***Aechmophorus* Grebe Nest Surveys, Brood Surveys, and Public Outreach**
Lake Almanor and Eagle Lake
July 1 - September 30, 2011

Quarterly Report Date: October 5, 2011

Prepared by

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Summary

The Plumas Audubon Society had a very busy quarter monitoring grebe nesting, conducting public outreach, and implementing conservation efforts on Lake Almanor and Eagle Lake. We conducted a series of public talks, meetings, and field trips on both lakes and in surrounding communities, we worked with local schools to engage youth, and we participated in several local events. We also conducted a rigorous monitoring program visiting each lake weekly, which provided us with invaluable information on the location of nesting colonies, the number of nesting attempts, reproductive success, and the total grebe population on each lake. In addition, we contributed to a successful effort in convincing management agencies to close the valve to the Bly Tunnel, which moves water from Eagle Lake into Willow Creek, and we communicated with the USFS regarding potential negative effects to nesting grebes from low flights over nesting colonies during fire response at Lake Almanor.

Public Outreach

The project's public outreach campaign was in full swing during this quarter. We presented to a number of groups and communities that use Eagle Lake and Lake Almanor as their primary recreation areas. The public meetings informed participants about the natural history of the *Aechmophorus* grebes and Audubon's grebe conservation project and we obtained feedback and recruited volunteers to help with various aspects of the project. We advertised the meetings and events throughout Plumas and Lassen Counties (Attachment A). Most of the presentations to adult groups consisted of a slide show followed by a question and answer session. Presentations to youth groups consisted of a variety of interactive activities and media appropriate for the age group.

Presentations that we gave this quarter included:

July 11: Lake Almanor Country Club Recreation Center;
July 19: Susanville Historic Railroad Depot;
July 22: Lake Almanor Country Club;
July 23: USFS Lake Almanor North Boat Ramp;
July 23: USFS Lake Almanor campground amphitheater;
July 27: Susanville Nature Camp (8-10 year-olds);
July 28: Chester Recreation Center;
July 30: Eagle Lake Amphitheater;
August 2: Lake Almanor Country Club;
August 3: Susanville Nature Camp (10-12 year-olds);
August 8: Bailey Creek Community of Lake Almanor;
August 10: Spaulding Community Service District of Eagle Lake;
August 13: Eagle Lake field trip, Lassen Land and Trails Trust's Discover Lassen series;
August 13: Eagle Lake Amphitheater;
August 20: Lake Almanor Amphitheater;
August 25: Lake Almanor Country Club;
September 19: Westwood High School;
September 26: Susanville's Johnstonville Elementary School;
September 27: Chester Elementary School.

Project updates were sent to a list of people interested in staying informed of project activities. Other public education and outreach activities included publishing several articles in the Feather River Publishing newspapers that circulate throughout Plumas and Lassen Counties (Attachment B), maintaining a Plumas Audubon Facebook page with information on grebe events, as well as adding information on grebes and Audubon's grebe conservation project to the Plumas Audubon website (www.plumasaudubon.org). Signs were developed with assistance from Audubon California to be posted at public access points near grebe colonies and at boat ramps (Attachment C) and outreach pamphlets developed by Audubon California were printed for each lake (Attachment C).

Nest Monitoring

All surveys, including nest surveys, disturbance surveys and brood surveys are based on the protocols outlined in Gericke et al. (2006).

<u>Eagle Lake</u>

Our observations of grebes nesting in the Stones Ranch Colony (Figure 1) on Eagle Lake began on July 5 (Table 1) when we canoed into the area and found early nest construction by *Aechmophorus* grebes. At that time the Eared Grebes (*Podiceps nigricollis)* were incubating eggs on hundreds of nests among fewer nests of the Forester's Tern (*Sterna forsteri)*. The *Aechmophorus* grebes began laying eggs in late July.

Table 1. Summary of all surveys conducted at Lake Almanor and Eagle Lake in 2011.

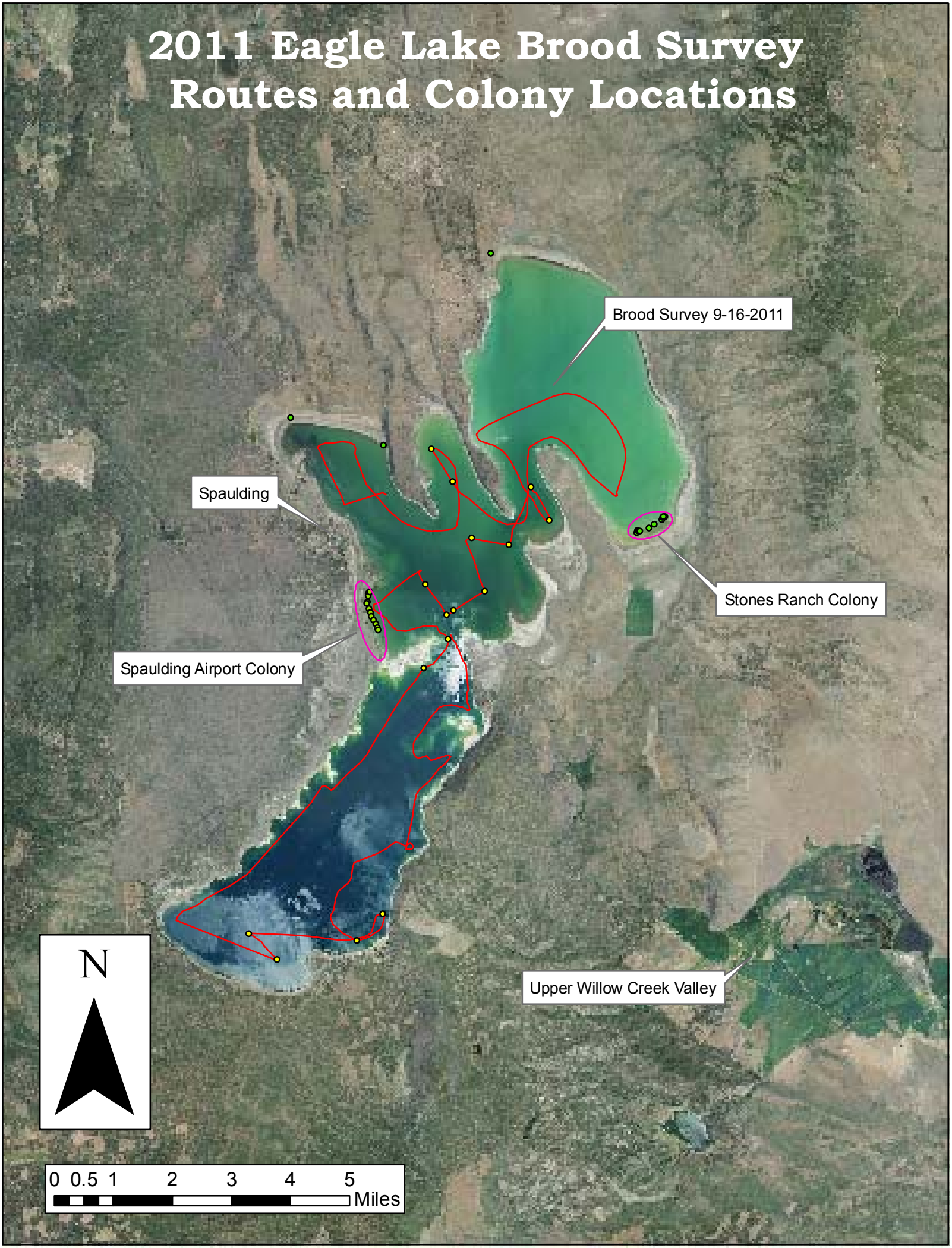
LAKE ALMANOR	EAGLE LAKE
June 17- Initial Lake Survey	June 17- Initial Lake Survey
June 25- Canoe Survey	July 5- Canoe Survey
July 11- Lake Survey	July 19- Lake and Canoe Survey
July 22- Canoe and Nest Survey	July 27- Boat Tour
July 27- Kayak and Nest Survey	August 3- Kayak and Nest Survey
July 28- Causeway Point Count	August 10- Kayak and Nest Survey
August 5- Kayak and Nest Survey	August 17- Kayak and Nest Survey
August 15- Canoe and Nest Survey	August 23- Aerial Survey
August 23- Aerial and Kayak Survey	August 24- Kayak and Nest Survey
August 31- Kayak and Nest Survey	September 2- Lake Survey
September 7- Brood and Nest Survey	September 8- Kayak and Nest Survey
September 14- Kayak and Nest Survey	September 15- Nest and Lake Survey
September 19- Kayak and Nest Survey.	September 16- Brood Survey
September 30- Brood and Nest Survey	September 26- Kayak and Nest Survey

A local fishing guide provided us with a tour of Eagle Lake on July 27, which included inspection of all potential nesting habitat around the lake. On August 24 we kayaked out to Troxel Point and found only three nests in that area. The majority of nesting grebes on Eagle Lake were located in the Stones Ranch Colony (Figure 1).

Grebes nest only in tules on Eagle Lake. The heavy silt that coats the lake bottom and the highly alkaline condition of the water (pH 9-9.5) precludes other potential nesting habitat such as cattails or pondweed. The declining water levels on Eagle Lake have limited grebe nesting to very few areas. Much of the historic nesting habitat is out of the water or in water that is too shallow for nesting. For example, Troxel Bay has historically supported high numbers of nests (e.g. 450 in 2003, Ivey 2004), but the tules in that area are completely out of the water and there is no suitable nesting habitat.

On September 15, we conducted an abandoned nest survey in the tules that were close to shore in the Stones Ranch Colony. We found that roughly 5 percent of nests in the shallowest water had been abandoned and intact eggs were left on the nests. Some of these nests were in water less than six inches deep and had become inaccessible to the grebes (Attachment D). We estimated that the Stones Ranch Colony had over 1,100 nests in 2011. A more comprehensive nest count will be conducted in early October.

The Spaulding Airport Colony historically hosted large numbers of grebe nests (e.g. 250 in 2003, Ivey 2004). We monitored this area and did not find nests until September 2. The following week we kayaked the area and determined that there were approximately 300 active nests in the colony.


2011 Eagle Lake Brood Survey
Routes and Colony Locations
Brood Survey 9-16-2011
Spaulding
Stones Ranch Colony
Spaulding Airport Colony
Upper Willow Creek Valley
N
0 0.5 1 2 3 4 5
Miles

Lake Almanor

On July 22, we canoed into the first nesting grebe colony on Lake Almanor (Table 1, Figure 2) and estimated that there were over 80 active nests. Due to the high water, this habitat consisted of partially submerged willow trees, cattails, and Hardstem Bullrush with pockets of open inundated meadow. We GPS'd a benchmark that was revisited throughout the nesting surveys to gauge the water depth in the area.

This initial colony provided the majority of the nest sites of the 2011 season and we estimate that over 450 nests were built in the colony. The water on this managed reservoir was maintained at a high level until late August, which allowed the grebes to nest in areas of dense vegetative cover. This likely helped reduce predation and thus yielded higher juvenile to adult ratios than observed during our 2010 brood surveys (Table 2). During the 2010 season the water dropped rapidly and this caused many of the initial nests to become stranded on dry land. Conversely, this year the water was maintained at a high level and we only observed one nest that was stranded on dry land.

As the initial colony became abandoned due to completed nesting and declining water levels a second colony located close to the initial colony was established. The grebes moved to the east into deeper water but did not nest further to the north or south. The second colony had approximately 100 nests. The primary difference between the colonies was that in the second colony nests were built in emerging pondweed because there was limited habitat still present in the willows. As a result, the grebes in the second colony were much more exposed to aerial predators. During a survey on August 31 a gull was observed consuming four eggs from three nests in a matter of minutes. While observing the same colony on September 7, a gull was observed flying low over the colony and periodically dive-bombing nesting grebes in an attempt to get grebes to leave the nest. However, we did not see any grebes yield their eggs to the gulls.

Brood Surveys

Brood surveys were conducted on Lake Almanor on September 7 and 30 and on Eagle Lake on September 16. Brood surveys were conducted by boat with a minimum of two observers, one data recorder, and one boat driver for each survey. The lakes were systematically covered and survey transects were completed in representative areas around the lake where grebes were encountered (Figures 1 and 2). Ten transects were surveyed on Lake Almanor and eight transects were surveyed on Eagle Lake. Surveys consisted of traveling 1,000 meters in a straight line and recording grebes that were detected within 100 meters of the boat. The two observers recorded birds on opposite sides of the boat. Other observers recorded the total number of adult and young grebes observed during the entire trip around each lake. Population estimates were compiled based on three independent estimates during each survey.

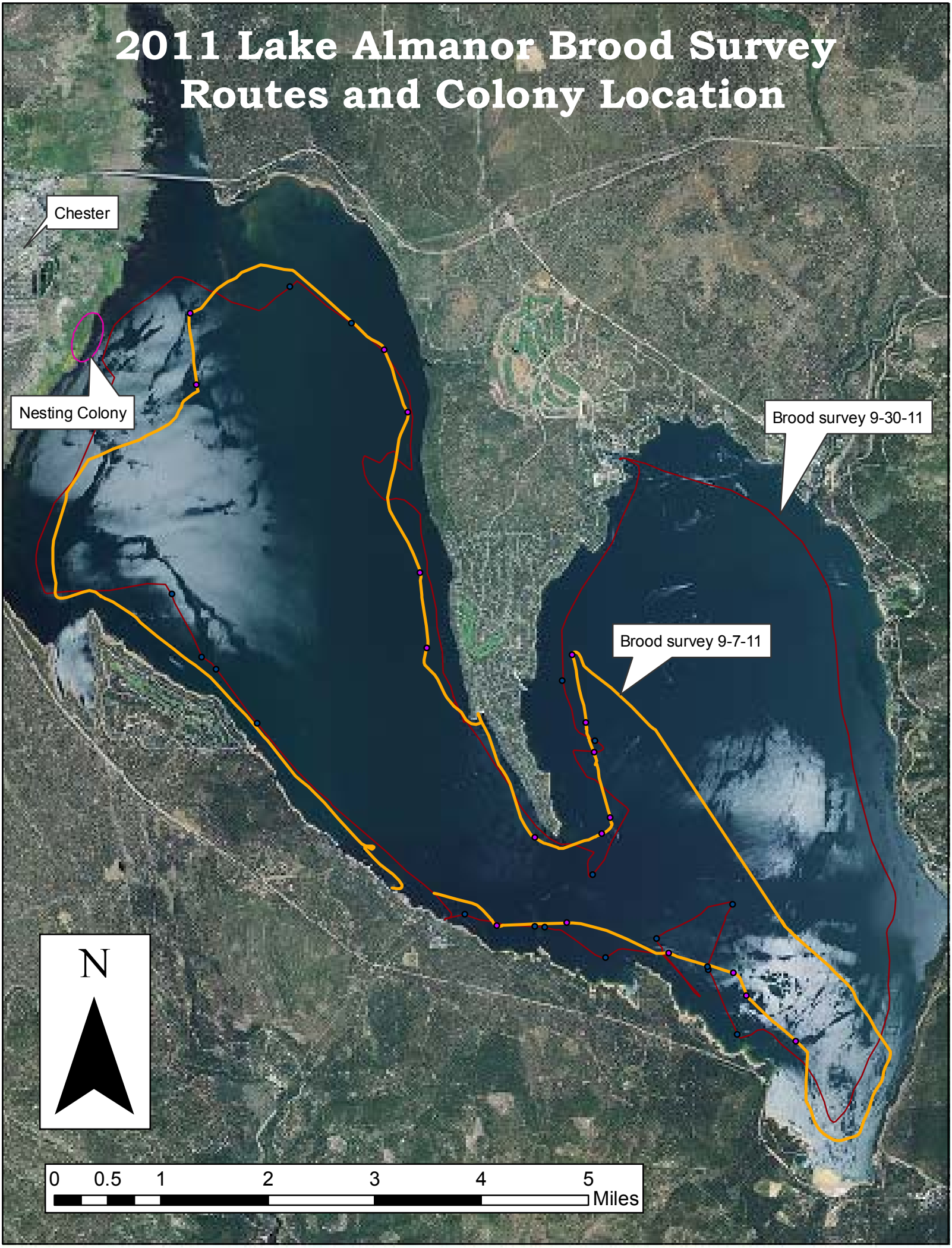

2011 Lake Almanor Brood Survey
Routes and Colony Location
Chester
Nesting Colony
Brood survey 9-30-11
Brood survey 9-7-11
N
0
0.5
1
2
3
4
5
Miles

Table 2. 2011 Brood survey results for Lake Almanor and Eagle Lake.

Species	***Adult***	***%***	***Young***	***Population estimate***
Lake Almanor Sept 7				
Clarks	47	9%	-	2,152 adults
Western	491	91%	-	544 young
Total	*538*		*136*	
Lake Almanor Sept 30				
Clarks	74	6%	-	2,532 adults
Western	1,091	94%	-	1,088 young
Total	*1,165*		*500*	
Eagle Lake Sept 16				
Clarks	181	18%		4,056 adults
Western	831	82%		1,320 young
Total	*1,041*		*331*	

During two brood surveys on Lake Almanor the total adult grebe population was estimated to be 2,152 and 2,532 adults, respectively (Table 2). Adults that were still attending nests during the first survey can account for the difference between the two estimates. A greater proportion of young to adults was observed during the second brood survey. The results indicate that grebe nesting peaked (i.e. the most nests hatched young) at the beginning of September.

During one brood survey on Eagle Lake the total adult grebe population was estimated to be 4,056 adults and 1,320 young (Table 2). This is a significantly larger population with much greater reproductive success compared to 2010.

Disturbance Surveys

Disturbance surveys were conducted on both Lake Almanor and Eagle Lake during nest surveys. The results indicate that both lakes have relatively low incidents of human disturbance, which can be largely attributed to shallow water at the colonies. At Lake Almanor, some fishing boats were observed traveling in the vicinity of the colony, but most stayed at least several hundred meters away from the nesting colonies due to the thick pondweed and shallow water. Bow hunting for Carp is a popular activity in the area, but we have not observed any boats in close enough proximity to disturb nesting birds. One of the most significant disturbance impacts to nesting grebes on Lake Almanor is from kayaks and canoes, which can easily navigate the pondweed, shallow water, and even the dense willows. Due to this observed disturbance, we will install warning signs on the lakeside of the colony prior to next year's nesting season (Attachment C).

On Eagle Lake, the Stones Ranch Colony is in a remote location that receives very little human traffic. The colony is located in the southeast corner of the lake's North Basin (Figure 1). The entire North Basin is quite shallow and thus does not receive much boat traffic. We did notice that during the time when many nests were hatching young, there was a huge increase in the presence of potential predators. On August 24 we counted 56 gulls, 11 egrets, and 3 herons near the colony. Therefore, we did not enter the colony. High numbers of potential predators occurred near the colony for the remainder of the nesting season.

The Spaulding Airport Colony is also in very shallow water and most boaters stay clear of the area due to the potential for collision with submerged rocks. We have not observed any human disturbance during surveys in the area. The airport gets very little traffic and we have not even observed a plane taking off or landing. However, some people do walk their dogs in the area so we will post nesting colony signs on the shore side of the colony prior to next year's nesting season (Attachment C).

Water Levels

Water levels on Lake Almanor and Eagle Lake were higher in 2011 than in 2010. On Lake Almanor, PG&E maintained the water level for a longer period of time into the fall resulting in a high success rate for grebe nests in the initial nesting colony. On Eagle Lake, the higher water level created more available nesting habitat for grebes this year compared to 2010, which contributed to higher reproductive success.

Conservation Efforts

The Plumas Audubon Society became a member of a new conservation group called Friends of Eagle Lake this spring. This grass roots organization runs a website full of information on Eagle Lake. The group's board members have decades of personal knowledge of the lake's ecosystem and declining lake levels have been of concern for many years. Our surveys on the lake have illustrated how the low water levels have reduced the availability of nesting habitat for the *Aechmophorus* grebes and other species that inhabit Eagle Lake.

Eagle Lake is a terminal lake; there is no natural outlet. In the early 1920s a real estate developer saw an opportunity to prosper by diverting water from Eagle Lake into the adjoining Willow Creek Valley just to the east of the Eagle Lake Basin. His theory was that this water could be used to irrigate arid lands down to Honey Lake and this would allow the development of new housing in the area. The Bly Tunnel was blasted through rock and completed in 1923. Unfortunately, the pH of Eagle Lake was too high to be used to irrigate crops and the plan did not work. There has since been an ongoing feud regarding water rights and management of the tunnel (Attachment E).

The Friends of Eagle Lake have been working to get the Bly Tunnel Valve closed. On August 5, we received a request to draft a letter of concern regarding declining water levels on Eagle Lake. State Senator Ted Gaines was scheduled to be in Susanville on

August 8 and the Friends of Eagle Lake wanted us to present the letter to him at that time. We drafted the letter and drove to Susanville where we presented the document directly to the Senator. We also sent a letter to the California Department of Fish and Game outlining our concerns regarding Eagle Lake water levels. The letters provided in Attached E document the numerous entities and individuals involved with ensuring that the Bly Tunnel valve is shut off.

To help protect the Lake Almanor nesting colony, we sent a map to the USFS Fire Division in order to alert them of the sensitivity of the nesting grebes to air traffic. Jon Bristow, the District Fire Management Officer at the Almanor Ranger District received our alert and he forwarded it to his air force supervisors Les Curis (Forest Aviation Officer) and Shawn Walters (Fly Crew Superintendent). The nesting colony was located near the Chester Airport and there were a number of helicopters staged there in anticipation of wildfires in the area. We recommended that they avoid the nesting area during their operations. They responded positively to our alert.

Volunteer and Partner Contributions

Many individuals associated with the Plumas Audubon Society (PAS), California Department of Fish and Game (CDFG), U.S. Forest Service (USFS), Lassen College Foundation (LCF), Lassen Land and Trails Trust (LLTT), Audubon California (AC), Friends of Eagle Lake (FEL), and Point Reyes Bird Observatory (PRBO) contributed to project efforts this quarter.

Leslie Larson (PAS) helped with education and outreach activities at Lake Almanor and Bob Beckwith (PAS), Terry Williams (PAS), Jerry Williams (PAS), Harry Reeves (PAS), Anthony Hall (PAS), Gretchen Jehle (PAS), Julie Newman (CDFG), Joe Russell, and Ryan Burnett (PRBO) helped with brood surveys. Garrison Frost (AC) designed a colony warning sign and pamphlet, Val Aubrey (FEL) contributed use of her boat and time for the Eagle Lake brood survey, Michelle Ahearn (USFS) assisted in the coordination of activities at the Lake Almanor Amphitheater, Scott McCollugh (LCF) assisted in the coordination of activities at the Eagle Lake Amphitheater, and Jessica Gibbs (LLTT) assisted in the coordination of LLTT events.

Literature Cited

Ivey, G.L. 2004. Conservation Assessment and Management Plan for Breeding Western and Clark's Grebes in California.

Gericke, S.M., D.W. Anderson, and P. Kelly. 2006. Western and Clark's Grebe Conservation and Management at Clear Lake, California. Presented to the American Trader Trustee Council and the National Fish and Wildlife Foundation. 31 January, 31pp.

Attachment A
Example Meeting and Event Advertisement

COME OUT AND LEARN ABOUT THE GREBES ON LAKE ALMANOR

At the U.S.F.S. ALMANOR NORTH CAMPGROUND

Saturday July 23rd

7PM @ THE AMPHITHEATRE

Fore more information contact:
NILS LUNDER nils@plumasaudubon.org or 530-283-0455
Or MICHELLE AHEARN mahearn@fs.fed.us or 530-258-2141

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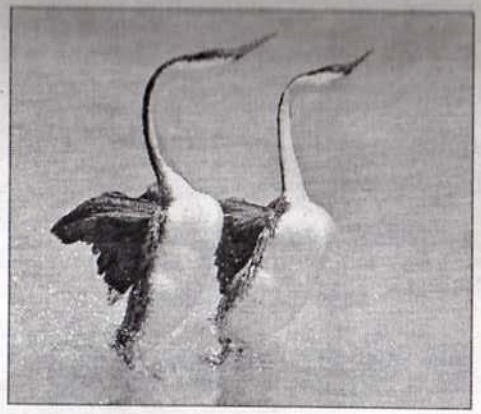
HELP SAVE LAKE ALMANOR'S BEAUTIFUL GREBES

By Leslie Larson, LACC & Plumas Audubon member

Did you know that Lake Almanor is home to one of the last sizeable populations of Western and Clark's Grebes in California and the West? You may have heard their gentle call near shore in late afternoon or seen them swimming and diving while out on your boat.

On Friday, July 22, at 10:00AM in the conference room at the LACC office on Peninsula Drive the Plumas Audubon Society is hosting a presentation about our grebes. Come and find out what makes them so special and how you can help this elegant, but vanishing, species survive on our lake.

Grebes have evolved a very unique lifestyle, which is now in jeopardy. In many ways, Lake Almanor, along with several other northern California lakes, is their last stand. Grebes live on Western coastal waters most of the year. But, in spring, they migrate to inland lakes to choose a mate and raise their young. Shortly after they arrive, they lose their ability to fly — instead investing all their energy into the breeding cycle.



If you are out on the water in mid-late summer, you may be fortunate enough to see a highlight of the grebes' complex mate selection ritual called the "Rushing Ceremony." In this dramatic and tenderly affecting show, two or more birds rise up and run across the water in parallel display.

Once pair bonds are established, grebes build a nest from bottom-anchored floating vegetation, well away from onshore predators. The chicks hatch in 24 days and immediately climb onto their parent's backs where they will ride for 2-4 weeks. The water is too cold for nestlings, if they fall in it for more than a few moments.

Western and Clark's grebes are not currently listed as endangered, but their numbers and breeding success are declining sharply. Come and learn more about these beautiful birds that we host on our lake, one of their last preserves. Learn the simple things we can do to help them thrive for years to come.

What: Putting on a Show: The Grebes of Lake Almanor
When: Friday, July 22, 10:00 - 11:00 A.M.
Where: LACC Office Conference Room, 501 Peninsula Drive
Sponsored by: Plumas Audubon Society

What you can do to help the grebes:

Respect nesting marker buoys and give them room - stay 300 feet from colonies
Watch your boat's wake - don't swamp nests or nestlings on parents' backs
Navigate around flocks instead of through them
Avoid boat strikes
Pack out trash like fishing line and plastic

President's Message

Paul Gray

WOW! This year has flown by. Where does the

LACC Election Results

Barbara MacArthur	751
Tracy Thurber	731
Eileen Kennelly	719

Attachment B
Example Outreach

Grebes breeding on local lakes

BIRDS OF THE FEATHER

PLUMAS AUDUBON SOCIETY

By this point in mid-summer, western and Clark's grebes have been on our local lakes for a few months. These large water birds have distinctive red eyes and are quite common in our region. Their raspy calls travel across the water with ease and can be heard from a great distance. They nest on lakes and swamps that support healthy fish populations from here all the way out to Minnesota and from Mexico up into Canada. The grebes in our region are important, however, because about 30 percent of the nesting colonies occur in Northern California.

Grebes mainly winter along the Pacific Coast or on warm inland lakes such as the Salton Sea in Southern California. They subsist on small fish; adult birds may consume a pound of fish per day. Their migration is a phenomenon that is poorly understood by biologists; many people believe that they fly under the cover of darkness and rely on numerous stopover lakes along the way. The fact that these water birds can even make the trip is an incredible accomplishment. They have small wings and do not fly well. Once the grebes reach their destination they shed all of their flight feathers and become flightless for a period of time. This causes their flight muscles to atrophy and they remain flightless until the availability of food becomes scarce in the fall.

Grebes have some of the most elaborate courting ritu-

bob their heads at one another. Later as they are about to build their nests they can be seen diving and returning to the surface with vegetation that they present to their mate. The most remarkable part of these courting rituals is called the rushing display. Maybe you have seen it. The grebes rear up in a near vertical position; they tuck their stubby wings and throw their heads back while running across the surface of the water. It is quite a sight. Some grebes can cover up to 100 feet during this display.

The grebe has adapted to pursuing prey underwater. They have a slender body, dense bones and lobed toes that allow them to travel underwater with surprising agility. Their legs are set far back on their body, which increases their ability to propel themselves underwater. These physical traits may help the grebes in the water but it makes them quite ungainly on land where they are rarely seen.

Grebe pairs team up to build their floating nests, which they prefer to build in two – six feet of water. This allows them easy access to their hunting grounds and it also reduces the threat from terrestrial predators such as raccoons, skunks, dogs and cats. They gather decaying organic materials and weave them into the vertical stalks of vegetation that is rooted to the lake bottom. This anchorage is necessary in order to prevent the nest from floating away during times of high winds and waves. Once the nests have been completed they use them to copulate, which can begin long before the eggs are laid. Once the eggs are in the nest the birds take turns incubating them, which takes around 30 days.

nest on Mountain Meadows Reservoir, Lake Davis, Round Valley Reservoir and Antelope Lake. At Lake Almanor the grebes are in a race against falling lake levels and we are rooting for the grebes. With the high water that we are experiencing this summer they have built their nests in areas that will be high and dry before too long. PG&E has begun to release water from the lake and we are hoping that the eggs will be hatched before the floating nests are no longer in the water. The parents abandon their nests if they become stranded on land and if this happens the eggs will be eaten by predators.

Unlike many other birds, the grebes leave their nest for good once their young have hatched. The fuzzy hatchlings are shuttled onto one of the parent's backs and they begin their aquatic lives. During this time one of the parents dives for food and brings it back to share with the family. The grebes carry their young for the first six – seven weeks until they are ready to learn how to swim and dive for their own food. If you are out on the lakes and you see grebes carrying young on their backs please to try to steer clear of them. The newly hatched babies cannot swim or dive for their first few weeks. Also be sure to dispose of tangled fishing line or other garbage properly because numerous birds die each year due to entanglement.

Once the young birds have learned to forage and their bodies have developed they begin to learn how to fly. The whole family builds the strength of their flight muscles together through a series of exercises; once they are ready they disappear

Birds of the Feather

PLUMAS AUDUBON SOCIETY

Each day more grebe babies are being observed on their parents' backs. We have received numerous updates from folks in our area who have developed an interest in these birds and their broods. The nesting colonies are still very active. Even though many young have already hatched and have left the colony with their folks, many more adults are sitting on eggs or building new nests. This makes monitoring these nest colonies a multi-dimensional challenge.

After scouring Eagle Lake for other nest colonies, it is beginning to appear that all of the grebes are nesting in an area that covers less than one mile of shoreline. The lake has more than 100 miles of shoreline; however, nearly all of the vegetation that remains alive along the shore is out of the water and inaccessible to the grebes.

The water depth in the active nest colony is dropping too. Many of the nests are in less than one foot of water. Last week during surveys we observed one nest that had been abandoned after it had been stranded on the shore by dropping lake levels.

At Lake Almanor the first colony still has some nesting grebes but most of the nests have been abandoned. Hopefully that was due to hatched babies and not to predation. The grebes that are building nests now are out of the willows and into the pondweed. The birds now have less cover and this increases the exposure of their floating nests to roving predators.

Try to avoid disturbing these birds; now is the time to stay away from the nesting colonies. The fewer disturbances, the greater the chances that the grebes will have a successful hatch. We hope to begin installing signs this week in order to alert lake users to keep their distance from the nesting colonies.

Last Tuesday we flew over Eagle Lake, Lake Almanor and Mountain Meadows Reservoir in order to collect aerial photos of the nesting colonies. William Klett, of Lake Almanor, generously donated his time and airplane to the effort and Plumas Audubon hired an aerial photographer. Visit these sites to see photo mosaics of the two major colonies: deercreekgis.com/panorama/eagle_tules.html, and deercreekgis.com/panorama/ almanor_willows.html.

It was an amazing fli clear and calm: perfect conditions. We did see canoe in the Almanor c from the air. Please kee out of the nesting colon until the birds have fin hatching their young. T grebes need all the help we can give them. Keep updates coming; feel fr contact us with questio concerns. Call 283-0455 email nils@plumas audubon.org.

Attachment C
Colony Sign and Outreach Pamphlet

Watch Out!

GREBE NESTING

Keep 300'
Distance
July - Sept.

Thank You

Get to know your grebes

Western Grebe

- The more common of the two
- Black on the head descends below the eye
- Bill is yellow-green
- Two-note call

Clark's Grebe

- Black on head rises above the eye
- Bill is yellow-orange
- One-note call

Sharing Lake Almanor with grebes

Many recreational visitors are already taking a few simple steps to make sure the 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.

Pack out your trash

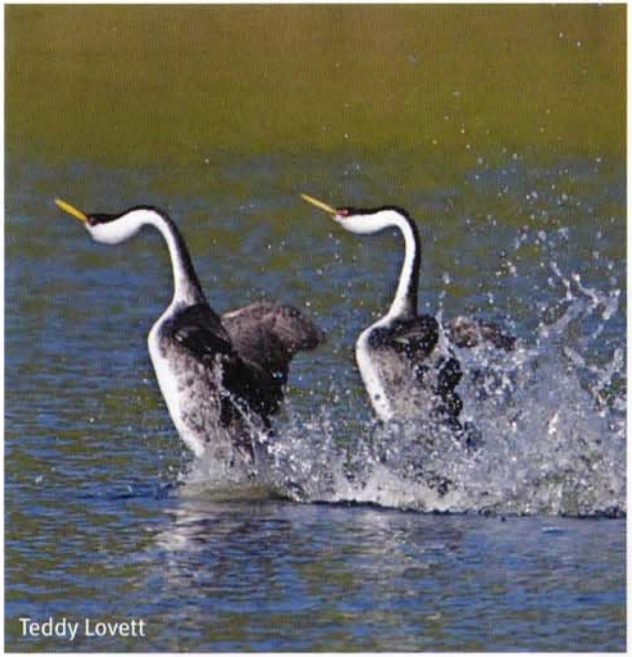
Like any waterbird, grebes can get tangled in old fishing line and other plastic trash.

Spread the word

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

Supported by a grant from the Luckenbach Trustee Council.

Lake Almanor: Sharing the lake



Fascinating Grebes make for a lake like few others

Plumas Audubon Society

www.plumasaudubon.org

Everybody loves the lake

Lake Almanor is a great place for getting together with friends and family in a fun outdoor setting. It's a perfect local spot for boating, water sports, fishing, camping, nature viewing, and lots more.

But people aren't the only ones drawn to the place. Two of California's most interesting birds – Western Grebes and Clark's Grebes – both come here. Lake Almanor is the fourth most important breeding site in California for these birds.

Floyd Hayes

Fascinating birds

Western and Clark's Grebes are black and white birds with long, slender necks and red eyes. They live on the ocean most of the time, but come to inland lakes to find a mate and raise their young.

The grebes are known for their elaborate courtship dances, which include a remarkable display where the two birds run across the water in unison. This "rushing" is one of the more spectacular things one is likely to see in nature – and so the birds attract large numbers of bird and nature enthusiasts to Lake Almanor each year.

Len Marlin Harms

Western and Clark's Grebes start their families on the lake

Lake Almanor is one of just a handful of lakes in Northern California where Western and Clark's Grebes breed. It's not fully understood why the birds come back to the lake year after year, but their annual appearance are a real gift.

Grebes build their nests mostly at three locations on Lake Almanor: near Chester, West Shore and near the Causeway.

Grebes don't build their nests in trees. Instead, in an effort to keep their nests away from predators, they actually build floating nests. Once the chicks hatch, they ride around on their parents backs for two to four weeks.

Because they float on the water, grebe nests are highly vulnerable to any disturbance, particularly wakes. When chicks are riding on their backs, grebes are also vulnerable to boat strikes. Boaters who slow down near the nests, keep a safe distance, and watch for birds in the water are a big help.

Grebes are also highly vulnerable to fluctuating water levels, which can happen occasionally in a dam controlled lake such as Lake Almanor. If the water is suddenly drained, nests can get stranded in the mud, making them subject to abandonment or predatory animals. A sudden increase in water level can cause an anchored nest to flood.

Attachment D
Stones Ranch Colony Nest Photo

Plumas Audubon
Quarterly Report July-Sept 2011

Grebe Surveys and Outreach
Lake Almanor and Eagle Lake

Attachment E
Eagle Lake Bly Tunnel Letters

PLUMAS Audubon Society
P.O. BOX 3877 · QUINCY, CALIF. 95971

August 8, 2011

Senator Ted Gaines
State Capitol, Room 3056
Sacramento, CA 95814

Dear Senator Gaines:

Eagle Lake is one of the most significant breeding areas for Western and Clarks's Grebes in California and the western U.S. The Plumas Audubon Society is helping to conserve these species by conducting public outreach and education as well as research and monitoring of grebes nesting on Eagle Lake and Lake Almanor. These two lakes support more than 25 percent of the Western and Clark's grebes that breed in the western U.S. The Audubon Society recognizes both of these lakes as Important Bird Areas because of the large number of water birds, including grebes and ducks, that they support.

The primary goal of our research and monitoring is to identify threats to grebes breeding on Eagle Lake. We have found that the lake's water level is the primary threat to grebes due to its impact on suitable breeding habitat. Grebes breed in tules growing in 1-3 feet of water in coves along the lakeshore. One historic breeding area has been abandoned because the tules are now completely out of the water and the number of grebes breeding in another historic area has been declining. Only one large breeding colony remains and the available habitat there is also in decline.

Low levels of precipitation and extended drought are the primary factors contributing to the drop in water level at Eagle Lake, which has contributed to the decline of the wetland habitat used by nesting grebes and numerous other bird species. Fluctuations in water level and precipitation are a natural part of the Great Basin ecosystem. However, water is also leaving Eagle Lake through the Bly Tunnel, which is an unnatural component of the hydrologic system that may be exacerbating the problem.

We urge you to consider the impacts to Eagle Lake resulting from the loss of water that leaves the basin through the Bly Tunnel. The health of this unique biological system is at stake.

Sincerely,

David Arsenault

David Arsenault
President

STATE CAPITOL
ROOM 3056
SACRAMENTO, CA 95814
TEL (916) 651-4001
FAX (916) 324-2680

California State Senate

SENATOR
TED GAINES
FIRST SENATE DISTRICT

COMMITTEES
INSURANCE
VICE CHAIR
TRANSPORTATION & HOUSING
VICE-CHAIR
ELECTIONS
PUBLIC EMPLOYMENT & RETIREMENT

August 10, 2011

Mr. John McCamman
Director, California Department of Fish and Game
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

Director McCamman:

I am writing regarding Eagle Lake in my Senate district and the issue surrounding the open bypass valve located in Bly Tunnel.

Eagle Lake is home to the Eagle Lake Trout, a fish unique to the lake and a prize for anglers from around the state and country. The lake is part of "California's Heritage Trout Waters" program and its proper management is critically important to the local environment and economy. An unhealthy Eagle Lake, and a threatened or diminished population of the Eagle Lake Trout, harms residents and businesses in the region, as well as diminishes one of our state's premier fishing destinations.

I recently visited with Eagle Lake residents and had the opportunity to visit the lake. Their stories of economic despair and plight due to the lake's conditions were saddening. They blame the open bypass valve for lowering the lake's water level, therefore damaging the lake and its fish population as well as the economy that depends on the business of the fishermen and other tourists. They were also frustrated that despite repeated efforts to get the bypass valve closed, they had not been successful.

I support the efforts of the Eagle Lake residents to shut off the bypass valve and believe it's worth the attempt to at least see if doing so would give the residents and other interested parties the results they anticipate.

I am asking you to support the shutting of the valve and to work with the Bureau of Land Management regarding its closure.

Please call my office if you wish to discuss this matter further.

Sincerely,

TED GAINES
SENATOR, 1st District

PLUMAS Audubon Society
P.O. BOX 3877 · QUINCY, CALIF. 95971

August 22, 2011

John McCamman
California Department of Fish and Game
1416 9th Street, 12th Floor
Sacramento CA, 95814

Dear Mr. McCamman:

Eagle Lake is one of the most significant breeding areas for Western and Clarks's Grebes in California and the western U.S. The Plumas Audubon Society is helping to conserve these species by conducting public outreach and education as well as research and monitoring of grebes nesting on Eagle Lake and Lake Almanor. These two lakes support more than 25 percent of the Western and Clark's grebes that breed in the western U.S. The Audubon Society recognizes both of these lakes as Important Bird Areas because of the large number of water birds, including grebes and ducks, that they support.

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Low levels of precipitation and extended drought are the primary factors contributing to the drop in water level at Eagle Lake, which has contributed to the decline of the wetland habitat used by nesting grebes and numerous other bird species. Fluctuations in water level and precipitation are a natural part of the Great Basin ecosystem. However, water is also leaving Eagle Lake through the Bly Tunnel, which is an unnatural component of the hydrologic system that may be exacerbating the problem.

We urge you to consider the impacts to Eagle Lake resulting from the loss of water that leaves the basin through the Bly Tunnel. The health of this unique biological system is at stake.

Sincerely,

David Arsenault
President

California Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Northern Region
601 Locust Street, Redding, CA 96001
www.dfg.ca.gov

EDMUND G. BROWN, JR., Governor
JOHN McCAMMAN, Director

September 2, 2011

Mr. David Arsinault
Plumas Audubon Society
Post Office Box 3877
Quincy, California 95971

Re: Eagle Lake; Western Grebe Concerns

Dear Mr. Arsinault:

Thank you for your interest in Eagle Lake and in particular, the breeding population of western grebes that occupy the lake. You are correct that Eagle Lake is very important for nesting western and Clark's grebes, other water birds (i.e., eared grebes), raptors, and other wetland associated wildlife.

As you indicated in your letter, the Eagle Lake watershed has been subjected to a multi-year drought and the lake elevation has receded to low levels in response to the dry conditions. Although the current water year (2010-11) has been above normal, the groundwater flow that supplies an estimated 48% of the water supply to the lake and its associated aquifer will likely take several years of above normal precipitation to improve the lake surface elevation. You also mention the impacts of the Bly Tunnel to Eagle Lake surface elevations. The existing data on water inflow and outflow for Eagle Lake indicates the amount of water exiting Bly Tunnel is insignificant when compared to water loss through natural processes like evaporation and groundwater percolation and is likely water that has already left the lake through the volcanic substrate.

Nonetheless, the Department of Fish and Game (Department) continues to participate in an ongoing effort to determine if the tunnel is a significant factor contributing to the low lake levels. Once the influence of Bly Tunnel is determined, the Department will take the appropriate actions.

The Department will also continue to work with other pertinent State and federal agencies, interest groups, and the general public with the management of Eagle Lake watershed and its important fish and wildlife resources. Additionally, the

Department will likely be presenting information regarding Eagle Lake and Bly Tunnel to the California Fish and Game Commission (Commission) at their scheduled meeting in Redding on September 15, 2011. For more information about the Commission meeting, please visit their website at www.fgc.ca.gov. If you have further questions regarding the management of Eagle Lake, please contact Environmental Scientist Paul Divine at 530-254-6363 or pdivine@dfg.ca.gov.

Sincerely,

KKovacs for

NEIL MANJI
Regional Manager

ec: Messrs. Curtis Milliron, Mike Berry, Paul Divine, Richard Callas, and Brian Ehler
Mss.Karen Kovacs and Sarah Monteverde
Department of Fish and Game
cmilliron@dfg.ca.gov, mberry@dfg.ca.gov, pdivine@dfg.ca.gov , rcallas@dfg.ca.gov, behler@dfg.ca.gov, kkovacs@dfg.ca.gov , smonteverde@dfg.ca.gov .

MB:sh

State of California -The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
601 Locust Street
Redding, CA 96003
http://www.dfg.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

October 3, 2011

Mr. Charles A. Rich, Chief
Enforcement Unit #3
State Water Resources Control Board
Division of Water Rights
P.O. Box 2000
Sacramento, California 95812-2000

Re: Bly Tunnel Valve, Eagle Lake, Lassen County

Dear Mr. Rich:

The Eagle Lake watershed has been subjected to a multi-year drought resulting in low lake levels that likely contributed to a winter fish kill in the northern basin in February 2011. The Department of Fish and Game (Department) has received considerable public concern regarding impacts on fish and wildlife and the effects of Bly Tunnel on lake levels. In response we have met with Bureau of Land Management (BLM) and State Water Resources Control Board staff (Board), inspected the Bly Tunnel, and reviewed pertinent available literature. Our request, and the purpose of this letter, is to preserve public trust resources by eliminating Bly Tunnel as a possible source of exported water from the Eagle Lake Basin.

Bly Tunnel was completed in 1922 to convey water from Eagle Lake to Willow Creek. The tunnel was plugged to stop export of Eagle Lake water and preserve Eagle Lake public trust values. However, an 8 inch diameter pipe with a valve currently conveys approximately .5 to 3 cubic feet per second of water through the tunnel. The tunnel, pipe and associated valve are owned by the BLM, who is unsure of their ability to close the valve without impacting downstream water rights.

In your letter dated July 26, 2011, you indicate Bly Tunnel acts as a "horizontal well" that taps groundwater. Your letter states "percolating groundwater that has been abandoned into a surface watercourse is considered to be "foreign" in nature." You indicate that any water right holders down stream cannot demand that abandoned foreign water continue.

The Department has Public Trust responsibilities for fish and wildlife resources in the State of California (Fish and Game Code Section 1802). We believe that low lake levels have impacted Eagle Lake's ecology and the survival of Eagle Lake rainbow trout *Oncorhynchus mykiss aquilarum* (Snyder) (ELRT).

ELRT are unique in their adaptation to thrive in waters with high alkalinity, and these fish are managed for their wild trout value as well as their contribution to our state hatchery program. Approximately 2 million eggs from ELRT females are collected each year for use statewide.

Low lake levels affect water quality by creating conditions of warmer water and increased pH during the summer and fall months and colder water during the winter and spring months. The largest effects are observed in the northern basins where Eagle Lake is shallowest. During the summer months the northern basins are nearly uninhabitable by ELRT due to high temperatures and elevated pH. During the winter, ELRT move into the northern basin. However, low lake levels and a thick ice cover may create anoxic conditions resulting in a fish kill, like that observed in 2011.

Considering the value of Eagle Lake and ELRT to the local economy and the State's hatchery programs, we request that you assert your regulatory authority and require BLM to close the valve on the pipe in Bly tunnel. We believe this action will reduce export of Eagle Lake Basin water and help preserve public trust values. We look forward to the opportunity to work with the BLM and the Board in resolving any issues that may arise while completing this action.

If you have further questions regarding this request, please contact either Senior Environmental Scientist Mike Berry at the letterhead address, telephone (530) 225-2131, e-mail mberry@dfg.ca.gov or Environmental Scientist Paul Divine at 530-254-6363 or pdivine@dfg.ca.gov.

Sincerely,

NEIL MANJI
Regional Manager

cc/ec: See Page Three

cc: Mr. Ken Collum, Field Manager
U.S. Bureau of Land Management
2950 Riverside Drive
Susanville, CA 96130

Mr. Jim Chapman, Chairman
Lassen County Board of Supervisors
221 S. Roop Street, Suite 4
Susanville, CA 96130

Mr. Jerry Bird, Forest Supervisor
Lassen National Forest
2550 Riverside Drive
Susanville CA 96130

Mr. Chris Gallagher, General Manager
Spaulding Community Service District
502-907 Mahogany Way
Susanville, California 96130

ec: Messrs. Curtis Milliron, Mike Berry, Paul Divine, Richard Callas, and Brian Ehler
Mss. Karen Kovacs, Sarah Monteverde
Department of Fish and Game
cmilliron@dfg.ca.gov, mberry@dfg.ca.gov, pdivine@dfg.ca.gov, rcallas@dfg.ca.gov, behler@dfg.ca.gov, kkovacs@dfg.ca.gov, smonteverde@dfg.ca.gov.

County of Lassen
BOARD OF SUPERVISORS

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County Administration Office
221 S. Roop Street, Suite 4
Susanville, CA 96130
Phone: 530-251-8333
Fax: 530-251-2663

August 23, 2011

State Water Resources Control Board
Charles A. Rich
Division of Water Rights
PO Box 2000
Sacramento, CA 95812-2000

Dear Mr. Rich:

Due to the continued failing economy, reduced tourism, and negative impact on wildlife, I feel it would be in the best interests of the people to close the valve in the Bly Tunnel.

Sincerely,

Robert Pyle,
District 1 Supervisor

cc: Ann Carlson, Eagle Lake District Office, USFS
Ken Collum, Bureau of Land Management
State Lands Commission
Stones-Bengard Community Services District
Spalding Community Services District
The Honorable Dan Logue
The Honorable Ted Gaines
The Honorable Tom McClintock

County of Lassen

Board of Supervisor - ***District 3*** Larry Wosick

Eagle Lake and the Bly Tunnel are in the spot light as well they should be.
The Bly tunnel that exports Eagle lake water to Willow Creek is a simple, cut and dry, easy to understand matter. Unfortunately, the "Tunnel" to most is a *mystery* full of folklore and uncertainty.

In simple terms I'll explain. Rewind to August 22nd-24th 1961. A hearing by State Water Resource Board conducted in Susanville, concluding *"all Eagle Lake water was to remain in Eagle Lake"* The Boards position was *"reject and deny all applications for water rights for Eagle Lake water exiting the tunnel"*. This legal decision (D 1073) was adopted March 15th 1962. Pretty simple so far. Slow forward 24 years to 1986 and the construction of the cement wall (referred to as a plug) in the Bly Tunnel. This wall was constructed to keep Eagle Lake water in Eagle Lake, still simple, right? Now it gets messy, placed in the cement wall designed to keep Eagle Lake water in Eagle Lake is an 8" pipe that extends out approx 2 feet to a gate valve. On the outlet side of the gate valve in a 12" pipe that continues toward Willow creek for about 270 feet. Out of the pipe flows Eagle Lake water, non stop. The water shoots out of the pipe and into a channel that carries it down to Willow Creek.

The arguing continues, bogus water rights claimed, ***23 more years pass*** since the cement wall constructed the valve open, court decision ignored. The powers that be, allow Eagle Lake water to flow "non stop" into Willow Creek. On May 12th 2009 Dayne Barron from BLM writes to State Water Resource Board asking (the already answered question) about water rights pertaining to water from the tunnel to users in Willow Creek. The State Water Resource Board reply of June 01 2009 ONCE AGAIN states the ***legal position***; there are no water rights for down stream users. The Water board informs Mr. Barron of a 1972 study by the department of water resources which *"concluded that essentially all of the water being discharged from the Bly tunnel is derived from Eagle Lake".*

Still the valve remains open and Eagle Lake Water is exported from Eagle Lake to Willow Creek. What is wrong with the BLM, and this picture? Fast forward 2 years and again a letter from the State Water Resource Board dated May 19 2011 to the Lassen County Board of Supervisors stating **AGAIN** that there are no water users that can demand the continued supply of Eagle Lake water be supplied to Willow Creek. Senator Gaines weighs in (via his letter dated August 11 2011) to DFG stating *"I am asking you to support the shutting of the valve and to work with the Bureau of Land Management regarding its closure.*

I'm 100% committed to keeping 100% of Eagle Lake water in Eagle Lake, I'll be doing everything possible to achieve this.

Sincerely,
Larry Wosick
530 249-3540