Sharing Clear Lake with dancing Grebes" tri-fold small brochure. This small brochure was another example of maximizing the benefits of the three chapters working collaboratively with Audubon California. The starting point was a brochure that U.C. Davis had designed and printed for Redbud several years before the start of this grebe conservation project. That brochure had been developed by a graduate researcher who studied Clear Lake's grebes. That initial brochure had the appropriate messages on protecting the grebe colonies, but was not professionally designed.

Redbud provided a sample of that brochure to Audubon CA's professional communications staff, who then redesigned it to create a beautiful and more effective brochure for the Altacal chapter. Later the text was revised to make it appropriate for Plumas, and later still, revised for Redbud after the U.C. Davis brochures had been completely distributed during the grebe project. Each chapter paid for its own printing of the brochures, but saved money by having a shared basic professional design.

"Research on Grebe Courtship Rituals" Video from Oregon Public Broadcasting. This short video was another example of one chapter helping the other two to obtain useful materials for grebe outreach. An Altacal team member came across this video during online research and contacted Oregon PBS to gain permission for all three chapters to receive a copy of the video for classroom use. The video showed how a small group of young academic scientists filmed slow-motion footage and then analyzed it to study how the design of an Aechmophorus grebe's feet enable it to stand erect in the water and hydroplane across the surface during their courtship displays. The video had an extra benefit for classroom use, in that the scientific team was led by a young woman directing a group of young men. Students of all ages benefit from seeing examples of women scientists in leadership roles.

Grebe Notecards with Grebe Protection Message. Redbud created three different notecards as an additional outreach tool promoting the grebe conservation message. All three notecards feature a grebe photograph taken on Clear Lake during the grebe project. One card has a parent carrying four babies; the other two cards offer different photographs of a nesting grebe. The back side of all three cards had an educational message explaining why the colonies need protection during nesting.. The notecards were available at Redbud chapter meetings and at outreach activities for the grebe project.

III. Seasonal Breeding Colony Protection

During the first four years of the project, Redbud's annual Scope of Work also included an objective to undertake specific steps to protect the breeding colonies on Clear Lake from human disturbance. Redbud developed two separate activities to accomplish this objective:

- Purchasing speed limit buoys that were deployed when grebe colonies were threatened by boats, water-skiers, or jet-skiers coming too close or into the colonies.
- Constructing, installing, and cleaning fishing line recycle bins so that people fishing on the lake would not discard monofilament fishing line that could entrap, injure, and kill grebes, other water-birds, or wildlife on Clear Lake.

Speed Limit Buoys Deployed around Grebe Colonies

During the 2011 breeding season, Redbud Audubon used \$3,455 in project funds to purchase 20 speed limit buoys and the related anchors and chain. These were donated to the County of Lake Department of Water Resources (DWR), and

Redbud entered into a contractual relationship with the County of Lake to enable the DWR staff to partner with Audubon to set out the speed limit buoys as needed to protect nesting grebe colonies from disturbance by boaters, jet-skiers, and fishermen. The contract was first reviewed by the County's General Counsel and then approved by the Board of Supervisors on September 13, 2011.

For the remaining years of the grebe project, when the Monitoring Team led by Dr. Floyd Hayes conducted

its surveys on Clear Lake and they spotted a colony that had settled in a location likely to experience human disturbance, Dr. Hayes provided that colony's GPS coordinates to DWR staff, who then placed the speed limit buoys around the colony.

During the middle years of the project, California experienced a severe five-year drought. The buoys were especially valuable then because the lake level was so low that the grebes could not access the protective tules close to shore for nesting, and thus were in open water where they were more exposed to impacts from human disturbance.

Speed Limit Sign at Entrance to Rodman Slough

During the 2012 breeding season, the County's Department of Water Resources worked with the Public Works Department to create and install a large warning sign on a concrete pier of the bridge that boats must pass under on their way into the Rodman Slough. The slough usually hosts a significant grebe colony, and in the past, boats had tended to speed through the slough. The prominent new sign posting a 5-mph speed limit made boaters aware of a speed restriction in this area.

Provision of Fishing Line Recycle Bins

An unexpected opportunity to protect, not just grebes, but other birds and wildlife on Clear Lake, presented itself during the August 23-25, 2012 summit meeting of all three Grebe teams, hosted by Plumas Audubon. While the group was observing grebes at Lake Almanor, they witnessed a grebe diving repeatedly in an attempt to remove a mass of fishing line caught in its beak and tangled on one foot. Although a DFW boat crew attempted to rescue the injured bird, the grebe was too frantic to let the boat come close enough to net it. One of the Redbud volunteers on shore commented that she had seen on Lake Erie a large plastic recycle bin for discarded fishing line. She had a photo on her phone, and Robert Patton, another Redbud volunteer at the meeting, said he could construct similar bins that could be installed around Clear Lake.

Thus began an effort led by Rob Patton that, near the end of project's Phase One in October 2014, resulted in a total of 18 of these large recycle bins installed at boat ramps and fish-cleaning structures at shoreline parks and fishing resorts around Clear Lake. This effort has continued, and as of October 2019, there were 26 total bins. The bins provide a safe disposal method for tangled fishing line that otherwise would be hazardous to grebes and other birds and wildlife if discarded in the water or along Clear Lake's shoreline.

This activity of the grebe project also led to the involvement of other community groups. For several years, the local Sea Scouts troop of high school students served as volunteers to regularly monitor and clean out the recycle bins. Redbud chapter members have now taken on the regular cleaning of the bins. The monofilament line that is collected is mailed to a plastics recycling manufacturer in Wisconsin, and a total of 33 pounds of line has been sent in by Redbud.

Rob Patton has also reached out to other Audubon chapters to encourage them to construct recycle bins for their fishing locations. Two Altacal grebe team members came to Lake County early 2019 so Rob could teach them how to make the bins, and six recycle bins have been installed by Altacal. Several other chapters have also expressed interest in making recycle bins for their areas.

The following page presents Redbud's conclusions and recommendations based on the chapter's participation in the Outreach and Colony Protection activities of the project. The Monitoring conclusions and recommendations are presented in that separate report.

Conclusions

Redbud Audubon is extremely grateful to the Luckenback Trustee Council for funding this project for ten years. The length of the project provided a substantial and consistent period of time to bring the message of bird conservation to Lake County residents and visitors. Communications research shows that continued repetition of a message over time has the greatest effectiveness in public understanding and acceptance of a message. The project length also allowed the project teams to experiment and gain experience with a variety of outreach methods, and to learn which methods were most useful in their local communities.

The project's success has to be credited in a large degree to the Western and Clark's grebes themselves. Visiting Clear Lake annually in the thousands, they are plentiful to see and large enough to observe from a distance. Their distinctive coloring makes them look like they are wearing tuxedos, and their graceful movements and lightning dives when a boat approaches make them memorable to watchers. Most importantly, their unique "rushing" courtship displays truly astound people, as does their endearing practice of carrying their babies on their backs. It is also easy for people to understand how vulnerable their floating colonies are to human disturbance by boaters, water-skiers, and jet-skiers. This is a conservation message that is easy to understand, enabling people to make the connections between human actions and threatened bird populations.

As said at the beginning of this report, the other crucial factor to the success of the grebe project was the collaboration between the three chapters and Audubon California. As small rural chapters, all three had limited resources in both people and finances that would have made it difficult to undertake alone the scope of this project. Moreover, the leadership of Audubon California provided access to professional scientists, financial managers, and communications experts who substantially augmented what the chapters could have done alone. Especially for Redbud -- with only 180 members and an entirely volunteer management -- it is highly unlikely that the chapter could have designed and implemented this valuable conservation project on its own.

Recommendations

- Audubon California should seek other opportunities to use this collaborative design of working together with a small group of chapters to accomplish a conservation goal.
- Participating chapters conducting public outreach and education should be provided with sufficient financial resources to create and distribute appropriate materials.
- Sufficient funds should be provided for the chapter project teams to meet together annually to build the in-person relationships that promote sharing of ideas and resources.
- National Audubon and Audubon California should promote to chapters everywhere the opportunity to provide fishing line recycle bins where needed to protect birds and wildlife from injury and death due to discarded line.

Appendix A

2010-2020 Redbud Audubon Grebe Conservation Project Outreach Activities											
2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
											<u>Exhibit Booth at Community Events</u>
	X	X	X	X	X	X	X	X	X	Cancl	Heron Days boat tours, Anderson Marsh
X	X	X	X	X	X	X	X	X	X	Cancl	Heron Days boat tours, Kelseyville
		X		X			X	X	X	Cancl	Earth Day, Yuba Community College, Clearlake campus
	X	X	X	X	X						Earth Day, Calpine Community Center, Middletown
		X	X	X			X				Olive Festival, Kelseyville, 3/18/12, 4/13/13 4/27/14, 4/30/17
X	X	X	X	X	X	X	X	X	X		Pear Festival, Kelseyville, every year last Saturday of September
		X	X	X							Wild West Days, Upper Lake, 6/2/12
				X							Home Wine/BeerMakers Festival, Lakeport
			X	X							Memorial Day Crafts Faire, Lakeport
	X										Middletown Days 50th anniversary, Middletown, 6/18-19/11
				X							CA State Parks 150th Anniversary at Clear Lake State Park 8/23/14
						X					Berryessa Snow Mountain National Monument opening, 3/19/16
						X					Clear Lake State Park, Health & Recreation Festival, 8/20/16

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
											<u>Presentations to Local Organizations</u>
X		X	X								Lake County Advisory Committee to Board of Supervisors, 8/27/10, 4/26/12, 4/27/13
	X										Lake County Chamber of Commerce, Lakeport 3/22/11
		X									City of Clearlake Chamber of Commerce, Clearlake, 2/7/12
		X									Hidden Valley Garden Club, 2/13/12
		X									Lake County Democratic Club picnic, Lakeport, 8/5/12
			X								Road Scholars birding group, Vigilance Winery, Kelseyville 5/21/13
				X							National Audubon Board of Directors, Sacramento 1/31/14
				X							City Council, City of Clearlake, 6/11/2014
				X							Board of Supervisors on grebe panels, fishing line recycle bins 11/5/14
							X				Rotary Club, City of Clearlake, 5/30/17
							X				Visitor Center, Clear Lake State Park, 8/26/17
							X				Lake County Public Library "Know Lake County" series, Lakeport, 2/25/17
									X		San Francisco Bird Observatory, Milpitas, 8/21/19
									X		St. Helena Public Library, St. Helena 8/13/19
	X	X	X	X	X	X	X		XX		Update reports to Northern California Chapters Regional Council

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
			X		X						<u>Children's Classroom Presentations</u>
							X				Lower Lake Magnet School, 4th grade 8/21/13 9/8/15
											Konocti Education Center Magnet School, all 4th graders, Clearlake, April 2017
											Lakeport Middle School, 9th grade
							X				Lakeport Middle School, 7th grade, March 2017 ???
								X			Lakeport Middle School, 7th grad, 4/23-26, 2018
							X	X		Cancl	Ag & Natural Resources Day, Fairgrounds, 1,000+ students K-6th grades
	X	X	X								Children's handout of grebe with baby on back
			XX								Lower Lake High School, Bird Nerds activity group
			X								Sea Scouts troop (high schoolers), Braito's Marina, 6/12/13
								X			Children's Science Fair, City of Clearlake, 5/12/18

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
											<u>Presentations at Redbud Chapter Meetings</u>
X											Overview of new grebe project, Dr Hayes, M.Waits, DWR 11/18/10
			X								Update of monitoring and outreach activities, Feb 2013
					X						2010-2014 monitoring summary, Dr. Floyd Hayes
						X					Update of monitoring and outreach activities, March 2016
										Cancl	2010-2019 breeding season trends, Dr Floyd Hayes April 2020

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>News Media Articles (print and online)</u>
X											"Don't rock the nest," Lake County Record-Bee front-page 7/22/10
X											"Babies on board," Record-Bee front-page, 9/3/10
X											"Redbud Audubon partners with Audubon CA on grebe grant," Lake County Land Trust newsletter, Sept 2010 issue
	X										"Grebe webcam at Sunrise Shores," Record-Bee 8/19/11
	X										"Audubon opens grebe webcam, Clearlake Observer-American, 8/23/11
		X									"Grebe life on Clear Lake, Record-Bee, 7/18/12
			X								"The Wild Side of Clear Lake," cover article, Bay Nature, April-June 2013
			X								"Grebe Population changes since 1990's" Record-Bee, 7/18/13
				X							"Grebe panel at Redbud Park, CL, Lake County News 7/26/14
				X							"Colony of 5,000 nests" Record-Bee, 8/9/14
						X					"Clear Lake bird-watching," San Francisco Chronicle online Sfgate
							X				"Clear Lake a birdwatching paradise, Record-Bee 6/14/17
							X				"Living Landscape: Heron Days, Lake County News online 5/21/17
							X				"Those Amazing Dancing Grebes," Record-Bee, 8/22/17
								X			"Grebe project enters ninth year," Record-Bee, 7/26/18
									X		"Fewer grebes seen on Clear Lake," Record-Bee 7/7/19
									X		"Hazards of fishing gear for birds" Lake Cty Bloom, Middletown 7/1/19
									X		"Hazards of fishing gear for birds" Lake County News online, 7/7/19

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Articles in Chapter Newsletter "The Western Grebe"</u>
X		X									Overview of new grebe project, Nov 2010 issue
X											How can YOU get involved in the grebe project, Nov 2010 issue
			X								Update of project activities, May 2013 issue
					X						2010-2014 Monitoring and outreach articles, Jan 2015 issue
						X					2015 breeding season article, Jan 2016 issue
							X				2017 breeding season article, Nov 2017 issue
								X			Fishing Line Recycle bins project expands, Feb 2018 issue
								X			Grebe exhibit wows kids at Ag Day, April 2018 issue
								X			"Grebe project enters ninth year," Sept 2018 issue
								X			Wildfire impact on Clear Lake grebes, Sept 2018 issue
									X		2019 breeding season article, Nov 2019
										Cancel	2010-2019 breeding season trends, article April 2020

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Radio Interviews about Grebe Project</u>
	X										KXBX Outdoors Show, 6/28/11
		X									KPFZ public radio, interview on grebe project 7/9/12

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Webcam and Online Outreach</u>
	X	X									Webcam streaming of Grebe nests on Clear Lake
		X									Filming of webcam by Audubon CA for social media and blog
		X	X	X	X	X	X	X	X	X	20-minute video on project and grebes, Dr. Floyd Hayes, on YouTube
		X	X	X	X	X	X	X	X	X	Redbud Auduon website - 4-page pdf, reports, photos of project

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Permanent Grebe Interpretive Panels at Local Shoreline Parks</u>
				X	X	X	X	X	X	X	Clear Lake State Park, Kelseyville
				X	X	X	X	X	X	X	Lakeside County Park, Kelseyville
				X	X	X	X	X	X	X	Library Park, City of Lakeport
				X	X	X	X	X	X	X	Lucerne Harbor Park, County of Lake, Lucerne
				X	X	X	X	X	X	X	Redbud State Park, City of Clearlake

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Permanent Outreach Materials about Grebes</u>
	X	X	X	X	X	X	X	X	X	X	Lifesize wood carving of Clark's Grebe with baby on back
	X	X	X	X	X	X	X	X	X	X	Lifesize wood carving of adult Western Grebe
X	X	X	X	X				X			"Protect Baby Grebes" 36"x48" posterboard with articles, photos
	X	X	X	X	X	X	X	X	X	X	"Protect Baby Grebes" 6'x4' vinyl display banner
	X										Ten window signs posted at boating and fishing bait businesses
		X	X	X	X	X	X	X	X	X	Framed 25x30 photo montage of grebe behaviors
			X	X	X	X	X	X	X	X	Five laminated 20x25 grebe photos of courtship/parenting behaviors
				X	X	X	X	X	X	X	"Those Amazing Dancing Grebes" four-page color handout
X	X	X	X	X	X	X	X				"Putting on a Show: Western and Clark's Grebes" brochure
								X	X	X	"Sharing Clear Lake with dancing Grebes" brochure
			X	X							"Research on Grebe Courtship Rituals," Oregon PBS video
		X	X	X	X	X					Grebe notecards with Grebe Protection Message

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Colony Protection: Speed Limit Buoys</u>
	X	X	X		X			X			Purchase of twenty 5-MPH buoys deployed by DWR around colonies
	X	X	X	X	X	X	X	X	X	X	Warning sign 5-mph with grebe drawing at entrance to Rodman Slough

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	<u>Colony Protection: Fishing Line Recycle Bins</u>
		X	X	X	X	X	X	X	X	X	Construct/install/clean fishing line recycle bins at total of 26 Clear Lake shoreline parks and fishing resorts
				X			X	X			Mail total of 33 lbs of retrieved fishing line to plastics recycling manufacturer in Wisconsin

2010-2020 Redbud Grebe Conservation Project

Appendix B

Photographs: Outreach and Education Activities

Exhibit Booths at Community Events

Presentations to Local Organizations

Children's Classroom Presentations

News Media Articles

Webcam Online Streaming of Grebe Nests

Outreach Materials

Photographs: Colony Protection

Speed Limit Buoys and Bridge Sign

Fishing Line Recycle Bins

Grebe Exhibit Booths at Community Events



(Above) Lake County Democratic Club
Picnic, Library Park, Lakeport,
August 5, 2012



(Above right) Heron Festival,
Clear Lake State Park, Visitor Center,
April 23-24, 2011



Sierra Club Wild and Scenic Film Festival,
Soper-Reese Theater, Lakeport,
October 28, 2017



Earth Day,
Yuba Community College campus,
Clearlake, May 16, 2019

Presentations to Local Organizations



Redbud Project Manager Marilyn Waits and City of Clearlake Public Works Director Doug Herron present the donated grebe interpretive panel to the City Council, April 2014

Children's Classroom Presentations



Redbud volunteer Claire Grieve answers students' questions at Agriculture and Natural Resources Day at Lake County Fairgrounds. March 16, 2017



Redbud volunteer Lisa Prather shows students at Ag Day how grebes dive into the water to avoid being hit by an approaching boat, March 15, 2018

News Media Articles



"The Wild Side of Clear Lake," cover article, *Bay Nature* magazine, April-June 2013



"Babies on Board, Boaters Advised to be Alert for Nesting Grebes," Lake County *Record-Bee*, pages 1-2, September 4, 2010



"2018 Grebe breeding season brings unusual results," Redbud Audubon chapter newsletter, September 2018 issue

Webcam Online Streaming of Grebe Nests

The installation team for the web-camera: Dr. Floyd Hayes, grebe project research director; Doug Weidemann, monitoring intern, Pacific Union College; Marilyn Waits, grebe project manager; and the U.S. Cellular wireless signal technician. In the center is the webcam attached to the gazebo railing. Private home on Corinthian Bay, Kelseyville, Summer 2012.



Outreach Materials

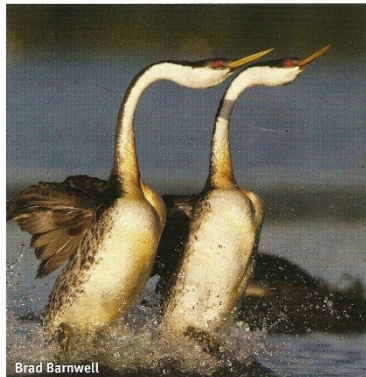


Life-size wood carving of a Clark's Grebe with chick on its back

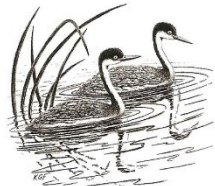


Life-size wood carving of a Western Grebe

Sharing Clear Lake with dancing Grebes



Fascinating Grebes make for a lake like few others



Redbud Audubon

www.redbudaudubon.org

Sharing Clear Lake with nesting grebes

Residents and visitors alike can take a few simple steps to make sure these beautiful birds continue to thrive here:

Give them room

Although it's tempting to get close to watch the grebes do their thing, they need peace and quiet when they're sitting on their nests. Try to stay 300 feet away, and if you must get close, don't stay too long.

Watch your wake

Make an effort to slow down when you're near a colony to avoid swamping nests.

Respect buoys and limits

Obey all buoy markers and posted speed limits for the safety of all.

Use the fishing line recycle bins

Like any waterbird, grebes can get tangled in discarded fishing line. Put it in the recycle bins at most launch ramps.

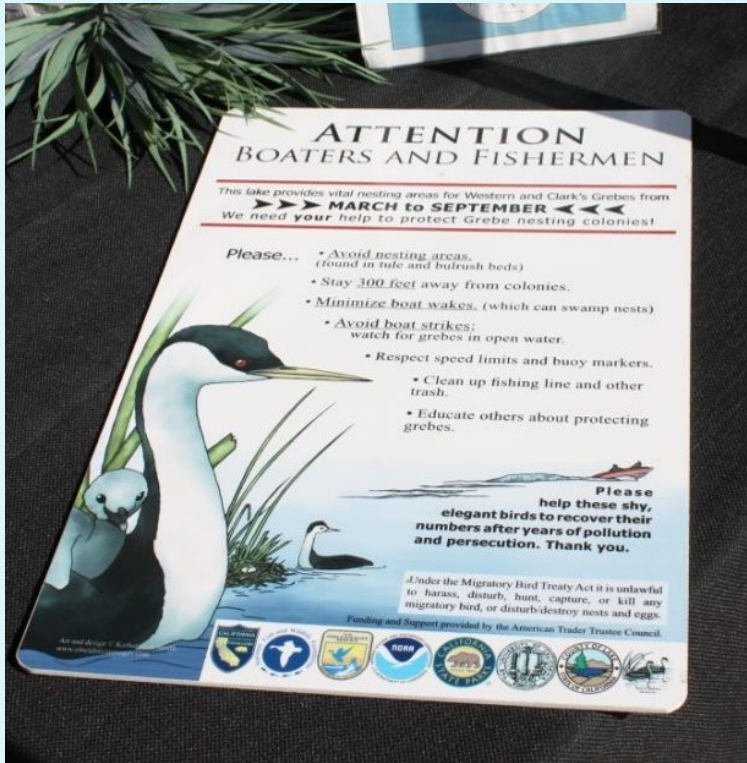
Spread the word

Let others know how Western and Clark's Grebes make Clear Lake a special place.

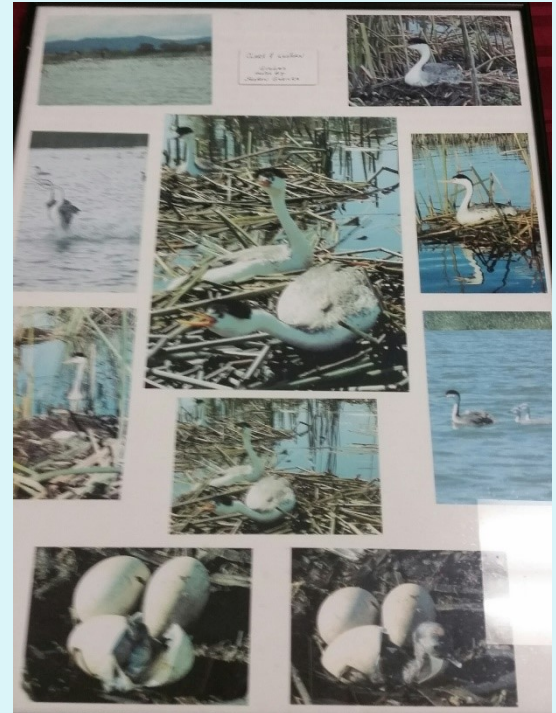
Supported by a grant from the Luckenbach Trustee Council.

"Sharing Clear Lake with Dancing Grebes," six panel tri-fold color brochure

Outreach Materials



"Attention Boaters and Fishermen," 23"x15" laminated plastic window-sign or counter-sign, one of ten distributed to bait shops. Summer 2011



Framed 20"x25" photo montage of grebe breeding season: courtship, nest-building, incubation, and birth of chicks. Photos by Redbud member Jeannette Knight.



"Protect Baby Grebes" posterboard display of newspaper articles and photographs



"Protect Baby Grebes" 6'x4' green vinyl display banner

Colony Protection

Speed Limit Buoys and Speed Limit Sign



One of twenty buoys donated by the grebe project to the Lake County Department of Water Resources for deployment around grebe colonies to protect from human disturbance. Summer 2011



Five-MPH speed limit permanent sign made by Lake County Public Works Department for the entrance to Rodman Slough. August 2012



Bridge at the entrance to Rodman Slough with 5-MPH warning sign for boaters crossing from Clear Lake into the slough. August 2012

Fishing Line Recycle Bins



Injured Western Grebe with discarded monofilament fishing line caught in its beak and on its back and foot, seen at Lake Almanor during the Grebe project team summit, August 24, 2012.



Fishing line recycle bin installed near the boat ramp at Library Park in Lakeport.

Fishing Line Recycle Bins



“Reel In and Recycle!” laminated plastic sign on one of the 26 fishing line recycle bins at shoreline parks and fishing resorts on Clear Lake.



Redbud volunteer Robert Patton, manager of the fishing line recycle bin project, teaches Altacal chapter member Dr. Becki Brunelli how to construct one of the fishing line recycle bins.



Altacal chapter members Dawn Garcia and Dr. Becki Brunelli admire the six recycle bins that Redbud volunteer Robert Pattoon taught them to construct for popular fishing lakes in the Chico area.



Photo by Redbud member Brad Barnwell

**Thank you to the
Luckenbach Trustee Council
for supporting the protection
of the nesting Grebe colonies
on Clear Lake!**