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The Wandering tattler

Vol. 2 | No. 2 | Spring 2010

San Francisco Bay Area Chapter of the Wildlife Society

President's Message

Christine Gaber

Happy Spring Chapter Members! I hope this month finds you outdoors enjoying the lovely weather and appreciating Bay Area wildlife. Your Chapter Board has been busy planning some great events for this year, and we're glad to see so much interest among Chapter members. The April 17th field trip to Vasco Caves/Brushy Peak was well attended and ended up positively contributing to our Chapter finances. We recruited nine new members to the Chapter! I want to thank Chapter Past-president Doug Bell for leading the trip to this unique grassland area. It was a great example of the exciting wildlife work that Chapter members are doing locally, and a reminder that if you have a project or field site to showcase, we all would love to see and hear about it.

Continued on pg. 3

Announcements

Spotlighting on the Carrizo: We're diligently working out the logistics for a kit fox overnighter trip this coming summer/fall. Details will follow soon.

Chapter Representative Report

Natasha Dvorak

"The universe is not only weirder than we think; it is weirder than we can think."

- Werner Heisenberg

Section Highlights:

- Successful 2010 Visalia conference, with about 350 attendees. Next year's conference will be in Riverside, CA from February 7-11. Netted a small profit that was larger than expected in this economy.

- New University of Nevada, Reno Student Chapter is planning a 2011 trip to Ano Nuevo State Park to observe elephant seals. To help, join, or get more info, please contact Nova Simpson at simpsonn@tmcc.nevada.edu.

- Central Coast Chapter 2009 events included a Chapter "Wildlife Roundtable", Carrizo Plains Field Day, Bat Workshop, and a Fall Social that included students. Plans for 2010 include a spring Carrizo Plains field trip, two bat workshops, CRLF and WPT workshops, a snowy plover and least tern field trip to Oceano State Park, a Field Mentoring Camp in conjunction with Western Section, and assisting the CalPoly Wildlife Club with activities and speakers.

- Sac/Shasta Chapter had 70+ attendees from academia, government, nonprofits, private industry, and students to their Natural Resource Symposium. Plans for 2010 include a GGS workshop, and updating their Chapter Bylaws and getting them approved by TWS National.

National Highlights:

- TWS has joined with American Fisheries Society, Society of American Foresters, and Society for Range Management to form the Consortium of National Resource Societes (CNRS) to give us a collective voice of over 35,000 professionals for jointly-issued policy statements.

- TWS is still debating unified membership and implementation. Chapters, including ours, would like to better integrate membership lists and payment processes, but want to retain Chapter-only membership opportunities.

- TWS is actively recruiting for a Blue Ribbon Panel to examine major trends expected to influence wildlife management and conservation over the next 50 years.

- National membership is greater than 9,000.

- Reminder! Section and Chapter Officers must be National members in good standing.

President's Message, Continued from pg. 1

Doug and Western Section Representative Natasha Dvorak also are working hard on the plans for a San Joaquin kit fox workshop in the Carrizo Plain at the end of July. We expect it to be a very informative mix of presentations and night spotlighting for these critters – not to be missed!

The Chapter Board decided recently that we were experiencing too much brain drain after Chapter Officers left their posts. For positions with no set term limits, such as Secretary/Treasurer, folks often serve the Chapter for a number of years. There is always a large amount of catch up work for the rest of the Chapter Board after they've moved on. To help retain some of this Chapter knowledge, we have created a Chapter Advisor-at-Large position. We've nominated Dana Ostfeld, prior Chapter Secretary/Treasurer, to the post and she has accepted. Congrats and thank you, Dana!

We're still looking for a President-elect for this year so nominate your friends and enemies. Please email me for more information on what the job entails. We have a wonderful group of people on the Chapter Board and it's a pleasure to work with all of them!

Take care,

Christine

Christine and Andrew (cute!)

TWS Climate Change Teleconference

Here are some resources that came out of the TWS Climate Change and Wildlife teleconference. The following links were shared during the teleconference.

California Climate Adaptation Strategy:
http://www.climatechange.ca.gov/adaptation/

California Climate Change Portal:
http://www.climatechange.ca.gov/

Bringing Climate Change into Natural Resource Management Workshop Proceedings:
http://www.fs.fed.us/pnw/pubs/pnw_gtr706.pdf

Principles for Including a Natural Resources Adaptation Fund within Cap and Trade Climate Legislation to Help America's Fish, Wildlife, and Ecosystems to Survive Global Warming:
http://www.defendersofwildlife.org/resources/publications/policy_and_legislation/principles_for_including_a_natural_resources_adaptation_fund.pdf

U.S. Department of Transportation Position Statements on Climate Change:
http://climate.dot.gov/impacts-adaptations/forcasts.html

National Wildlife Federation:
www.nwf.org/wildlifeandclimate

Changes to the List of Birds Protected Under the MBTA

On March 1, 2010, the USFWS published the final rule revising the list of species protected under the Migratory Bird Treaty Act. The revised MBTA protected bird list is available at the following link: http://www.fws.gov/migratorybirds/RegulationsPolicies/mbta/10-13%20Final%20Rule%201%20March%202010.pdf

Editor's Note: the above links were verified and active on 04/16/2010.

Our new Secretary/Treasurer Bryan Olney pledges to safeguard the Chapter's cash reserves

Meeting Notes: SFBA Chapter Meeting at the TWS Western Section Conference, Visalia, CA

Dana Ostfeld

20 members were present, including board members Christine Gaber (President), Dana Ostfeld (past Secretary/Treasurer), Bryan Olney (current Sec./Treasurer), Doug Bell (Past President), Luke Macaulay (Webmaster, Natasha Dvorak (Chapter Rep., and Brian Pittman (Newsletter Editor).

Christine led the meeting, first bestowing honors to former SFBA Chapter Officers. Those who received (in some cases overdue) recognition include Dana Ostfeld (3 years as Sec/Treasurer!), Doug Bell, Ron Duke (Past President) and Mary Boland (Past President). A moment of remembrance was given for Kelly Collins, who was active with the Chapter and served briefly as Chapter President. Kelly passed away in October 2009.

Dana Ostfeld gave her final report as Secretary/Treasurer. Current Chapter funds include $12,000 between Citibank checking account and investment accounts. Chapter membership (paid through 2009) is 108. Bryan Olney was voted in as new Secretary/Treasurer.

There was a discussion of potential future presidents, and we're still working through some ideas.

Reg Barrett suggested that we circulate the member list out to SFBA Chapter members so that members know who is and who is not a member. Such a list was circulated to members by Brian Pittman in early February.

Projected events:

Vasco Caves tour – an April trip was decided upon to facilitate review of vernal pools, as summarized in our President's Message.

Other workshops and chapter events for consideration include:

Chapter meeting somewhere in the South Bay. Get a bat biologist to give a talk?

Coordinating with the Puma Project

A Farallon Island trip, possibly in September. There was lots of excitement over this idea

Hawk Hill in October

California to the Ban Importation of Non-native Turtles and Frogs for Food

On Wednesday March 3, 2010, the California Fish and Game Commission approved a ban on imports of non-native turtles and frogs for food markets. The Fish and Game Commission voted unanimously to order the Department of Fish and Game to stop issuing permits allowing the importation of non-native turtles and frogs for food.

Past animal cruelty arguments failed to convince commissioners to ban the importation of an estimated 2 million bullfrogs and 300,000 red-eared sliders that enter the State each year. This time around, environmental and safety reasons were able to sway commissioners who ultimately agreed that non-native turtles and amphibians which are released by good Samaritans were threatening the health of native wildlife populations.

“Our prime motivation was a concern for the impact of such exotic animals on our native wildlife species,” Commissioner Michael Sutton said Wednesday.

The ban on permits does not apply to imports for the pet trade.

“I believe in excellence. It is a basic need of every human soul. All of us can be excellent because, fortunately, we are exceedingly diverse in our ambitions and talents.”

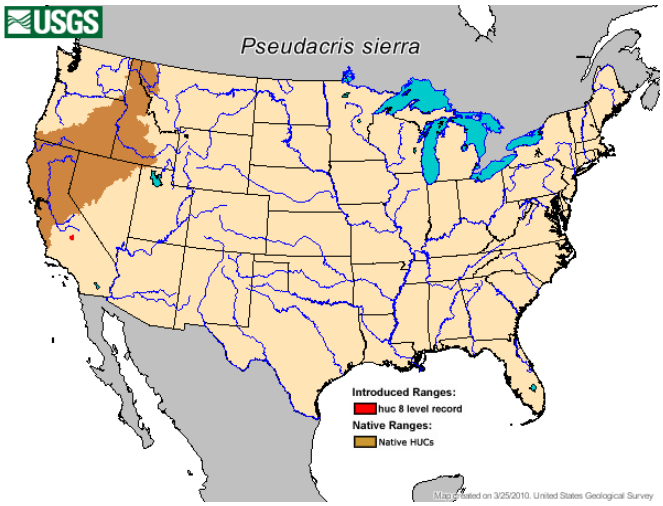
- Edward Teller

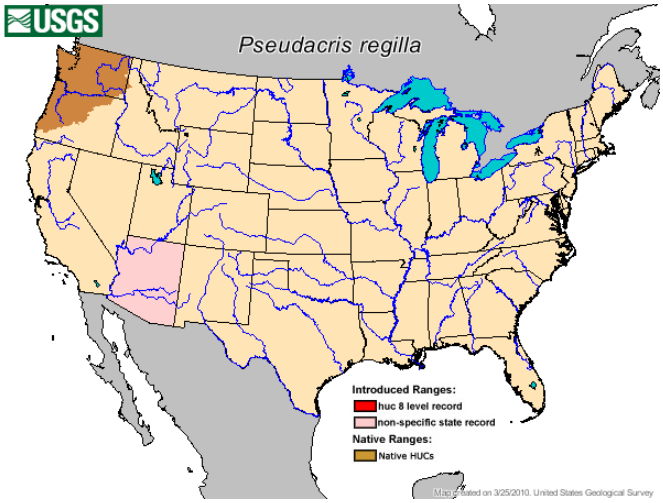
“Well, of COURSE I did it in cold blood, you idiot! I’m a reptile!”

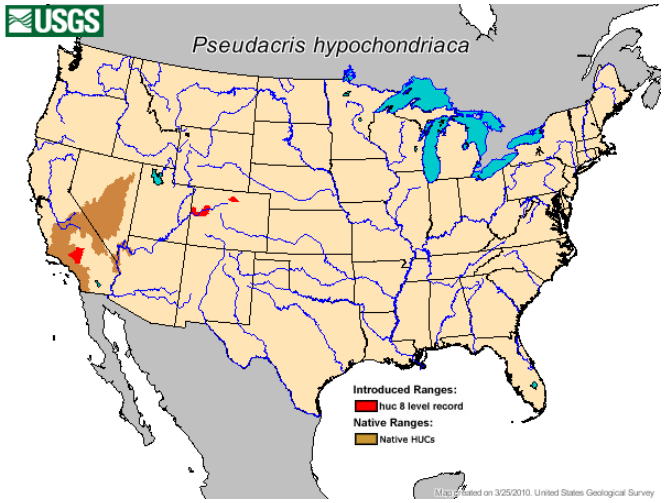
Keeping up with the Times – Western Treefrog Clades

The name of the pacific treefrog has been confusing for years, and in 2006 it became even more confusing when this species was divided into northern, central and southern clades. These clades are now recognized as three species: the northern pacific treefrog (*Pseudacris regilla*), Sierran treefrog (*P. sierra*) and the Baja California treefrog (*P. hypochondriaca*). The Sierran treefrog is the central clade, ranging approximately from Humboldt County south to Santa Barbara, and east into the Sierras, and the northcentral, and northeast part of the state, including Shasta County, and into Nevada, Eastern Oregon, Idaho and Montana. *P. hypochondriaca* ranges from approximately Santa Barbara south throughout Baja California, east to Bakersfield, Beatty, and southern Inyo County. Importantly, note that *P. regilla* now barely holds a toehold on the northwestern portion of the state (see figures below). Further detail on these species and larger maps are available from the USGS at:

http://nas.er.usgs.gov/queries/SpeciesList.aspx?Group=&Genus=pseudacris&Species=&ComName=







Editor's Notes

Brian Pittman

Students in Action!

If you missed the TWS Western Section conference in Visalia, you probably haven't noticed that student involvement in the SFBA Chapter and Section is growing. Student participation is notably on the rise at Sonoma State University, San Jose State University and at U.C. Berkeley. These folks aren't just sheepishly hocking their resumes. They are on the cutting edge of some of the most interesting local biological research. Case in point is Zannie Dallara, who was assisted by a host of supporting biology students from SSU's Department of Biology. Her TWS Western Section poster entitled, "Effects of Incubation Temperature on Development and Phenotype in the Western Pond Turtle, *Actinemys marmorata"*, took home the Best Poster Award at the Visalia TWS conference. With only an ounce of persuasion, Zannie agreed to allow reproduction of her poster in this issue of the Wandering Tattler (see following page). Her poster summarizes a truly unique study and we look forward to more interesting things from this group.

Thanks Zannie!

…And Now a Word from our Sponsors

This quarter we take a break from our corporate sponsorship program (whew!). The program has to date funded six student members and we have set aside funds to support fourteen more. The TWS Section meeting in Visalia stirred up lots of interest in the SFBA Chapter and the student participation curve looks to be on the incline. We're still soliciting tax deductible donations from individuals and companies to sponsor student involvement. A $50 donation provides a quarter page advertisement in two issues of the *Wandering Tattler.* Prospective sponsors and student members should contact Secretary/Treasurer Bryan Olney for more information.

- Brian P.

EFFECTS OF INCUBATION TEMPERATURE ON DEVELOPMENT AND PHENOTYPE IN THE WESTERN POND TURTLE, ACTINEMYS MARMORATA

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Introduction

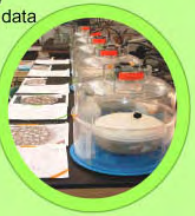
While several recent studies have focused on the effects of incubation temperature on developmental and phenotypic variables in a number of reptilian species, relatively few have examined how temperature effects these variables in turtles. We incubated over 100 eggs of the western pond turtle, *Actinemys marmorata*, at six different constant temperature regimes to examine how temperature influences incubation duration and hatching success, growth, and sex determination. Greatest hatching success (Fig. 1) and most rapid development (Fig. 2) occurred at intermediate temperatures, with viability declining at the higher and lower temperatures. Maternal/clutch effects influenced post-hatch growth rate significantly, while incubation temperature was not a significant factor in growth rate (Figs. 3 & 4). In addition, our experiments confirmed a Type Ia (MF) pattern of temperature-dependent sex determination (TSD) in *A. marmorata* (Ewert et al 1994).



Materials & Methods

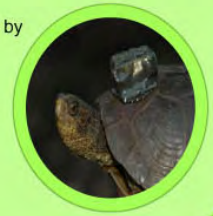
Egg Collection:
Eggs were collected from a Lake County, CA site in June and early July of 2008 and 2009. Morphometric data was collected from females after successful nesting events. Eggs were transported to Sonoma State University (SSU), where data on egg dimensions were recorded prior to eggs being placed in incubators. We collected a total of 59 eggs from 8 nests in 2008 and 97 eggs from 15 nests in 2009.

Incubation:
Fertile eggs from 2008 were incubated at 27, 28, 29, 30, and 31°C. In 2009 temperatures were adjusted to 26, 27, 28, 29 and 30°C to maximize hatchling viability. Additionally, 3 nests (16 eggs) were fitted with I-Button Thermochron data sensors and predator exclosures to record *in situ* temperature variation and Relative humidity through the ~3 month incubation period (see figure 5).



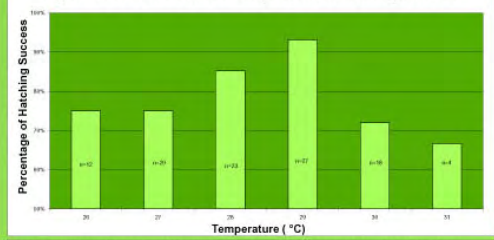
Growth:
Hatchlings were transferred to dedicated facilities at the Oakland and San Francisco Zoos for captive raising. Hatchling data morphometrics were recorded weekly. Hatchlings were raised under controlled conditions and fed a varied diet according to protocols modified from the Woodland Park Zoo (Seattle, WA) Western Pond Turtle Project.

Sex Determination:
At 6-9 mo. hatchlings were examined endoscopically for sex determination by visual identification of gonads (Kuchling 2006).



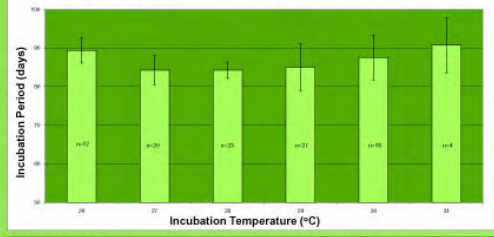
Release:
Once juveniles reach a threshold size ~50g they are considered relatively immune to most predators. At that point all 2008 turtles were notched and implanted with PIT tags for future identification and monitoring and transported back to their natal waters for re-release.

Figure 1. Effect of Incubation Temperature on Hatching Success.



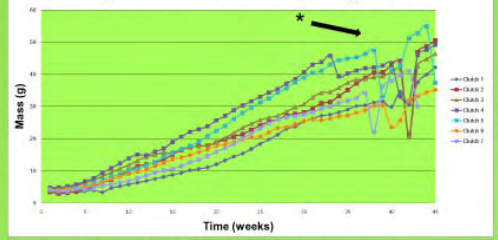
Approximately equal numbers of eggs were distributed among 5 incubators set at one degree increments (27-31°C in 2008; 26-30°C in 2009). Data only includes fertile eggs (i.e., eggs that developed a white spot ("chalked") on top surface of egg) within 48 hours of collection. The near-term embryos were dissected and included in TSD procedures.

Figure 2. Effect of Temperature on Incubation Duration.



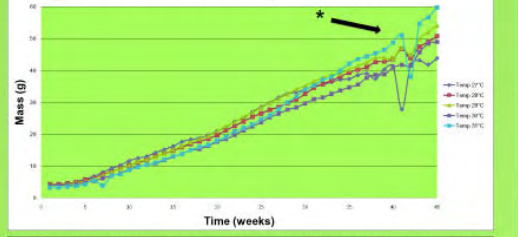
Incubation duration was calculated as the number of days from oviposition to complete hatching for all fertile eggs collected in 2008 and 2009.

Figure 3. Clutch Effects on Post-Hatching Growth.



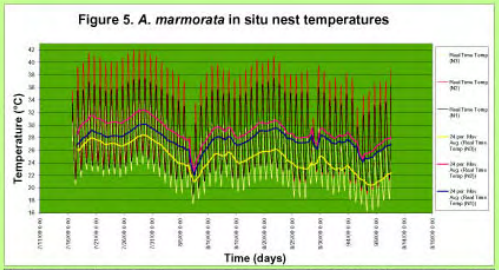
Mean mass for turtles within individual clutches from all incubation temperature regimes through the 45-week captive growth period. Hatchlings were transferred from incubators at SSU to dedicated facilities at the Oakland and SF zoos for captive growth under controlled conditions (see M&M).

Figure 4. Effect of Incubation Temperature on Growth Rate.



Mean mass for turtle cohorts grouped by each of the 5 constant incubation temperature regimes was calculated from individual weights recorded weekly over a 45-week period. Post-surgical growth perturbations after week 37 (see *) correspond to endoscopic sex determination procedures.

Figure 5. *A. marmorata* in situ nest temperatures



Real time temperature and moving averages of three naturally incubated nests from a Lake County location. Data collected during a three month incubation period using I-Button Thermochron data sensors placed within each nest to approximate temperature fluctuations experienced by eggs *in situ*.

Discussion:

Preliminary *in situ* temperature data recorded from naturally incubated *A. marmorata* nests shows relatively consistent and extreme diurnal fluctuations in temperature and relative humidity. These variables are likely to have implications for the validity of developmental temperature thresholds of established constant-temperature incubation protocols, especially in species from temperate environments (see Figure 5).

Conclusions/Data Analysis:

- **Highest hatchling success (93%, 29 eggs) occurred at 29°C.**
- **Shortest average incubation durations occurred at 27°C and 28°C (each had a mean of 84 days, with standard deviations of 3.78 and 2.12 respectively).**
- **Analysis of clutch and incubation temperature effects on growth (2-Way ANOVA), demonstrates:**
  - **Incubation temperature did not have a significant effect on juvenile growth from 0-45 weeks ($F_{4, 30} = 1.21$, $p = 0.33$).**
  - **Clutch effects on growth were significant ($F_{6, 30} = 2.64$, $p = 0.036$).**



Acknowledgments:
AZA CEF (Disney), Sonoma County Fish and Wildlife Commission, SSU Office of Research and Sponsored Programs, Oakland Zoo, San Francisco Zoo, The Slavins and the Washington Pond Turtle Project and Jeff Davis and the SSU McNair Scholars Program.

References:
•Ewert MA, Jackson DR, Nelson CE. 1994. Patterns of temperature-dependent sex determination in turtles. Journal of Experimental Zoology 270(1):3-15.
•Kuchling G. 2006. Endoscopic sex determination in juvenile freshwater turtles, Erymnochelys madagascariensis: morphology of gonads and accessory ducts. Chelonian Conservation and Biology 5(1):67-73.

USFWS Issues Revised Designation of Critical Habitat for California Red-Legged Frog; Final Rule

March 17, 2010, 75 FR 12815 12959. Details at provided at the following link.

http://www.fws.gov/ecos/ajax/speciesProfile/profile/speciesProfile.action?spcode=D02D#status

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California Tidal Marsh Recovery Plan Proposed

Source: February 10, 2010; Press Release: U.S. Fish and Wildlife Service

With only 8 percent of the San Francisco Bay's original marshlands still viable, the U.S. Fish and Wildlife Service is proposing the second largest tidal marsh recovery effort ever attempted in the U.S. The draft recovery plan focuses on 17 species of imperiled birds, plants and animals. The recovery effort will be entirely voluntary, seeking to capitalize on the great affection of Bay Area residents for the Bay.

Release of the draft plan opens a 120-day public comment period, during which the Service will hold several public meetings and encourage all interested parties to contribute their thoughts and ideas for the plan.

Draft Recovery Plan: https://ecos.fws.gov/docs/recovery_plan/TMRP_Intro_1.pdf

Press Release:
http://www.fws.gov/sacramento/ea/news_releases/2010_News_Releases/tidal_marsh_recovery.htm

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A captive two-striped garter snake (*Thamnophis hammondii*) from Piru Creek, Ventura County, CA (inset photo) reveals its missing dorsal stripe when making its escape (left). Photos by B. Pittman

Mountain Yellow-legged Frog Petitioned for CESA Protection

Source: January 25, 2010; Press Release: the Center for Biological Diversity

On January 25, 2010, the Center for Biological Diversity petitioned the California Fish and Game Commission to list all populations of the highly imperiled mountain yellow-legged frog as endangered under the California Endangered Species Act. Mountain yellow-legged frogs inhabit high-elevation lakes, ponds, and streams in the Sierra Nevada Mountains and Transverse Ranges of California and are on a rapid trend to extinction. Their rapid decline is due to predation by introduced trout, spread of diseases that may be exacerbated by exposure to pesticides, and habitat alterations caused by climate change, drought, and livestock grazing.

Although mountain yellow-legged frogs throughout California are imperiled, the U.S. Fish and Wildlife Service has only listed the Southern California population as endangered. In response to a 2000 petition filed by the Center for Biological Diversity, the Service determined that Sierra Nevada mountain yellow-legged frogs also warrant federal listing as endangered, but that such listing is precluded by actions to list other species. As a fallback, the agency placed the Sierra population on the candidate list, which does not confer federal protection. The average time on the waiting list for candidate species is 17 years.

Only a few decades ago, it was difficult to walk around many of the Sierra's alpine lakes without tripping over diminutive mountain yellow-legged frogs, known as "mountain gnomes." These hardy survivors of freezing Sierra winters are vulnerable to a host of modern threats that have driven the species to the brink of extinction. Surveys since 1995 at 225 historic frog localities show extirpation of 93 percent of the northern and central Sierra populations and 95 percent of southern populations.

Mountain yellow-legged frogs are adapted to high-elevation habitats without aquatic predators. Widespread stocking of nonnative trout in high-elevation Sierra lakes by the California Department of Fish and Game is attributed as a primary cause of decline for the species. Introduced trout prey on tadpoles and juvenile frogs and change the food web of the aquatic ecosystems frogs depend upon. Since 2000, the National Park Service and U.S. Forest Service have begun removing nonnative trout from some high Sierra lakes on federal lands in an attempt to restore yellow-legged frog populations.

Recent research has linked pesticides that drift from agricultural areas in the Central Valley to declines of native amphibians in the Sierra Nevada. Pesticides and other pollutants can directly kill frogs and also act as environmental stressors that render amphibians more susceptible to diseases, including a chytrid fungus that has recently ravaged many yellow-legged frog populations.

The mountain yellow-legged frog was recently re-described as two distinct species: the southern mountain-yellow-legged frog (*Rana muscosa*), which occurs in the southern Sierra and Transverse Ranges of Southern California; and the Sierra Nevada mountain yellow-legged frog (*Rana sierrae*), in the central and northern Sierra.

A link to the listing petition, which describes this species' natural history, range and current threats, is available here:

http://www.biologicaldiversity.org/species/amphibians/Sierra_Nevada_mountain_yellow-legged_frog/pdfs/2010-1-25_MYLF_CESA_petition%20.pdf

The historical range of *Rana sierrae* (in red). Source: www.CaliforniaHerps.com

California Tiger Salamander Protected Under California Endangered Species Act

On March 3, 2010, the California Fish and Game Commission voted 3-2 to designate the California tiger salamander as threatened under the California Endangered Species Act, providing state protected status to the salamander six years after a petition by the Center for Biological Diversity. The decision comes as a result of that petition and lawsuit and a 2008 court of appeals ruling that struck down the Commission's earlier rejection of the Center's petition to list the salamander.

The Center for Biological Diversity petitioned the Commission in 2004 to list the California tiger salamander as endangered due to the impacts of urban and agricultural development. The Santa Barbara County salamander population has been listed as endangered under the federal Endangered Species Act since 2000, as has the Sonoma County population since 2003. The central California population has been federally listed as threatened since 2004.

The California Fish and Game Commission had rejected the petition in 2004, claiming the document did not contain all the data necessary to prove the salamander population deserved protection. The Center filed suit, and the Commission was forced by court order and a state appeals-court ruling in September 2008 to accept the petition. The state Supreme Court refused the Commission's request to review the appeals court ruling. In 2009, the Commission voted 3-2 to designate the salamander a candidate for listing, beginning a one-year review of the species.

It's satisfying when hard work pays off. Here, SFBA Chapter member Dave Cook is interviewed by KCTS news correspondent Sal E. Mander (Brock Dolman). Dave is an active CTS researcher and conservation proponent. The video, produced by the Water Institute at the Occidental Arts and Ecology Center, is available online at: http://www.youtube.com/watch?v=DGJLDVqdFUM. Congrats everyone on the State listing of CTS.

SF Bay Area Chapter Officer Directory

President	Christine Gaber (cog3@pge.com)
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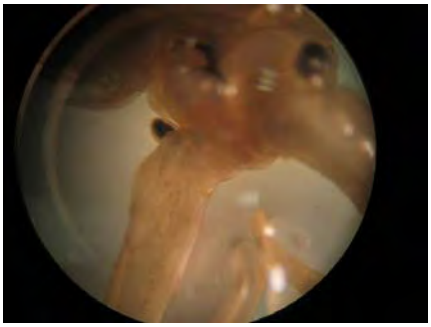
Webmaster	Luke Maculay (luke.macaulay@gmail.com)
Advisor at Large	Dana Ostfeld (dostfeld@esassoc.com)



Here's Lookin' at You, Kid! Vernal pool fairy shrimp (*Branchinecta lynchi*) mug shot from the cover photo pool. B. Pittman

Chapter Newsletter

Submit articles to the Chapter Newsletter! Let the rest of the Chapter Members know about the wildlife issues in your corner of the woods. Any submittals, stories, comments or insights are appreciated.

Deadline	Mailing By
April 15	April 30
July 15	July 31
October 15	October 31
January 15	January 31

Please submit articles electronically to:

bpittman@esassoc.com

Cover Photo

This issue's cover photo shows B. Pittman peering into a rock outcrop vernal pool in Alameda County, CA. This isolated pool sits atop a boulder complex near Dyer Road and supports an unlikely population of vernal pool fairy shrimp (*Branchinecta lynchi*).

Membership Renewal

If your membership dues are not paid for 2010, or you would like to become a member please contact Secretary/ Treasurer Bryan Olney. Regular annual dues are $10 and full time student membership is still free (get 'em while they're hot!

Chapter Website

The SFBA Chapter website is the place to visit for past Wandering Tattler newsletters and minutes from our Chapter meetings. The site is located on the National TWS server at:

http://joomla.wildlife.org/sanfrancisco/