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60th Anniversary  
1954-2014

**2014 Annual Meeting of  
The Western Section of  
The Wildlife Society**

**Grand Sierra Resort  
Reno, Nevada**

**January 28 - 31, 2014**



**PLENARY SESSION THEME:**

*Harnessing Citizen Science toward Greater Conservation*

# The Western Section of The Wildlife Society 2014 Annual Meeting

## DAY AND ROOM DESIGNATIONS Tuesday Evening & Wednesday

ROOM	TUESDAY	WEDNESDAY MORNING	WEDNESDAY AFTERNOON	WEDNESDAY EVENING
Nevada Center	EXHIBIT HALL SET-UP 3-5 p.m.	CONFERENCE REGISTRATION 7 a.m.-8 p.m.		
	CONFERENCE REGISTRATION 5-8 p.m.	EXHIBIT HALL 7 a.m.-8 p.m.		
	EXHIBIT HALL 5-8 p.m.		POSTER SET-UP 4-6 p.m.	POSTER RECEPTION WITH HOSTED COCKTAIL BAR 6:30-8 p.m.
	WELCOME RECEPTION and TACO BAR* 6-8 p.m.			
Nevada Foyer			CONCURRENT SESSION Alternative Energy 1-5:15 p.m.	
Nevada 3			CONCURRENT SESSION Raptors 1-5:15 p.m.	
Nevada 4			CONCURRENT SESSION Mustelids 1-4:55 p.m.	
Nevada 6	SOUTHERN SIERRA NEVADA FISHER WORKING GROUP 10 a.m.-4 p.m.	CALIFORNIA FISHER WORKING GROUP 8-9:30 a.m.		
Nevada 8			CONCURRENT SESSION Biogeography 1-4:55 p.m.	ANNUAL BUSINESS MEETING and MEMBER'S FORUM 5:30-6:30 p.m.
Nevada 11	CONFERENCE OFFICE LOGISTICS and STORAGE			
Nevada 12	SPEAKER PRACTICE ROOM			
Silver State Foyer	PRE-CONFERENCE BREAKS and SPONSORS			
Silver State 1		KEYNOTE PRESENTATION 10 a.m.-12 p.m.		
Silver State 2	GOLDEN EAGLE CA/NV Research Group, 8 a.m. -12 p.m.	BREAKFAST ROUNDTABLE The State of The Wildlife Society* 7:30-9:30 a.m.		
Silver State 3	SAGE GROUSE SYMPOSIUM* 8:30 a.m.-5 p.m.	BREAKFAST ROUNDTABLE Human/Wildlife Interactions* 7:30-9:30 a.m.		
Executive Boardroom	TWS WS Executive Board Mtg 9 a.m.-5 p.m.		RETIREES' MEETING 12-1 p.m.	
Mezzanine Rooms				CHAPTER MEETINGS (see page 18)

\*Events requiring separate registration and fee

# The Western Section of The Wildlife Society 2014 Annual Meeting

## DAY AND ROOM DESIGNATIONS Thursday and Friday

Room	THURSDAY MORNING	THURSDAY AFTERNOON	THURSDAY EVENING	FRIDAY MORNING	FRIDAY AFTERNOON
Nevada Center	CONFERENCE REGISTRATION 7 a.m.–5:30 p.m.  EXHIBIT HALL 7 a.m.–5:30 p.m.			CONFERENCE REGISTRATION 7 a.m.–12 p.m.  EXHIBIT HALL 7 a.m.–12 p.m.	
				CAREER FAIR 10:10 a.m.–2 p.m.	
Nevada Foyer		CONCURRENT SESSION Birds 1–5:15 p.m.		CONCURRENT SESSION Diseases/Pathology 8 a.m.–12:15 p.m.	JOB INTERVIEW PANEL 2–4 p.m.
Nevada 3		CONCURRENT SESSION Mammals 1–4:35 p.m.		CONCURRENT SESSION Reptile/Amphibian 8 a.m.–12:15 p.m.	WILDLIFE APPS 1–2 p.m.
Nevada 4		CONCURRENT SESSION Citizen Science 1–4:55 p.m.		CONCURRENT SESSION Wildlife Technologies 8 a.m.–12:15 p.m.	RESUME CRITIQUES 1–3 p.m.
Nevada 6		Resume Workshop for Undergrads 3:10–5 p.m.		Resume Workshop for M.S. / PhD 8–10:10 a.m.	WILDLIFE TRACKING * 1–5 p.m.
Nevada 8		CONCURRENT SESSION Web/GIS 1–2:45 p.m.  Urban Growth & Climate Change 3:10–4:55 p.m.		CONCURRENT SESSION Game Management 8–9:45 a.m.  Human Dimensions 10:10 a.m.–12:15 p.m.	CONSERVATION AFFAIRS COMMITTEE 1–3 p.m.
Nevada 11	CONFERENCE OFFICE LOGISTICS and STORAGE				
Nevada 12	Speaker Practice				
Silver State 1	PLENARY SESSION 8 a.m.–12 p.m.		AWARDS BANQUET*  60 <sup>th</sup> ANNIVERSARY CELEBRATION  RAFFLE 7–10 p.m.		STUDENT – PROFESSIONAL LUNCH* 12 p.m.–1 p.m.
Silver State 2			NO-HOST COCKTAIL RECEPTION 6–7 p.m.	ADVOCACY WORKSHOP 10:10 a.m.–12 p.m.	
Silver State 3					
Executive Boardroom			H.S.U. REUNION 5–7 p.m.		Planning Committee Wrap-Up 2–3 p.m.
<b>SATURDAY</b> NECROPSY WORKSHOP* (Off-site in Reno) 8:00 a.m.–5 p.m. CYBERTRACKER EVALUATION* (Off-site in Reno) 8:00 a.m.–5 p.m. ☞ Meet in Front of Nevada Room Roll-up Doors ☜					
<b>FRIDAY 4 p.m.–SUNDAY</b> WILDERNESS FIRST AID* and STUDENT ACTIVITIES* Sagehen Field Station, Truckee, CA					

# The Western Section of The Wildlife Society 2014 Annual Meeting

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Contact:

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## TABLE OF CONTENTS

<b>DAY AND ROOM DESIGNATIONS .....</b>	<b>INSIDE COVER AND 1</b>
<b>CONFERENCE SPONSORS .....</b>	<b>3</b>
<b>SCHEDULE AT A GLANCE.....</b>	<b>4</b>
<b>HOTEL MAP.....</b>	<b>6</b>
<b>GENERAL INFORMATION .....</b>	<b>8</b>
<b>EXHIBITOR LIST .....</b>	<b>12</b>
<b>MEETING SCHEDULES .....</b>	<b>13</b>
<b>THINGS TO DO IN THE BIGGEST LITTLE CITY.....</b>	<b>14</b>
<b>SPECIAL ANNOUNCEMENTS.....</b>	<b>14</b>
<b>TWS WESTERN SECTION BOARD MEMBERS .....</b>	<b>15</b>
<b>2014 ANNUAL MEETING PROGRAM COMMITTEE.....</b>	<b>16</b>
<b>CHAPTER MEETINGS.....</b>	<b>18</b>
<b>PLENARY SCHEDULE AND SPEAKER BIOGRAPHIES.....</b>	<b>19</b>
<b>CONCURRENT SESSION SCHEDULES .....</b>	<b>26</b>
<b>POSTER SESSION .....</b>	<b>48</b>
<b>FUTURE MEETING DATES.....</b>	<b>51</b>
<b>SESSION ABSTRACT ELECTRONIC ACCESS INFORMATION .....</b>	<b>52</b>

CONFERENCE SPONSORS



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FLETCHER CONSERVATION LANDS



# The Western Section of The Wildlife Society 2014 Annual Meeting

## SCHEDULE AT A GLANCE January 27 through February 2, 2014

<b>Monday</b>	7:30–9 a.m.	Pre-Conference Registration (Silver State Foyer)
	8 a.m.–5 p.m.	Golden Eagle CA/NV Work Group (Silver State 2)
<b>Tuesday</b>	7:30–9 a.m.	Pre-Conference Registration (Silver State Foyer)
	8 a.m.–12 p.m.	Golden Eagle CA/NV Work Group continues and concludes (Silver State 2)
	8 a.m.–5 p.m.	Greater Sage Grouse Symposium* (Silver State 3)
	9 a.m.–5 p.m.	TWS-WS Executive Board Meeting (Executive Boardroom, <i>members welcome</i> )
	10 a.m.–4 p.m.	Southern Sierra Nevada Fisher Working Group (Nevada 7)
	5–8 p.m.	Conference Registration, Exhibitors (Nevada Center)
	6–8 p.m.	<b>NEW!</b> Welcome Reception - with Taco Bar* (Nevada Center) (requires ticket or symbol on name badge indicating payment)
<b>Wednesday</b>	7 a.m.–8 p.m.	Conference Registration, Vendors & Exhibitors (Nevada Center)
	7:30 a.m.–9:30 a.m.	<b>NEW!</b> Breakfast Roundtables* (requires ticket or symbol on name badge indicating payment) <ul style="list-style-type: none"> <li>• The State of The Wildlife Society (Silver State 2)</li> <li>• Human / Wildlife Interactions (Silver State 3)</li> </ul>
	8–9:30 a.m.	California Fisher Working Group (Nevada 6)
	8 a.m.–4:30 p.m.	Speaker Ready Room ( <i>get key at Registration</i> ) (Nevada 12)
	10 a.m.–12 p.m.	<b>NEW!</b> Keynote Speech (Silver State 1)
	12–1 p.m.	TWS-WS Retirees' Meeting (Executive Boardroom) ( <i>Bring your own lunch</i> )
	12:10–1 p.m.	Lunch Break ( <i>on your own</i> )
	1–5:15 p.m.	Concurrent Session 1 - Alternative Energy (Nevada Foyer)
	1–5:15 p.m.	Concurrent Session 2 - Ecol. & Mgmt. of Raptors (Nevada 3)
	1–4:55 p.m.	Concurrent Session 3 - Ecol. & Mgmt. of Mustelids (Nevada 4)
	1–4:55 p.m.	Concurrent Session 4 - Biogeography & Mainland Applications (Nevada 8)
	2:45–3:10 p.m.	Break ( <i>snacks provided</i> ) (Nevada Room)
	4–6 p.m.	Poster Set-up (Nevada Center)
	5:30–6:30 p.m.	Annual Business Meeting and Member's Forum (Nevada 8)
6:30–8 p.m.	Poster Session ( <i>Hosted Bar and Cocktails</i> )	
8–9:30 p.m.	Chapter Meetings (various locations; Mezzanine Rooms, see page 18)	
<b>Thursday</b>	7 a.m.–5:30 p.m.	Conference Registration, Vendors & Exhibitors (Nevada Center)
	8 a.m.–12 p.m.	Plenary Session (Silver State 1)
	8 a.m.–4:30 p.m.	Speaker Ready Room ( <i>get key at Registration</i> ) (Nevada 12)
	12–1 p.m.	Lunch Break ( <i>on your own</i> )
	1–5:15 p.m.	Concurrent Session 5 - Ecol. & Mgmt. of Birds (Nevada Foyer)
	1–4:35 p.m.	Concurrent Session 6 - Ecol. & Mgmt. of Mammals (Nevada 3)
	1–4:55 p.m.	Concurrent Session 7 - Citizen Science (Nevada 4)
	1–2:45 p.m.	Concurrent Session 8 - Web and GIS Applications (Nevada 8)
	2:45–3:10 p.m.	Break (snacks provided) (Nevada Center)

**\*Event requires separate registration and fee**

**The hotel is offering free Wi-Fi internet access in all of our meeting rooms.**

**The network is Wildlife and the password is Wildlife2014.**

# The Western Section of The Wildlife Society 2014 Annual Meeting

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<b>Thursday - Continued</b>	3:10–5 p.m.	Résumé Workshop for Undergrads (Nevada 6)
	3:10–5:15 p.m.	Concurrent Session 9 - Urban Growth & Climate Change (Nevada 8)
	5–7 p.m.	Humboldt State Alumni Reception (Executive Boardroom)
	6–7 p.m.	No-Host Cocktail Reception (Silver State Foyer)
	7–10 p.m.	Annual Awards Banquet*, 60th Anniversary Celebration, Raffle (Silver State 1) <i>(requires ticket or symbol on name badge indicating payment)</i>

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**Conference registrants are welcome to attend our 60<sup>th</sup> Anniversary Celebration, Awards Ceremony and Raffle without a banquet ticket. Limited seating will be provided starting at 7:45 p.m. in the back of the Silver State Ballroom. The 60<sup>th</sup> Anniversary Celebration will begin at approximately 8 p.m., and the Raffle will begin at approximately 9:15 p.m.**

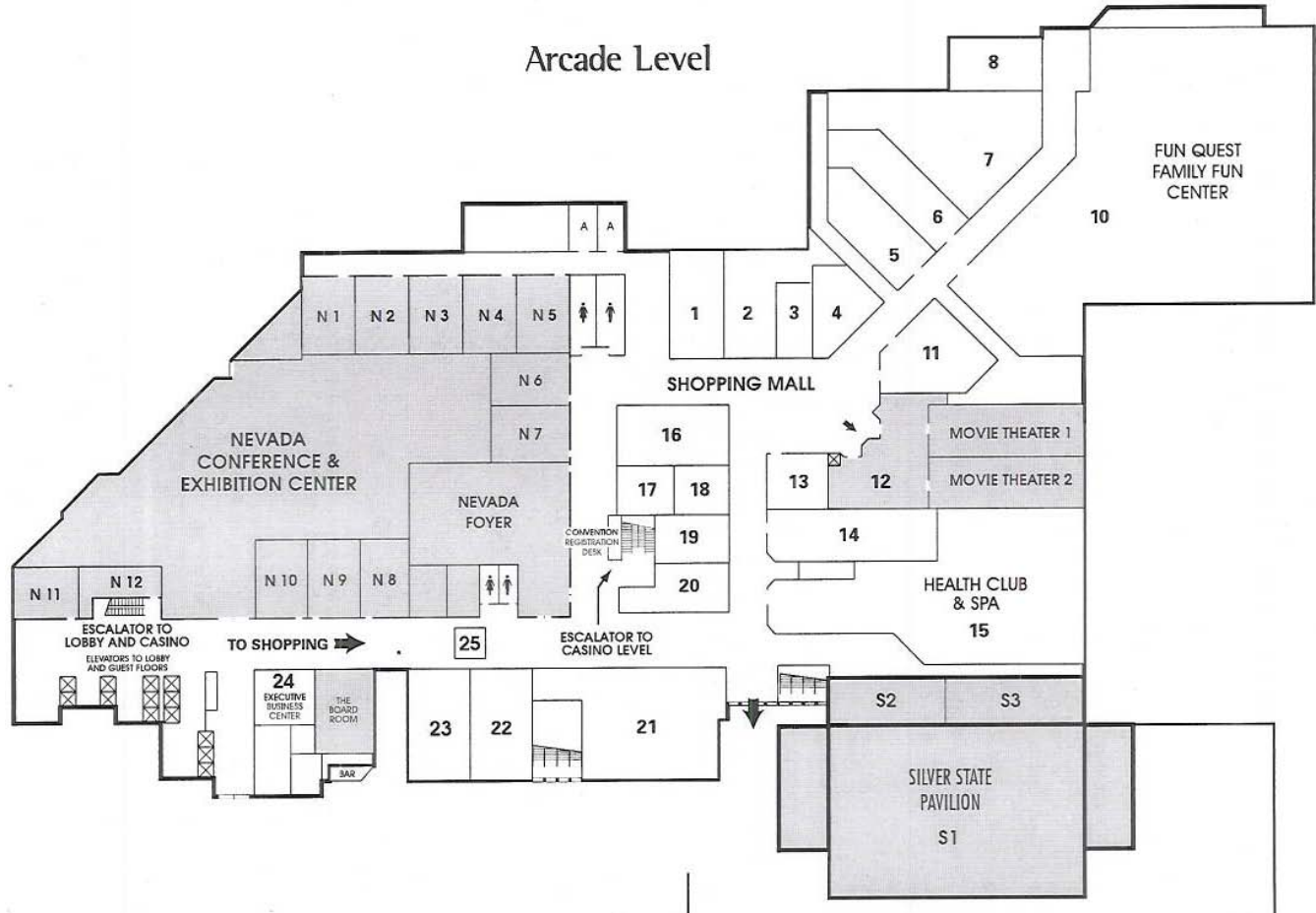
<b>Friday</b>	7 a.m.–12 p.m.	Conference Registration, Vendors & Exhibitors (Nevada Center)
	8 a.m.–12:15 p.m.	Concurrent Session 10 - Wildlife Diseases and Pathology (Nevada Foyer)
	8 a.m.–12:15 p.m.	Concurrent Session 11 - Ecol. & Mgmt. of Reptile/Amphibian (Nevada 3)
	8 a.m.–12:15 p.m.	Concurrent Session 12 - Wildlife Technologies ( <i>non-GIS</i> ) (Nevada 4)
	8–9:45 a.m.	Concurrent Session 13 - Game Management (Nevada 8)
	8–11:30 a.m.	Speaker Ready Room (get key at Registration) (Nevada 12)
	8–10:10 a.m.	Résumé Workshop for Graduate Students and PhD's (Nevada 6)
	10:10 a.m.–12:15 p.m.	Concurrent Session 14 - Human Dimensions (Nevada 8)
	10:10 a.m.–12 p.m.	Advocacy Workshop (Silver State 2)
	10:10 a.m.–2 p.m.	Career Fair (Nevada Center)
	12–1 p.m.	Student-Professional Lunch* (Silver State 1) <i>(Free to those who Pre-Registered. Requires ticket or symbol on name badge)</i>
	1–2 p.m.	<b>NEW!</b> Wildlife Apps (Nevada 3)
	1–3 p.m.	Résumé Critique with Barbara Peters <i>(requires appointment)</i> (Nevada 4)
	1–3 p.m.	Conservation Affairs Committee (Nevada 8)
	1–5 p.m.	Wildlife Tracking* (Half-Day) <i>(Requires separate registration)</i>
	2–4 p.m.	Job Interview Panel (Nevada Foyer)
	2–3 p.m.	Planning Committee, Wrap-Up Meeting (Executive Boardroom)
4–late	Special student activities* at Sagehen Field Station (off-site) <i>(Requires separate registration)</i>	
<b>Saturday</b>	8 a.m.–5 p.m.	One Day Track and Sign Certification Workshop* <i>(off-site in Reno-requires separate registration)</i>
	8 a.m.–5 p.m.	Wildlife Disease Investigation Practical Workshop* <i>(off-site in Reno-requires separate registration)</i>
	8:30 a.m.–5 p.m.	Wilderness First Aid* at Sagehen Field Station <i>(requires separate registration)</i>
	10 a.m.–10 p.m.	Special student activities* at Sagehen Field Station continue (off-site)
<b>Sunday</b>	8–10 a.m.	Special student activities* at Sagehen Field Station continue (off-site)
	8:30 a.m.–5 p.m.	Wilderness First Aid* (concludes)

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# The Western Section of The Wildlife Society 2014 Annual Meeting

## HOTEL MAP



### NOTES:



# The Western Section of The Wildlife Society 2014 Annual Meeting

## Professionals: Support Our Future Wildlife Leaders!

Dear Wildlife Professional,

Remember how it felt to be a student at your first conference? Or a new professional trying to land that first wildlife biology job? A little overwhelming and intimidating, right? One of the aims of the Wildlife Society is to support and foster the next generation of wildlife professionals. Please help us meet that goal by looking for opportunities to engage with students. Here's how (it's easy!):

- Student badges will be in a **blue badge-holder**. When you see a student, especially one who might need some conference guidance, introduce yourself and help them engage in a conversation, session or activity
- Fill out your **"Ask me about..."** button. We'll be encouraging students to ask you about it! You can change the topic every day with your re-usable badge
- Play our **Scavenger Hunt** game, included in your registration packet, which requires participants to ask questions of other students and professionals. When you complete the game, you can enter yourself in a raffle for great prizes!
- Stop by the Student Activities table and let us know if you would be interested in being a **mentor at next year's meeting**.

If you have any questions or ideas about how to help TWS-WS help students get the most out of their experiences at our Annual Meeting, please visit us at the Student Activities table, located near Registration.

Thanks, and have a great week here in Reno!

Erika Walther (Chair) and Members, Student Activities Sub-committee  
The Western Section of the Wildlife Society, 2014 Annual Meeting



Where solutions blossom...

- ▲ Environmental Planning
- ▲ Natural Resources
- ▲ Regulatory Compliance
- ▲ Climate Change

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# The Western Section of The Wildlife Society 2014 Annual Meeting

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## GENERAL INFORMATION

**Annual Business Meeting and Member's Forum.** The Annual Business Meeting and Member's Forum will be held on Wednesday, January 29 from 5:30 to 6:30 p.m. in Nevada 8-10. Officers and committee chairs of the Western Section will provide reports for membership information and discussion, and new officers and Executive Board members will be introduced. Attendance by all members is encouraged!

### **Advocacy Training for the Wildlife Professional Workshop**

Friday, 10:10 a.m.–12 p.m. Silver State 2

This is a hands-on training to provide wildlife professionals in the Western Section with the skills and resources needed to communicate science to decision makers and the public while influencing policy and management. An introduction to advocacy and effective messaging, participants will have the opportunity to understand various forms of advocacy, identify when certain forms of advocacy may or may not be appropriate, practice communication skills and messaging techniques, and review common practices to enhance relationships with decision makers. Like Rachel Carson once said – “Like the resource it seeks to protect, wildlife conservation must be dynamic, changing as conditions change, seeking always to become more effective.” Learn the skills and abilities necessary to increase your effectiveness in communicating wildlife management needs.

**Terra Rentz** is the former Deputy Director of Government Affairs with The Wildlife Society and a current Graduate Student at SUNY ESF/University of Syracuse in Syracuse, New York. Prior to working with TWS she served as the Teaming With Wildlife Program Associate for the Association of Fish & Wildlife Agencies in Washington, D.C. Terra received her B.S. and B.A. from Humboldt State University in 2008 studying both Wildlife Management & Conservation and Political Science, and became a certified Associate Wildlife Biologist in 2011. She has worked in the natural resource field since 2000 on a range of issues including environmental education, wildlife management, conservation policy and community planning and has been providing advocacy, leadership, and communication training in the conservation arena for more than ten years.

**CA Fisher Working Group.** The California Fisher Working Group has been meeting annually in conjunction with the TWS Western Section meeting since 2001. The group was created to share and discuss current research and conservation matters related to fishers in California. When pertinent, information on fishers outside of California or from other members of the genus *Martes* will be included in meeting agendas. The 2014 meeting will be held on Wednesday, 29 January, from 8 to 9:30 a.m. in “Nevada 7.”

**Career Fair and Student/Professional Lunch.** The Career Fair will be held on Friday, January 31 from 10 a.m. to 2 p.m. in the Nevada Room. This is an opportunity for students to meet prospective employers and discuss careers in the wildlife sciences. Professionals from state and federal agencies and several consulting firms will be present. The Student/Professional Lunch, served at noon (Silver State 1-2), is free to students and professionals who have indicated they will attend on their registration form, but a ticket or name badge symbol is required. All are invited to attend the Career Fair.

**Cell Phone - Informal Policy.** The Western Section of The Wildlife Society strongly encourages all meeting participants to silence their cellular phones and similar devices prior to entering meeting rooms! The informal policy of the Western Section is that, if your device makes an audible noise during any session, you will be expected to purchase a beverage for every person in your seating row at that evening's social function. Seriously...you beep, you buy!

## The Western Section of The Wildlife Society 2014 Annual Meeting

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**Concurrent Sessions.** Concurrent sessions will be held on Wednesday afternoon, Thursday afternoon and Friday morning (see Day and Room Designations for locations; inside front cover and page 1).

**Exhibits and Vendor Displays.** Exhibits will be displayed approximately Tuesday 5 to 8 p.m.; Wednesday 7 a.m. to 8 p.m.; Thursday 7:30 a.m. to 5:30 p.m.; and Friday 7 a.m. to 12 p.m. in the Nevada Room.

**Job Board.** Post and view job announcements on the job board in the Foyer area near the Registration Desk. Please do not post résumés as we cannot be responsible for the security of your personal information.

**Job Interview Panel: *I Got a Job Interview, Now What? - Getting Jobs in a Tough Job Environment.*** Join us in a panel discussion about the skills employers desire to see in prospective new hires and what those candidates can expect in the interview process. Panelists include biologists from Federal and State Agencies and from private industry. Questions will also be fielded from the audience. The panel discussion will be held on Friday, January 31, from 2 to 4 p.m. (Nevada Foyer).

**NEW! Keynote Program.** The Keynote Program will be held on Wednesday, January 29 from 10 a.m. to 12 p.m. in Silver State 1:

### ***Leadership in Wildlife Management in the 21st Century: Know when to hold 'em & Know when to fold 'em...***

**Ken Mayer** is a long time member of The Wildlife Society, former board member of the Western Section, and a Certified Wildlife Biologist. During his long career with California Department of Fish and Game (now Fish and Wildlife), where he served in a number of supervisory and executive positions, he addressed a plethora of wildlife management and conservation issues. As Director of the Nevada Department of Wildlife from 2007-2013 and member of the Governor's Cabinet, he was an advocate for science-based wildlife stewardship -- navigating many challenges that included advocacy-based policy implications for wildlife conservation and population management. Ken received his B.A. and M.S. in Natural Resource Management from Humboldt State University.

As President and CEO of K. E. Mayer & Associates, he currently serves as Lead for the USFWS/Western Association of Fish and Wildlife Agencies' effort to address the wildfire/invasive threats to Greater Sage-Grouse and how it will affect the USFWS listing decision in 2015.

Following Ken's keynote address, we'll facilitate a conversation with a few current leaders of the wildlife profession. Confirmed participants are:

John Carlson, President, California Waterfowl Association

Kevin Hunting, Chief Deputy Director, CA Department of Fish and Wildlife

Ted Koch, US Fish & Wildlife Service, Nevada State Supervisor

Raul Morales, Deputy Director, Nevada, Bureau of Land Management

Tony Wasley, Director, Nevada Department of Wildlife

Dan Yparriguirre, Deputy Director, CA Department of Fish and Wildlife

## The Western Section of The Wildlife Society 2014 Annual Meeting

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**Awards Banquet and 60<sup>th</sup> Anniversary Celebration.** A ticket or name badge symbol indicating payment is required for the banquet. Registrants of the conference can attend our anniversary celebration and raffle without purchasing a banquet ticket; seating will be provided at 7:45 p.m. The annual awards and raffle will follow.

**Local Services.** A listing of local services (banks, pharmacies, grocery stores, hospital, etc.) is available at the concierge desk.

**Messages and Announcements.** Post and view messages and announcements at the message board in the Nevada Room near the Registration Desk.

**Odor Sensitivity.** Please be courteous to those who may be sensitive to chemical smells, and refrain from wearing perfumes, colognes and strong-smelling hand lotions.

**Plenary Session.** The plenary session, titled “Harnessing Citizen Science toward Greater Conservation,” will be held on Thursday, January 30 from 8 a.m. to 12 p.m. in Silver State 1. There will be no concurrent sessions during the plenary session.

What do the Section’s 3,000+ wildlife species and 1,000 wildlife professionals have in common with the year 2014? Roughly 42 million people. Combine that with urban sprawl, 472,000 lane-miles of roadways, a ~0.75 percent population growth rate, climate change, and sea level rise, and our wildlife conservation goals seems more tenuous than ever. With only 1 wildlife professional for every 15,000 people or so, it seems a winning strategy to not only enhance relationships with like-minded citizens but engage them in data collection and applied research as we face serious issues relating to population growth, urban expansion, climate change, and other wildlife challenges. Points to be considered include increasing public participation in scientific research, creating effective study designs, establishing trust and data reliability, and using technology tools. The plenary session will present the views and experiences of representatives from academia, public agencies, non-profits and the private sector. Refer to page 19.

**Poster Session.** Conference posters will be available for viewing on Wednesday, January 29, starting at 6:30 p.m. in the Nevada Room. A hosted bar will be available. Authors will be available to answer questions about their posters during these times. Many posters will also be available for viewing in the Nevada Room throughout the week.

**Raffle and Silent Auction.** The annual raffle will be conducted during Thursday evening’s banquet, after the awards ceremony. You need not be present to win. The silent auction will open on Wednesday evening during the Welcome Reception and Poster Session and will close during the morning break (9:55 a.m.) on Friday. Items must be purchased and picked up by 1 p.m. on Friday, January 31. Raffle and auction proceeds support the Western Section’s student programs including travel grants, awards for best papers, and student-mentor activities. We encourage everyone to purchase raffle tickets, which are available at the Registration Desk or from Western Section Executive Board members and volunteers. Raffle and silent auction items will be displayed near the Registration Desk and/or in the Nevada Room. Items won in the raffle or silent auction must be picked up by 1 p.m., Friday.

**Recycled and Low Environmental Impact Program Materials.** This program has been printed on “BOISE Aspen 30” paper and “KELLY Digital” cardstock, both 30% post-consumer recycled and Forest Stewardship Council-certified paper, purchased through the company “Give Something Back.” For each case of paper used, seven meals were donated to the Sacramento Food Bank. In addition, the programs were printed using Xerox’s dry-ink technology which uses non-toxic wax instead of chemically based toner and produces 90% less waste than typical laser printing.

# The Western Section of The Wildlife Society 2014 Annual Meeting

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**Refreshment and Lunch Breaks.** Light refreshments will be provided at the early morning, mid-morning and afternoon breaks. Lunch will not be provided. For information on local restaurants and services, inquire at the Registration Desk or at the concierge desk.

**Registration Desk.** Registration materials, general information, and Western Section membership applications can be picked up at the Registration Desk.

**Résumé Workshop.** The Western Section is pleased to announce the return of our fantastic résumé workshop! Barbara Peters from the Career Center at Humboldt State University (retired) will be present to offer outstanding guidance on job searching to students and young professionals.

- Thursday from 3:10–5 p.m. (Nevada 6) **Undergraduate Students**
- Friday from 8–10:10 a.m. (Nevada 6) **MS to PhD Level Students**

**Re-usable Nametag Holders.** The Western Section is now using re-usable nametag holders (a.k.a. name badges). At the end of the conference, please drop your nametag holder off at the Registration Desk so it can be re-used next year. Thanks!

**Speaker Practice Room.** “Nevada 12” will be available throughout the meeting for speakers to practice their presentations. You may obtain a key from the Registration Desk.

**Student Presentation and Poster Contest.** Awards will be given to the best student presentations and posters. Poster awards will be announced during the banquet; oral presentation awards will be announced on our website after the meeting.

**NEW! Welcome Reception.** A welcome reception will be held on Tuesday, January 28 from 6 to 8 p.m. in the Nevada Room, concurrent with the poster session. A taco buffet will be served and a no-host bar will be available. A ticket or name badge symbol indicating payment is required for this event. Wildlife Photos submitted by TWS-WS'ers will be on display.

## **NEW! Wildlife Biology Apps**

Friday, 1–2 pm (Nevada 3)

During this one-hour workshop, we will discuss the utility and pitfalls of applications (“apps”) developed for smart phones and tablets. Some of the topics we will touch on will include applications for mapping/GPS (GPS Kit, Peakfinder), weather tracking, field tools and calculations (Theodolite), field guides (iBird, Leafsnap), and recording species observations (iNaturalist). Scott Loarie, co-director of iNaturalist will give a brief overview of the website and accompanying app: he'll describe the types of data collected and some of the applications of citizen science-sourced data. We'll also be sending out a short survey to TWS Western Section members to assess which apps you're using in the field or maybe more importantly, apps that have failed... Please keep an eye out for the survey. We look forward to seeing you at the workshop!

***When entering or exiting rooms during sessions, please be careful to open and close the doors quietly. Please do not congregate and converse in the hallway in the immediate area of a door, as your conversation may disturb ongoing sessions.***

**EXHIBITOR LIST**

**Alpen Optics**

10329 Dorset St  
Rancho Cucamonga, CA  
Vickie Gardner  
vickie@alpenoutdoor.com

**Ascent Environmental, Inc.**

455 Capital Mall, Suite 300  
Sacramento, CA  
Linda Leeman  
linda.leeman@ascentenvironmental.com  
(916) 612-2378

**California BLM**

2800 Cottage Way, W-1928  
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Sacramento, CA  
Lucy Harrington  
lharrington@westervelt.com

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## MEETING SCHEDULES

### Official Meetings

#### ***Tuesday, January 28***

9 a.m.–5 p.m. Western Section Executive Board Meeting (Executive Boardroom)

#### ***Wednesday, January 29***

12–1 p.m. TWS-WS Retirees' Meeting (Executive Boardroom)  
5:30–6:30 p.m. Annual TWS Western Section Business Meeting and Member's Forum (Nevada 8-10)  
8–9 p.m. Chapter Meetings (see page 18 for locations).

#### ***Thursday, January 30***

3:10–5 p.m. Résumé Workshop, Undergraduates (Nevada 6)

#### ***Friday, January 31***

8:30–10:30 a.m. Résumé Workshop, MS and PhD's (Nevada 6)  
10:10 a.m.–12 p.m. Advocacy Workshop (Silver State 2)  
1–3 p.m. Conservation Affairs Committee (Nevada 8-10)  
1–2 p.m. Wildlife Apps (Nevada 3)  
2–3 p.m. Conference Planning Committee and Wrap-Up (Executive Boardroom)  
2–4 p.m. Job Interview Panel (Nevada Foyer)

### Unofficial Meetings

#### ***Tuesday, January 29***

10 a.m.–4 p.m. Southern Sierra Nevada Fisher Working Group (Nevada 6)  
4–6 p.m. Fisher Conservation Strategy Technical Working Team (Nevada 6)

#### ***Wednesday, January 30***

8–9:30 a.m. California Fisher Working Group (Nevada 6)

#### ***Thursday, January 31***

5–7 p.m. Humboldt State University Alumni Association (Executive Boardroom)

## THINGS TO DO IN THE BIGGEST LITTLE CITY

### Recreation

- Truckee River Trail: The Truckee River has well-maintained paved trails for most of its route through Reno. There are many places to park and access it. A few options are downtown near Wingfield Park (also close to restaurants, etc.), Idlewild Park (1900 Idlewild Dr), or Mayberry Park (121 Woodland Dr).
- Rancho San Rafael Park: 1595 N. Sierra St – many miles of trails, a large open pasture for off-leash dogs, an arboretum, and playgrounds for kids
- Tahoe/Mt. Rose – The quickest views of Lake Tahoe would be from the Mt. Rose area. Take Hwy 395 south to the Mt. Rose Hwy (431) and follow this as it winds past the Mt. Rose ski resort and up to the Tahoe Rim. When you drive up and over the rim, you'll start to get views of Lake Tahoe. A scenic driving loop would be to take Hwy 431 to Incline Village, then drive along the north shore of the lake to Kings Beach then turn north on Hwy 267 to get back to Interstate 80. This would take about 2 hours without stops.

### Coffee and Bakery

- The Hub: 32 Cheney St. (yummy pastry selection, but mostly coffee here)
- Homage: 519 Ralston St
- Walden's Coffeehouse: 3940 Mayberry Drive

## SPECIAL ANNOUNCEMENTS

### Conservation Affairs Committee Meeting

The Conservation Affairs Committee will be meeting on Friday, 1 to 3 p.m. (Nevada 8). Members are welcome to attend, learn about the committee, and get involved. The committee will be discussing its role in the Section and brainstorming ways to better inform decision makers about wildlife!

### Carbon Offsets and Reducing our Ecological Footprint

The Western Section of the Wildlife Society is proud to partner with the Great Basin Institute to offset the carbon and ecological footprint of the Reno 2014 Annual Meeting. Over the past several years, the Western Section has collected donations from meeting attendees with the proceeds being used to fund local restoration projects that will offset the carbon footprint of the annual meeting. This year, the registration fee includes a \$5 surcharge for carbon offsets and ecological karma.

**Great Basin Institute**, headquartered in Nevada, is an interdisciplinary field studies organization that promotes environmental research, education, and conservation throughout the West. Their mission is to increase ecological literacy and public land conservation through research, educational outreach and direct service programs. Great Basin Institute has provided comprehensive environmental programs for 9,907 students in the past four years through school Field Studies and the Great Basin Naturalists Science Exploration Summer Camp. Their field studies are academically rigorous and reflect a commitment to environmental learning and experiential engagement. Over the past four years, their programs have grown in number, attendance, depth, and complexity as they have connected them to the Common Core Standards and Next Generation Science Standards.



# The Western Section of The Wildlife Society 2014 Annual Meeting

## TWS WESTERN SECTION BOARD MEMBERS

### 2013 Elected Officers

*President*

**Doug Bell**

East Bay Regional Park District  
Oakland, CA

*Past-President*

**Linda Leeman**

Ascent Environmental, Inc.  
Sacramento, CA

*President-Elect*

**Natasha Dvorak**

Environmental Science  
Associates  
Petaluma, CA

*Section Representative*

**Cynthia Perrine**

San Luis Obispo, CA

### 2013 Appointed Officers

*Treasurer*

**John McNerney**

City of Davis  
Davis, CA

*Secretary*

**Janine Payne**

Concord, CA

*Western Wildlife*

**Bridget Souza**

*Newsletter Editor*

**Debra Hawk**

Calif. Dept. of Fish and Wildlife  
Bishop, CA

### Chapter Representatives

*CA Central Coast*

**Wendy Knight**

*California North Coast*

**Lisa Ollivier**

U.S. Forest Service  
Redwood Sciences Laboratory  
Arcata, CA

*Hawaii*

**Rachel Sprague**

NOAA - Nat'l Marine Fisheries  
Service  
Honolulu, HI

*Nevada*

**Marjorie Matocq**

University of Nevada – Reno  
Reno, NV

*Sacramento-Shasta*

**Laura Patterson**

Calif. Dept. of Fish and Wildlife  
Nongame Wildlife Program  
Sacramento, CA

*San Francisco Bay Area*

**Jessica Martini Lamb**

Sonoma County Water Agency

*San Joaquin Valley*

**Linda Connolly**

Calif. Dept. of Fish and Wildlife  
Fresno, CA

*Southern California*

**Jeff Lincer**

President, Researchers  
Implementing Conservation  
Action  
San Diego, CA

*Cal Poly SLO Student Chapter*

**Adam Yaney-Keller**

*Humboldt State Student Chapter*

**Andrew Wiegardt**

*UC Davis Student Chapter*

**Cortney Rebholtz**

*UCSB Student Chapter*

**Joseluis Ocaranza**

### Committee Chairs

*Awards and Grants*

**Richard Burg**

Calif. Dept. of Fish and Wildlife  
San Diego, CA

*Conservation Affairs*

**Erin Aquino Carhart**

Calif. Dept. of Fish and Wildlife

*Membership*

**Don Yasuda**

U.S. Forest Service  
Diamond Springs, CA

*Professional Development*

**Rhys Evans**

Vandenberg Air Force Base  
Lompoc, CA

*Student Affairs*

**David Wyatt**

Biology Department  
Sacramento City College

**Mandi McElroy**

URS Corporation  
San Diego, CA

### Contract Staff

*Accountant*

**Mike Chapel**

*Program Director*

**Cynthia Perrine**

*Project Manager*

**Candace Renger**

*Webmaster*

**Eric Renger**

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## 2014 ANNUAL MEETING PROGRAM COMMITTEE

<b>Program Chair:</b>	<b>Natasha Dvorak, Environmental Science Associates, Petaluma, CA</b>
President	Douglas E. Bell
Professional Development Events	Rhys Evans
Program Manager	Cynthia Perrine
Meeting Planner	Candace Renger
60th Anniversary Banquet	Cynthia Perrine, Doug Bell, Natasha Dvorak, Candace Renger, Rhys Evans, Eveline Larrucea, Janine Payne-Schneir, Carlos Alvarado, Gary Falxa, Mike Chapel, Karen Swaim
Abstract Review Committee	Linda Leeman, Lisa Fields, Sally De Becker, Amy Fesnock-Parker
Audio Visual Captain	Don Yasuda
Audio Visual Assistant	Keeler Dann
Breakfast Roundtable Coordinators	Sally De Becker, Jeff Lincer
Career Fair Chair	Karen Swaim
Keynote Speech Coordinator	Cynthia Perrine
Local Arrangements & Info	Sarah Hegg
Onsite Registration	Janine Payne Schneir
Photo Collection Submissions	Eveline Larrucea
Poster Session	Jessica Martini Lamb, Carlos Alvarado
Printed Program Editing	Rhys Evans, John Perrine, Linda Leeman
Sagehen Activities	Sarah Hegg, Katie Moriarty, Kaitlin Bachland, Mandi McElroy, Candace Renger, Cynthia Perrine
Sponsors & Exhibitors Chair	Sarah Hegg
Student Activities Subcommittee	Erika Walthur (Chair), Cynthia Perrine, Janine Payne-Schneir, Mandi McElroy, Candace Renger, Tammy Lim, Natasha Dvorak, Sarah Hegg, Lisa Fields, Dave Wyatt, Erin Aquino Carhart, Katie Moriarty
Student Lunch Coordinator	Cynthia Perrine
Student Papers/Judging Coordinator	Janae Scruggs
Volunteer Coordination	Janae Scruggs, Patrick Tweedy
Wildlife Apps Workshop Coordination	Tammy Lim
Working Groups Coordination	Candace Renger
Raffle and Silent Auction	Lisa Ollivier, Sandra Hunt-von Arb

## Contributed Papers Session Chairs

- Energy Expansion & Conservation in Nevada / California Deserts - **Amy Fesnock-Parker**
- Ecology and Conservation of Raptors - **Bill Goggin**
- Ecology and Conservation of Mustelids - **Brad Valentine**
- Island Biogeography and Mainland Applications - **John Tull**
- Ecology and Conservation of Birds - **Kathy Simon**
- Ecology and Conservation of Mammals - **Esther Burkett**
- Applications of Citizen Science - **Allen Fish**
- Web and GIS Technologies for Wildlife Science and Conservation - **John McNerney**
- Anticipating and Responding to Urban Growth and Climate Change - **Linda Leeman**
- Wildlife Diseases and Pathology - **Peregrine Wolff and Deanna Clifford**
- Ecology & Conservation of Amphibians and Reptiles “Year of the Snake” - **Rhys Evans**
- Wildlife Technologies (non-GIS) - **Rick Perry**
- Game Management - **Dominic Bachman**
- Human Dimensions in Wildlife - **Jeff Lincer**
- Posters - **Jessica Martini-Lamb and Carlos Alvarado**

## Conference Workshops

### *Résumé Workshops*

#### **Barbara Peters**

Humboldt State University (retired)

### *Job Interview Panel: I got a job interview, now what? - Getting jobs in a tough job environment*

#### **David Wyatt**

Sacramento City College

### *Wildlife Apps*

#### **Tammy Lim**

URS Corporation

### *Advocacy Workshop*

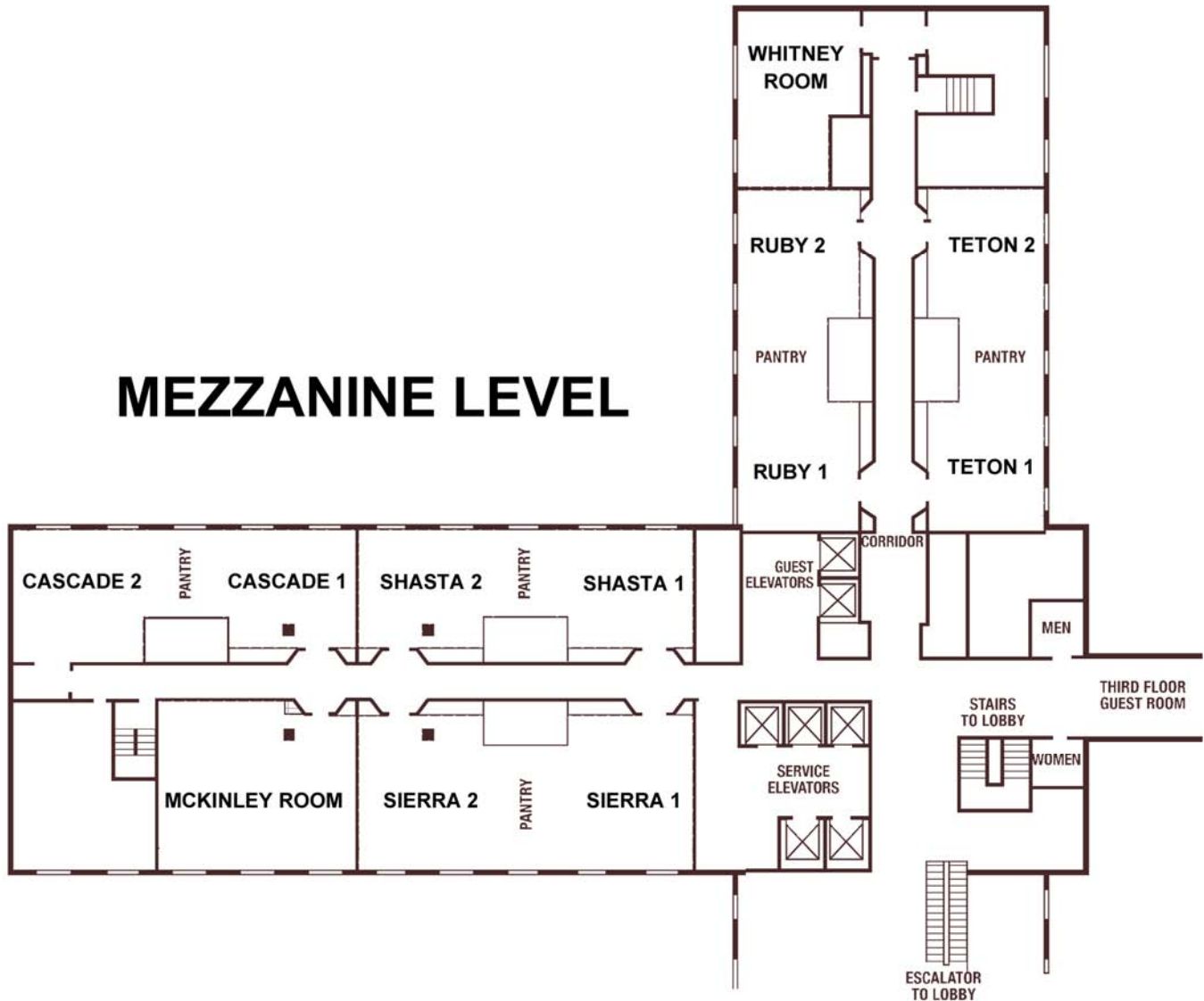
#### **Terra Rentz**

State University of New York-ESF

**CHAPTER MEETINGS**

**Wednesday, January 29, 8-9:30 p.m.**

**MEZZANINE LEVEL**



<u>Chapter</u>	<u>Room</u>
Central Coast .....	McKinley
Nevada .....	Ruby 1&2
Sac Shasta .....	Shasta 1
San Joaquin .....	Cascade 2

<u>Chapter</u>	<u>Room</u>
Hawai'i .....	Shasta 2
North Coast .....	Cascade 1
SF Bay .....	Sierra 1
Southern CA .....	Sierra 2

**PLENARY SCHEDULE AND SPEAKER BIOGRAPHIES**

***Harnessing Citizen Science Toward Greater Conservation***

**Thursday, January 30, 2014  
8 a.m.–12 p.m.  
Silver State**

<b>Chair:</b>	<b>Natasha Dvorak, TWS Western Section President-Elect</b>
8–8:05 a.m.	Welcome and Announcements
8:05–8:10 a.m.	Natasha Dvorak; Plenary Introduction
8:10–8:35 a.m.	Emilyn Sheffield; <b>Accept New Possibilities</b>
8:35–9 a.m.	Allen Fish; <b>Three Decades of Citizen Science and Raptor Monitoring at the Golden Gate: When to Set Sail, and When to Jump Ship</b>
9–9:25 a.m.	Gretchen LeBuhn; <b>Using Citizen Science to Accelerate the Pace of Pollinator Conservation</b>
9:25–9:50 a.m.	David Moskowitz; <b>Natural Sign Surveys and Observer Reliability in Citizen Science</b>
9:50–10:15 a.m.	<b>Refreshment Break</b>
10:15–10:40 a.m.	Fraser Shilling; <b>Making and using online systems for volunteer-based observations of wildlife</b>
10:40–11:05 a.m.	Tina Phillips; <b>Articulating Conservation Outcomes for Citizen Science: Emerging practices for the 21st Century</b>
11:05–11:30 a.m.	Mary Ellen Hannibal; <b>Dispatches from a Citizen Scientist</b>
11:30 a.m.–12 p.m.	Panel Discussion; Questions and Answers

### **Emilyn Sheffield- Accept New Possibilities**

*Accept the possibility that we can be successful in our efforts to preserve wildlife and quality of life. Accept the possibility that we can inspire a nation of citizen stewards. Accept the possibility that the time is now, the game has new rules, and that we have three marvelous opportunities to leverage our efforts to create habitat through advocates for citizen science.*

Emilyn Sheffield is a Professor of Recreation and Parks Management at California State University, Chico where more than 500 students volunteer their time and talents to public lands through Field School each year and nearly as many are preparing for careers in hospitality, parks, recreation and tourism. Since 1986 she has worked with partners to connect people to the natural places that enhance their lives. Her applied research projects and high-energy presentations help natural resource leaders and their partners respond more effectively to changing demographic and lifestyle trends. She is currently investigating community engagement, volunteerism, and conservation stewardship through university service learning throughout California. Dr. Sheffield also works with interdisciplinary teams on projects involving scenic byways, alternative transit, long distance trails, tourism infrastructure, and visitor services throughout California and the western United States. These projects share the common goal of increasing access to and support through public lands for branding, identity systems, strategic planning, or product development. She is active in several professional societies and has recently completed a term of service as the president of board of directors of the Association of Partners for Public Lands.



### **Allen Fish- Three Decades of Citizen Science and Raptor Monitoring at the Golden Gate: When to Set Sail, and When to Jump Ship**

*The Golden Gate Raptor Observatory was founded by the National Park Service and an NGO in 1984 to monitor the migration of raptors over the Marin Headlands, the largest such flight in California. Volunteers were brought in to get the work done, but also because the founders believed that an engaged constituency might resist efforts to close down the project due to "vagaries of the federal budget." Today the GGRO is 300 volunteers and 3 paid staff, using counting, banding, radio-tracking, and GSM satellites to track the flight. We have cooperative research programs with local universities, and have produced over 100 articles, presentations, and posters for scientific*

*audiences. Among lessons learned at GGRO has been that volunteers are not cheap labor. They are expensive. They require: (1) interviewing prior to being accepted; (2) many hours of class and field training, and retraining, and (3) clear position descriptions. They must follow methodologies, be evaluated regularly; and they can be fired. We evolved many strategies to make this program effective, especially with a volunteer-to-staff ratio of 100:1. Given the work, one must ask, why invite volunteers to do field research? At least two reasons feed directly into our scientific and conservation mission.*

Allen Fish got his degree in Zoology at UC Davis, and returned there in the 2000s to teach Raptor Biology. He has been director of the Golden Gate Raptor Observatory since 1985. In 2003, he received the Maurice Broun Award for contributions to Raptor Biology & Conservation. He lives in Berkeley with his wife Allison, two teens and a coonhound.

## **Gretchen LeBuhn- Using Citizen Science to Accelerate the Pace of Pollinator Conservation**

*Evidence has been accumulating that there are significant declines in honeybees regionally. A central concern about this decline is the possibility that the loss of pollinators will lead to a reduction in pollination service that could impact food security by decreasing fruit and seed production in wild and cultivated plants. In addition, the global stock of honeybees are globally increasing, they have not kept up with the growth of pollinator dependent agricultural production which may lead to problems for both these crops and wild plant species. While habitat loss and climate shifts have long been considered potential drivers of pollination service, recent concern has focused on the use of neonicotinoid pesticides and associated fungicides. Neonicotinoid pesticides are now the most widely used pesticides in the world. Until now, no link between declines in pollination service and neonicotinoid pesticide use has been shown. Using data collected by citizen scientists across the United States, we show that neonicotinoid pesticides decrease visitation rates by honey bees and that this decrease is not simply due to differences in land use or climate. This difference in visitation rate is especially surprising because it is detected in residential gardens not the cropland where the pesticide is applied. Our data suggests that there are significant local effects of pesticide use that threaten pollination services in areas where there is substantial neonicotinoid pesticide use. The widespread and increasing use of neonicotinoid pesticides may have significant negative landscape scale effects on pollination service.*



Dr. Gretchen LeBuhn is a professor of biology at San Francisco State University and the Director of the Great Sunflower Project, a citizen science project tracking pollinator service in back yards, gardens, and parks around the world. She studies plant and pollinator systems from the mountains of Ecuador to urban San Francisco. Since starting work in the field of citizen science, she has begun to explore the dynamics of online communities as well as the effectiveness of citizen science for learning. She is the author of “A Field Guide to the Common Bees of California” and a co-author of “Attracting Native Pollinators.”



## **David Moskowitz- Natural Sign Surveys and Observer Reliability in Citizen Science**

*Natural sign surveys are an often-used research method in citizen science efforts in North America and beyond. Modern research applications of wildlife tracking have their roots in traditional ecological knowledge from cultures around the globe. Cybertracker Conservation International works towards its mission of creating a worldwide environmental monitoring network through rigorous evaluation and certification of individuals skills in the arena of wildlife tracking and by providing software which makes data collection and management highly accessible to people with a wide range of educational backgrounds. An example, from Washington State, of a project that has benefited from the use of highly skilled volunteer wildlife trackers and the data collection methods pioneered by Cybertracker Conservation is the Citizen Wildlife Monitoring Project (CWMP). CWMP uses trained volunteers to monitor wildlife along a major interstate in a critical wildlife corridor in the Cascade Mountains. The project also uses volunteers to help detect rare*

*and sensitive carnivores throughout the state through the use of track detection, remote cameras and genetic sampling. Findings from this project have been used to help guide allocation of resources and design implementation of a major road construction project and have helped document the range*

## The Western Section of The Wildlife Society 2014 Annual Meeting

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*expansion of several state and federally listed carnivore species. Through carefully paring survey designs with varying levels citizen observer skill and mandatory training in survey protocols the project has produced years of consistently reliable results.*

David Moskowitz has been involved in citizen science and wildlife research, education and conservation efforts for the past 18 years in the Pacific Northwest. David is currently the sole proprietor of a [davidmoskowitz.net](http://davidmoskowitz.net), providing services in: wildlife consulting; wildlife tracking training and certification; and wildlife, adventure, and conservation photography. He is the author and photographer of two books, *Wildlife of the Pacific Northwest* and *Wolves in the Land of Salmon*. In 2006 he helped establish the Cascade Citizen Wildlife Monitoring Project, a citizen science effort to search for and monitor rare and sensitive wildlife in the Cascades and other Northwest wildlands using a variety of non-invasive survey methods. As a certified Track and Sign Specialist, and one of six Evaluators in North America for Cybertracker Conservation International, David provides professional level certification in wildlife tracking field skills for individuals involved in wildlife research, conservation, and education. Cybertracker Conservation's mission of creating and supporting a worldwide environmental monitoring network is carried out through providing rigorous certification to help ensure observer reliability in data collection and natural history interpretation and through providing free software to help enable individuals and organizations collect real-time data on current field conditions in their local environment in order to support evidence based conservation efforts around the world.

### **Fraser Shilling- Making and Using Online Systems for Volunteer-based Observations of Wildlife**

*Volunteer observers of environmental attributes can contribute to very large scale monitoring and investigation of patterns and processes in nature. The monitoring and investigations can form the basis of conservation planning at a scale not possible with purely academic and agency studies. In the particular case of wildlife, it may be difficult to collect observations of particular species because they are elusive, rare, or cryptic, or because of resource allocation. I describe the construction of a pair of large observation networks (US state scale) along extensive road networks, which includes formalized web-based data management and visualization and corresponding sets of volunteer observers.*

*After 4 years we can say: 1) species identification accuracy is ~95%, 2) location accuracy is to within ~40 m, 3) there are long-term and short-term volunteers, but the most active are the longest lasting, 4) most frequent observers are expert natural historians or biologists, 5) the data collected are of high-enough quality to use in conservation, including for highway mitigation, 6) the projects serve as the largest continuous wildlife monitoring system in each state, and 7) most native species can be found within a few years. I have also initiated a similar system based on remotely-triggered wildlife cameras, which holds great promise for both developed and wild areas. This systematic approach of extensive, high-resolution observation holds the promise of developing long-term monitoring of most native taxa within a state or country, useful for understanding development impact, wildlife species distributions, changes in wildlife populations and distributions with climate change, and other conservation issues.*



Fraser Shilling received his PhD from the University of Southern California in aquatic ecology in 1991. He is currently a research scientist at UC Davis, where he uses geographic information systems and modeling to assess risk and conditions at watershed, county, and bioregional scales to address planning, conservation, regulatory and other needs and issues. He has developed theory-based models and analyses of connectivity, as well as serving as the organizer of the biennial California Connectivity Forum. He directs and sometimes gets to participate in field-biology projects, primarily associated with roads and highways, and in 2009 developed the first two state-scale, online wildlife observations



systems. He co-directs the UC Davis Road Ecology Center, the only research and education center for road ecology, and has collaborated on more than two dozen projects with NGOs, local governments, and state and federal agencies over the last 15 years. During that time, he trained the first and largest set of volunteers in the state measuring water quality (in the Yuba River watershed) and for 4 years has led wildlife observation systems in California (<http://wildlifecrossing.net/california>) and Maine (<http://wildlifecrossing.net/maine>). He is currently helping to start up a wildlife camera network in the San Francisco Bay area, which he supports by developing the first-of-its-kind online, wildlife camera picture database system: <http://wildlifeobserver.net>.



### **Tina Phillips- Articulating Conservation Outcomes for Citizen Science: Emerging practices for the 21st Century**

*The field of conservation biology has tremendous potential to advance the science and practice of conserving the Earth's biological diversity. As funding for environmental organizations continues to decline, citizen science, or public participation in scientific research (PPSR) is increasingly being used as collaborative method between scientists and the public to advance our understanding of natural systems (Dickinson and Bonney 2012). Citizen science exists in many forms, from local, community-driven efforts, to large-scale, institutional projects that span the globe. Few projects, however have evaluated outcomes beyond program output and individual learning (Jordan et al. 2012). Here I report on emerging efforts, exemplar cases, and promising practices for documenting conservation outcomes across citizen science, which in addition to site and species management, can include education, research, policy, and community outcomes. I will also share results from a focus group involving leaders in conservation, citizen science, and evaluation, resulting in the articulation of diverse pathways that lead to conservation outcomes.*

For the past 15 years, Tina Phillips has been a leader in the field of citizen science, where she has been able to combine her passions for science, education, and conservation. She has extensive experience in developing, managing, and evaluating citizen science projects such as NestWatch, where she used citizen-science collected data to study the breeding biology of birds across North America. Currently an Extension Associate and the Evaluation Program Manager at the Cornell Lab of Ornithology, she is leading a large-scale NSF-funded research project to examine the relationship between engagement in citizen science and outcomes related to knowledge, attitudes, skills, and behavior. She is also leading an effort to address challenges and opportunities for realizing the conservation and social-ecological implications of citizen science programming. Tina has written several articles and chapters on citizen science and was one of the authors of a landmark CAISE report: *Public Participation in Scientific Research: Defining the Field and Assessing its Potential for Informal Science Education*. Before coming to the Cornell Lab of Ornithology she held several research positions studying animal behavior in fish, birds, and primates. Following her undergraduate studies at the State University of New York at Stony Brook, she spent several years in Colorado working for the U.S. Forest Service documenting presence or absence of endangered, threatened, and sensitive species. Tina currently holds a Master's in Education from Cornell University and is currently pursuing a PhD in Science Education at Cornell. When not working, she enjoys bird watching, hiking, gardening, skiing, and spending time with her husband and two children.

### **Mary Ellen Hannibal- Dispatches from a Citizen Scientist**

*In the words of Thomas Lovejoy, Mary Ellen Hannibal's most recent book, *The Spine of the Continent*, is "the biography of a big idea" -- namely, conservation biology. While researching the genesis of the science and how it is being applied today, Hannibal cast a searching look at the myriad attempts by academics, activists, and regular people to stem the current onslaught against nature, characterized in one succinct phrase as "the sixth mass extinction event." What practical, effective approach could possibly scale to make the difference we so desperately need to make? The answer, citizen science, is the subject of her current book, which will be published in Spring 2015. Award-winning journalist Hannibal will talk about successful citizen science efforts along the Rockies and here in California, with frank appraisals of its current short-comings and difficulties, and what we need to do to surmount them.*



Mary Ellen Hannibal is most recently the author of *The Spine of the Continent: The Race to Save America's Last, Best Wilderness*, which chronicles the birth of conservation biology, and how we know what nature needs to persist. Hannibal is a winner of both the National Association of Science Writers Science and Society Award and Stanford's Knight-Risser Prize in Western Environmental Journalism. She is currently writing a book about citizen science.

**NOTES:**

**CONCURRENT SESSION SCHEDULES**

**Contributed Papers Session # 1  
Energy Expansion and Conservation in Nevada and California Deserts  
Wednesday, January 29, 2014; 1–5:15 p.m.**

**Nevada Foyer**

**Chair: Amy Fesnock-Parker**

- 1–1:05 p.m. Introduction and Announcements
- 1–1:25 p.m. **Bat Monitoring at a Large Scale Solar Photovoltaic Energy Facility;**  
Dave Johnston, Meredith K. Jantzen, Gabriel A. Reyes and Kim M. Briones
- 1:25–1:45 p.m. **Year-round Home Range of Mojave Golden Eagles: Interpreting the Scale of Threat from Renewable Energy Development;** Melissa Braham, Adam Duerr, Tricia Miller, Michael Lanzone, David Brandes and Todd Katzner
- 1:45–2:05 p.m. **Protecting the San Joaquin Kit Fox on the California Valley Solar Ranch;**  
Robyn Powers, Monica Hemenez, Howard O. Clark, Jr., Robert K. Burton and Julie L. Klingmann
- 2:05–2:25 p.m. **Process- and Scale-based Determinants of Survival for Translocated Mojave Desert Tortoises in the Ivanpah Valley, California: Approaches and Objectives;** Brett Dickson, Ericka E. Hegeman, Luke J. Zachmann, Thomas G. Jackson, Jr. and Matthew L. Farnsworth
- 2:25–2:45 p.m. **Differential Space Use Patterns by Translocated, Control, and Resident Mojave Desert Tortoise (*Gopherus agassizii*) in the Ivanpah Valley, CA;**  
Matthew Farnsworth, Ericka Hegeman, Luke Zachmann, Thomas G. Jackson and Brett G. Dickson
- 2:45–3:10 p.m. BREAK
- 3:10–3:15 p.m. Announcements
- 3:15–3:35 p.m. **Origins of Eagles Killed at the Altamont Pass Wind Resource Area;**  
Todd Katzner, David Nelson, Melissa Braham, Jackie Doyle, Peter Bloom, Tricia Miller, Adam Duerr, Andrew Dewoody

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 3:35–3:55 p.m.      **Historic and Ongoing Processes Contributing to Genetic Diversity and Divergence in the Mohave Ground Squirrel (*Xerospermophilus mohavensis*);** Marjorie Matocq, Thomas E. Dilts, Peter J. Weisberg, Philip Leitner, Kayce C. Bell, Richard D. Inman, Kenneth E. Nussear and Todd C. Esque
- 3:55–4:15 p.m.      **Fuzzy Logic Modeling of Golden Eagle Flight Behavior for Siting Wind Turbines to Minimize Collision Hazard;** Shawn Smallwood and Lee Neher
- 4:15–4:35 p.m.      **Landscape Connectivity of the Mohave Ground Squirrel: A Multi-scale Framework for Conservation Prioritization;** Thomas Dilts, Peter J. Weisberg, Phil Leitner, Marjorie D. Matocq, Richard D. Inman, Kenneth E. Nussear and Todd C. Esque
- 4:35–4:55 p.m.      **Conservation Priority Setting in the California Desert;** Stephanie Dashiell and Stephanie J Weigel
- 4:55–5:15 p.m.      **Desert Renewable Energy Conservation Plan Update;** Vicki Campbell and Amy L. Fesnock
- 5:15 p.m.              Session Concludes

### **NOTES:**

#### **Professional Development**

The number of contact hours for each workshop and contributed paper session is equal to the number of actual hours spent in a workshop or session and does not include time allotted for breaks or lunch. Generally, attendance at a meeting such as this is not creditable for an initial application for Certified Wildlife Biologist or Associate Wildlife Biologist (but this year's pre-and post-conference events are!); however, conference hours may be credited "one for one" toward CWB Recertification. For example, if you attend four 2.5 hour technical sessions (sorry, social events don't count!) you may claim 10 hours toward a Professional Development Certificate (in category 1) or toward Certified Wildlife Biologist renewal (also category 1). Speaking in or chairing a session is usually credited at 1 hour = 2 hours. Additional information on the TWS Professional Development Certificate and Certified /Associate Wildlife Biologist programs is available from the TWS-Western Section Professional Development Committee or on the national TWS website: [www.wildlife.org](http://www.wildlife.org)

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 2 Ecology and Conservation of Raptors Wednesday, January 29, 2014; 1–5:15 p.m.

### Nevada 3

**Chair:** Bill Goggin

- 1–1:05 p.m. Introduction and Announcements
- 1:05–1:25 p.m. **Assessing Bioacoustic Techniques for Inventory and Monitoring of Forest Owls in the central Sierra Nevada, California;** Ryan Byrnes, Joseph. M. Szewczak and John J. Keane
- 1:25–1:45 p.m. **Range Extension and Habitat Use of Great Gray Owl in Northern California;** Joe Croteau and Andrew Yarusso
- 1:45–2:05 p.m. **Conservation and Nesting Habitat Assessment of the Great Gray Owl in California;** Joanna Wu, Helen Loffland, Rodney Siegel, Sarah Stock, Kevin Roberts, John Keane, Joe Medley and Chris Stermer
- 2:05–2:25 p.m. **The Effects of Fire Severity on California Spotted Owl Habitat Use Patterns;** Stephanie Eyes, Susan L. Roberts and Matthew D. Johnson **Student Paper**
- 2:25–2:45 p.m. **The Feasibility and Effectiveness of Lethal Removal of Barred Owls from Areas within the Range of the Northern Spotted Owl;** Lowell Diller, Keith A. Hamm, Desiree Early, David W. Lamphear and John P. Dumbacher
- 2:45–3:10 p.m. BREAK
- 3:10–3:15 p.m. Announcements
- 3:15–3:35 p.m. **Site Specific and Demographic Response of Northern Spotted Owl (*Strix occidentalis caurina*) to Experimental Barred Owl (*Strix varia*) Removal;** Desiree Early, Lowell V. Diller, Keith A. Hamm, David W. Lamphear and Trent L. McDonald
- 3:35–3:55 p.m. **Spotted Owl Home Range and Foraging Patterns Following Fuels Treatments in the Northern Sierra Nevada, California;** Claire Gallagher, John J. Keane, Paula A. Shaklee and Deborah Elliot-Fisk
- 3:55–4:15 p.m. **Initial Responses of Raptors and Other Birds to Development of a Utility-scale Photovoltaic Solar Facility in California;** Jeff Smith, Jeff L. Seay, Jeff A. Zirpoli, Scott B. Terrill and Brian B. Boroski

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 4:15–4:35 p.m.      **Vagrant Western Red-shouldered Hawks: Origins, Natal Dispersal Patterns, and Survival;** Peter Bloom, J. Michael Scott, Joseph M. Papp, Scott E. Thomas and Jeff W. Kidd
- 4:55–5:15 p.m.      **Natal Dispersal of Red-tailed and Red-shouldered Hawks Banded in Southwestern California: A 40 Year Study;** Peter Bloom, Michael D. McCrary, J. Michael Scott, Joseph M. Papp, Jeff W. Kidd, Scott E. Thomas, Edmund H. Henckel, Judith L. Henckel and Marjorie J. Gibson
- 5:15 p.m.              Session Concludes

### **NOTES:**

**Contributed Papers Session # 3  
Ecology and Conservation of Mustelids  
Wednesday, January 29, 2014; 1–4:55 p.m.**

**Nevada 4**

**Chair: Brad Valentine**

- 1–1:05 p.m. Introduction and Announcements
- 1:05–1:25 p.m. **Season and Sex-Specific Effects of Ski Resorts on Pacific Martens in the Lake Tahoe Region;** Keith Slauson and William J. Zielinski
- 1:25–1:45 p.m. **Impacts of Illegal Marijuana Grows on Fisher Research in the Sierra Nevada;** Craig Thompson, Mourad Gabriel, Kathryn Purcell, J. Mark Higley, Greta Wengert, Richard Sweitzer, Reginald Barrett, Robert Poppenga, Leslie Woods and Shane Krogen
- 1:45–2:05 p.m. **It's Just a Plant: Fishers, Marijuana and the Broader Ecological Implications;** Mark Higley, Mourad W. Gabriel, Greta M. Wengert, Leslie W. Woods, Robert Poppenga, Craig Thompson and Shane Krogen
- 2:05–2:25 p.m. **Mortal Risk of Roads on Survival of a Rare Species, A Case-study of Fishers (*Pekania pennanti*) in the Southern Sierra Nevada;** Rick Sweitzer and Carrie J. O'Brien
- 2:25–2:45 p.m. **Survival, Causes of Mortality, and an Evaluation of the Current Status of the Fisher Population in the Sierra National Forest, California;** Rick Sweitzer, Craig M. Thompson, Kathryn L. Purcell, Greta M. Wengert, Mourad W. Gabriel, Rebecca E. Green, Leslie W. Woods and Reginald H. Barrett
- 2:45–3:10 p.m. BREAK
- 3:10–3:15 p.m. Announcements
- 3:15–3:35 p.m. **Reproductive Parameters Associated with Fisher (*Pekania pennanti*) in the Southern Sierra Nevada;** Rebecca Green, Kathryn L. Purcell, Craig M. Thompson, Douglas A. Kelt and Heiko U. Wittmer **Student Paper**
- 3:35–3:55 p.m. **The Effect of Sex-biased Dispersal and Landscape Heterogeneity on Fisher Gene Flow;** Jody Tucker, Michael K. Schwartz and Fred W. Allendorf



## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 3:55–4:15 p.m.      **An Assessment of Fisher (*Pekania pennanti*) Tolerance to Forest Management Intensity on the Landscape;** William Zielinski, Craig M. Thompson, Kathryn L. Purcell and James D. Garner
- 4:15–4:35 p.m.      **Monitoring Pacific Fisher (*Pekania pennant pacifica*) and Other Mammals at the Regional Scale Using Camera Traps and Occupancy Modeling;** Brett Furnas, R. H. Landers, H.E. Barrett and R. L. Callas
- 4:35 p.m.              Session Concludes

### **NOTES:**

**Contributed Papers Session # 4  
Island Biogeography and Mainland Applications  
Wednesday, January 29, 2014; 1–5:15 p.m.**

**Nevada 8**

**Chair: John Tull**

- 1–1:05 p.m. Introduction and Announcements
- 1:05–1:25 p.m. **Biogeography's Effects on Montane Specialists can be Swamped by Climate: patterns of occupancy and Abundance in American Pikas;** Erik Beever and John Long
- 1:25–1:45 p.m. **Management Histories and Strategies Affect Status of Agassiz's Desert Tortoise Populations;** Kristin H. Berry, Lisa Lyren, Julie L. Yee and Tracy Y. Bailey
- 1:45–2:05 p.m. **Demography and Ecology of Endangered San Joaquin Kit Foxes in Satellite Population Areas;** Brian Cypher, Tory Westall, Christine Van Horn Job, Craig Fiehler and Erica Kelly
- 2:05–2:25 p.m. **Float Like a Butterfly: Monarch Movement Between Coastal California Overwintering Sites;** Jessica Griffiths and Francis X. Villablanca **Student Paper**
- 2:25–2:45 p.m. **Islands of Water: Thoughts on Isolation and Reconnection in Aquatic Systems;** Amy Haak and Jack Williams
- 2:45–3:10 p.m. BREAK
- 3:10–3:15 p.m. Announcements
- 3:15–3:35 p.m. **Evolution on a Desert Island: Body Size Divergence Between the Reptiles of Nevada's Anaho Island and the Mainland Around Pyramid Lake;** Jade Keehn, Nathan C. Nieto, C. Richard Tracy, Chris M. Gienger and Chris R. Feldman **Student Paper**
- 3:35–3:55 p.m. **Phylogeographic Inference of Insular Mule Deer Divergence in the Desert Southwest Region of Mexico;** Ona Alminas, James R. Heffelfinger and Emily K. Latch **Student Paper**
- 3:55–4:15 p.m. **Translocated to the Fringe: Genetic and Niche Variation in Bighorn Sheep of the Great Basin and Northern Mojave Deserts;** Jason Malaney, Chris R. Feldman, Peregrine Wolff and Marjorie D. Matocq

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 4:15–4:35 p.m.      **Conversion of Hawai'i's Native Terrestrial Ecosystems to Novel Grazing Systems: How Island Ecosystems Unravel;** Steven Hess and Christina R. Leopold
- 4:35–4:55 p.m.      **Twenty Years of Science and Implementation Provide the Foundation for a Second Generation Habitat Conservation Plan;** Keith Hamm, Lowell V. Diller, Desiree A. Early and David W. Lamphear
- 4:55 p.m.              Session Concludes

### **NOTES:**

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 5 Ecology and Conservation of Birds Thursday, January 30, 2014; 1–5:15 p.m.

### Nevada Foyer

**Chair:** Kathy Simon

- 1-1:05 p.m. Introduction and Announcements
- 1:05-1:25 p.m. **Nest Site Selection and Clutch Predation of the Western Snowy Plover (*Charadrius nivosus nivosus*) at Vandenberg Air Force Base;** Regina Ball, Jamie K. Miller, Lynne A. Hargett and Dan P. Robinette
- 1:25-1:45 p.m. **Evaluating Taste Aversion as a Management Tool to Reduce Nest Predation of Beach-nesting Birds;** Matthew Brinkman, Mark Colwell and David Garcelon **Student Paper**
- 1:45-2:05 p.m. **Water Levels and Nesting Aechmophorus Grebes on Four Lakes in Northeastern California;** David Arsenault and David Hamilton
- 2:05-2:25 p.m. **Does Reproductive Effort Influence Future Fecundity and Timing of Nesting in Black Brant?** Alan Leach and James S. Sedinger **Student Paper**
- 2:25-2:45 p.m. **Edge Effects on Waterfowl Nest Survival: An Analysis at Three Spatial Scales;** Amelia Raquel, Kevin Ringelman, John Eadie and Joshua Ackerman **Student Paper**
- 2:45-3:10 p.m. BREAK
- 3:10-3:15 p.m. Announcements
- 3:15-3:35 p.m. **Under Cover: Niche Overlap in Secretive Rails;** Maybellene Gamboa, Laurie Hall, Clinton Cleveland, Wei-chen Hsu, Jerry Tecklin and Steve Beissinger **Student Paper**
- 3:35-3:55 p.m. **Nest Box Occupation as a Measure of Heterogeneity in Wood Ducks;** Benjamin Sedinger, Chris A Nicolai and Kelley M. Stewart **Student Paper**
- 3:55-4:15 p.m. **Greater Sage-grouse Nesting Success on Three Sites with Different Levels of Grazing by Feral Horses and Livestock;** Levi Jaster and James S. Sedinger **Student Paper**

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 4:15-4:35 p.m.      **Accounting for Multiple Sources of Heterogeneity in Modeling the Long-term Decline of a Lesser Prairie-chicken Population;** Giancarlo Sadoti, Kristine Johnson, Thomas Albright, Mitchell East and Rayo McCollough **Student Paper**
- 4:35-4:55 p.m.      **Sexual Selection in Dickcissels Varies with Time Across Managed Habitats;** Bridget Sousa
- 4:55-5:15 p.m.      **Drought-caused Delay in Nesting of Sonoran Desert Birds and its Facilitation of Parasite and Predator-mediated Variation in Reproductive Success;** Chris McCreedy, Charles Van Riper III and Lindsay Smythe **Student Paper**
- 5:15 p.m.              Session Concludes

### **NOTES:**

***Annual Awards Banquet  
AND 60<sup>th</sup> Anniversary Celebration!  
Tonight, 7–10 p.m., in Silver State 1  
Cocktails starting at 6 p.m. in Silver State Foyer***

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 6 Ecology and Conservation of Mammals Thursday, January 30, 2014; 1–4:35 p.m.

### Nevada 3

**Chair:** Esther Burkett

- 1:00–1:05 p.m. Introduction and Announcements
- 1:05–1:25 p.m. **Genetic Mating System, Internal Relatedness, and Territory Inheritance in the Sacramento Valley Red Fox;** Karen Converse, Marcelle D. Moore, Mark J. Statham, Heiko U. Wittmer and Benjamin N. Sacks
- 1:25–1:45 p.m. **Three Years of Non-invasive Research on the Sonora Pass Sierra Nevada Red Fox Population;** Cate Quinn, Chris Stermer, Preston Alden, David Wolfson, Kristi Fien, Mark Statham, Adam Rich, Rachel Mazur, Esther Burkett and Ben Sacks **Student Paper**
- 1:45–2:05 p.m. **When is a Barrier a Barrier? Incentive, Season, and Forest Structure Influence Movement Thresholds;** Katie Moriarty, Clinton W. Epps, Matthew G. Betts and William J. Zielinski **Student Paper**
- 2:05–2:25 p.m. **Examining Mesocarnivore Distribution on a Managed Landscape in Coastal Northern California;** Carol Gress, Keith A. Hamm, Desiree A. Early, David W. Lamphear and Lowell V. Diller
- 2:25–2:45 p.m. **The Impacts of Introduced Trout on Bat Activity at Lakes in the Sierra Nevada Mountains, California;** Elizabeth Gruenstein, David S. Johnston and Shannon Bros-Seemann **Student Paper**
- 2:45–3:10 p.m. BREAK
- 3:10–3:15 p.m. Announcements
- 3:15–3:35 p.m. **Efficacy of Bat Gates for Maintaining Subterranean Roosting Habitat for Use by Bats;** Rick Sherwin and Jason Williams
- 3:35–3:55 p.m. **Romance without Responsibilities: The Use of the Immunocontraceptive Vaccine Porcine Zona Pellucida to Manage Free-ranging Bison on Catalina Island, CA;** Calvin Duncan, Julie L. King, Jay F. Kirkpatrick and Paul Stapp **Student Paper**
- 3:55–4:15 p.m. **Consequences of Motherhood: Impact on Cortisol and Immune Function;** Brianne Boan, Kelley Stewart, Thomas Lohuis and Cynthia Downs **Student Paper**
- 4:15–4:35 p.m. Discussion, Questions and Answers

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 7 Applications of Citizen Science Thursday, January 30, 2014; 1–4:55 p.m.

### Nevada 4

**Chair:** Allen Fish

- 1–1:05 p.m. Introduction and Announcements
- 1:05–1:25 p.m. **Utilizing Citizen Scientists in the Monitoring of a 270,000 acre Privately Owned Cattle Ranch;** Phoebe Prather
- 1:25–1:45 p.m. **Citizen Scientists – Answering the Call of the Wild;** David Riensche
- 1:45–2:05 p.m. **Trump Card: Truckee Meadows Project on Cardueline Avian Resource Distribution;** Jessi Brown, Chris W. Briggs and Michael W. Collopy
- 2:05–2:25 p.m. **The Fallon Wood Duck Project: Addressing Anthropomorphic Take with Science and Outreach;** Chris Nicolai
- 2:25–2:45 p.m. **Using Citizen Science to Monitor Seabird Population Size, Roost Utilization, and Rates of Human-Caused Disturbance in Central California;** Julie Howar, Jamie Miller and Dan P. Robinette
- 2:45–3:10 p.m. BREAK
- 3:10–3:15 p.m. Announcements
- 3:15–3:35 p.m. **Linear Trends and Accipiter Misidentification Rates in Raptor Migration Counts – A Citizen Science Approach;** Allen Fish, Joshua M. Hull, John J. Keane, Sylvia R. Mori, Chris W. Briggs and Buzz C. Hull
- 3:35–3:55 p.m. **Using Citizen Science Datasets to Assess Predictions of Population Viability Analysis of Peregrine Falcons in California;** J. Timothy Wootton
- 3:55–4:15 p.m. **Snake Conservation and Citizen Scientists;** Jason Jones
- 4:15–4:35 p.m. **Joys and Challenges of Deer Collaring at Feather River Community College;** Darla DeRuiter
- 4:35–4:55 p.m. Questions and Answers, Discussion

### Do you like our conference logo?

Teen-aged graphic artist Malcolm Thomas designed this logo in his Graphic Design course at Casa Grande High School, using Adobe Illustrator.  
Contact Malcolm at [95oreosgone@gmail.com](mailto:95oreosgone@gmail.com) for additional design opportunities.

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 8 Web and GIS Technologies for Wildlife Science and Conservation Thursday, January 30, 2014; 1–2:45 p.m.

### Nevada 8

**Chair:** John Mc Nerney

- 1–1:05 p.m. Introduction and Announcements
- 1:05–1:25 p.m. **The Web as a Tool for Participatory Adaptive Management in California Forests;** Maggi Kelly and Shufei Lei
- 1:25–1:45 p.m. **Spring-Summer, Northern Migration of Red-tailed Hawks Fledged from Southern Latitudes in the United States;** Peter Bloom, Michael D. Mccrary, J. Michael Scott, Joseph M. Papp, Karyn J. Sernka, Scott E. Thomas and Jeff W. Kidd
- 1:45–2:05 p.m. **Using GSM Transmitters to Track California Condor Movement Patterns in Central California;** Joe Burnett and Mike Stake
- 2:05–2:25 p.m. **Migration Patterns of Flammulated Owls (*Otus flammeolus*) from Four Breeding Locations Using Light-Level Geolocators;** Shannon Rich, David Johnson and Colleen Hatfield **Student Paper**
- 2:25–2:45 p.m. **Modeling Native Bumblebee Habitat in North Dakota;** Russ Bryant and Ned H. Euliss, Jr. **Student Paper**
- 2:45–3:10 p.m. BREAK

### Mark your calendars!

TWS Central Coast Chapter's Spring Symposium: Friday, February 28, 2014.  
The target audience: biologists/regulator/researchers from Monterey, San Luis Obispo, and Santa Barbara Counties. This one day event will be held in San Luis Obispo with convenient beginning and ending times to reduce overnight travel.

A change from recent years: the entire day will be focused to the wildlife professional with talks covering new information on species, new techniques, and new lessons learned from projects. Well . . . these *will be* the presentation topics if you step forward and share what you are learning from your project or research experience. Several speaker positions remain available.

For more info, contact:

Wayne Vogler  
President, TWS Central Coast Chapter  
[wayne.vogler@gmail.com](mailto:wayne.vogler@gmail.com)



**Contributed Papers Session # 9  
Anticipating and Responding to Urban Growth and Climate Change  
Thursday, January 30, 2014; 3:10–4:55 p.m.**

**Nevada 8**

- Chair:** Linda Leeman
- 3:10–3:15 p.m. Introduction and Announcements
- 3:15–3:35 p.m. **Local, Regional, and State Climate Preparedness Planning - Resource Implications and Opportunities;** Curtis Alling
- 3:35–3:55 p.m. **Unity-Integration-Action: The California Department of Fish and Wildlife Approach to Addressing the Climate Change Challenge;** Whitney Albright
- 3:55–4:15 p.m. **The California Partners in Flight Grassland Bird Conservation Plan: A Conservation Decision Support Tool;** Ryan Digaudio, Michele Hammond, Ed Pandolfino, Felix Ratcliff and Geoffrey Geupel
- 4:15–4:35 p.m. **Assessing Connectivity in San Diego’s Multiple Species Conservation Plan for the Present and Future;** Megan Jennings, Rebecca L. Lewison, Lisa M. Lyren and Erin E. Boydston
- 4:35–4:55 p.m. **Preliminary Results from the Range-wide Population Genetics Study of the Endangered Salt Marsh Harvest Mouse (*Reithrodontomys raviventris*);** Mark Statham, Laureen Barthman-Thompson, Sarah Estrella, Susan Fresquez, Luis Hernandez, Sini Reponen, Rachel Tertes and Ben Sacks
- 4:55 p.m. Session Concludes

TWS Western Section is pleased to once again provide our members and guests with “Fair Trade” certified coffee...

This year, you’ve been enjoying

*Starbucks Fair Trade Italian Dark Roast*

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 10 Wildlife Diseases and Pathology Friday, January 31, 2014, 8 a.m.–12:15 p.m.

### Nevada Foyer

- Chairs:** Deana Clifford and Peregrine Wolff
- 8–8:05 a.m. Introduction and Announcements
- 8:05–8:25 a.m. **Ecological Drivers and Population Impacts of Avian Trichomonosis Mortality Events in Pacific Coast Band-tailed Pigeons (*Patagioenas fasciata monilis*);** Krysta Rogers, Yvette A. Girard, Walter D. Koenig and Christine K. Johnson
- 8:25–8:45 a.m. **Avian Trichomonosis in Great Gray Owls and California Spotted Owls;** Krysta Rogers, Yvette A. Girard, Chris Stermer, Leslie Woods, Brad Barr and Christine K. Johnson
- 8:45–9:05 a.m. ***Chlamydia psittaci* in *Buteo spp.* in a Northern California Rehabilitation Facility: 2000-2012;** Michelle Hawkins
- 9:05–9:25 a.m. **Prevalence and Diversity of Avian Hæmosporidia in a California Songbird Community;** Erika Walther, Ravinder N.M. Sehgal and Anthony Cornel **Student Paper**
- 9:25–9:45 a.m. **Trends in Wildlife-Pesticide Investigations in California;** Stella McMillin, Robert C. Hosea and Brian J. Finlayson
- 9:45–10:10 a.m. BREAK
- 10:10–10:15 a.m. Announcements
- 10:15–10:35 a.m. **Improving Nongame Wildlife Health through Collaborations in Surveillance and Research;** Deana Clifford, Jaime Rudd, Leslie Woods, Janet Foley, Mourad W. Gabriel and Steve Torres
- 10:35–10:55 a.m. **Ear Mite Removal in the Santa Catalina Island Fox (*Urocyon littoralis catalinae*): Controlling Risk Factors for Cancer Development;** Megan Moriarty, T. Winston Vickers, Deana L. Clifford, David K. Garcelon, Patricia M. Gaffney, Kenneth W. Lee, Julie L. King, Calvin L. Duncan and Walter M. Boyce **Student Paper**
- 10:55–11:15 a.m. **Application of Noninvasive Techniques for Assessment of Mange in Carnivore Populations;** Nicole Stephenson, Deana L. Clifford, Jaime Rudd, Brian L. Cypher, Tory Westall and Janet Foley
- 11:15–11:35 a.m. **Bovine Virus Diarrhea Virus in Free-Ranging Ungulates in Nevada;** Peregrine Wolff

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 11:35–11:55 a.m.      **Geographical Distribution and Risk Factors for Hair Loss Syndrome in Mule Deer (*Odocoileus hemionus*) in California;** Annette Roug, Pamela Swift, Greg Gerstenberg, Birgit Puschner, Christine Kreuder Johnson, Steve Torres and Leslie Woods
- 11:55 a.m.–12:15 p.m.      **An Update on Adenovirus Hemorrhagic Disease in California Deer;** Leslie Woods, Howard Lehmkuhl, Leaann Hobbs and Pam Swift
- 12:15 p.m.                      Session Concludes

### **NOTES:**

#### **TWS Certification Program**

Certification of wildlife biologists is a service provided by The Wildlife Society for wildlife professionals and the public, who may desire a peer evaluation statement. The Wildlife Society is committed to the sound stewardship of wildlife resources under the guidance of well-educated, experienced, and dedicated wildlife biologists. To further this aim, The Wildlife Society has established standards for certifying the credentials of qualified wildlife biologists.

A professional wildlife biologist is a person with the educational background and demonstrated expertise in the art and science of applying the principles of ecology to the conservation and management of wildlife and its habitats. An applicant for professional certification who demonstrates this expertise through education and experience, and is judged to be able to represent the profession as an ethical practitioner, will be designated as a Certified Wildlife Biologist.

An applicant for professional certification who has limited experience but who has completed the rigorous academic standards and is judged to be able to represent the profession as an ethical practitioner will be designated as an Associate Wildlife Biologist (AWB). After sufficient experience is gained, the AWB may apply for the more advanced level of certification.

Please visit the TWS “National” website ([www.wildlife.org](http://www.wildlife.org)) for additional details, or contact your TWS-Western Section Professional Development Committee.

**Contributed Papers Session # 11  
Ecology and Management of Reptiles and Amphibians  
Friday, January 31, 2014; 8 a.m.–12:15 p.m.**

**Nevada 3**

**Chair:** Rhys Evans

**PART ONE: The Year of the Snake**

8–8:05 a.m. Introduction and Announcements

8:05–8:25 a.m. **The Ghost of Habitat Past: Historic Habitat Affects the Contemporary Distribution of Giant Gartersnakes in a Modified Landscape;** Brian Halstead, Glenn D. Wylie and Michael L. Casazza

8:25–8:45 a.m. **Status of the San Joaquin Coachwhip (*Masticophis flagellum ruddocki*) and California Glossy Snake (*Arizona elegans occidentalis*) in the San Joaquin Valley;** Michael Westphal, Jonathan Q. Richmond and Dustin A. Wood

8:45–9:05 a.m. **Feeding Ecology of the California Kingsnake (*Lampropeltis californiae*);** Kevin Wiseman, Harry W. Greene, Michelle S. Koo and Douglas J. Long

9:05–9:25 a.m. **Estimating Survival Probability for Giant Gartersnakes (*Thamnophis gigas*) in the Central Valley of California;** Eric Hansen, Gary C. White and Brett G. Dickson

9:25–9:45 a.m. **Translocation as a Management Tool for Nuisance Rattlesnakes;** Emily Taylor, Kory H. Heiken and Matthew L. Holding

9:45–10:10 a.m. BREAK

10:10–10:15 a.m. Announcements.

**PART TWO: Other Reptiles and Amphibians**

10:15–10:35 a.m. **Does Translocation Aid Conservation? Lessons Learned from Translocated Desert Tortoises (*Gopherus agassizii*): 5.5 Years Post-release;** Jeremy Mack, Kristin H. Berry, James F. X. Wellehan Jr. and Elliott R. Jacobson

10:35–10:55 a.m. **Effects of Malathion on Adaptive Plasticity in *Pseudacris sierra*;** Michael Maples and Emily Taylor **Student Paper**

10:55–11:15 a.m. **Patterns of Nesting Behavior in a Northern California Population of Western Pond Turtles;** Wendy St. John, Nicole Christie and Nick Geist **Student Paper**

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 11:15–11:35 a.m.      **Effects of Nest Temperature Variation on Viability and Sex Determination of Western Pond Turtles (*Emys marmorata*);**  
Nicole Christie, Wendy St. John and Nicholas R. Geist      **Student Paper**
- 11:35–11:55 a.m.      **Analysis of a Monitoring Program for the Blunt-nosed Leopard Lizard (*Gambelia sika*) at Semitropic Ecological Reserve, Kern County, California;** Erin Tennant, John Battistoni, Krista Tomlinson, Shari Heitkotter and Dyana Valencourt
- 11:55 a.m.–12:15 p.m.      **Species' Range Size and Morphology of the Slender Salamanders (*Batrachoseps*, Plethodontidae);**  
Chris Evelyn      **Student Paper**
- 12:15 p.m.      Session Concludes

### **NOTES:**

#### **Conservation Affairs Committee Meeting**

The Conservation Affairs Committee will be meeting today, 1 to 3 p.m. (Nevada 8). Members are welcome to attend, learn about the committee, and get involved. The committee will be discussing its role in the Section and brainstorming ways to better inform decision makers about wildlife!

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 12 Wildlife Technologies (non-GIS) Friday, January 31, 2014; 8 a.m.–12:15 p.m.

### Nevada 4

**Chair:** Rick Perry

- 8–8:05 a.m. Introduction and Announcements
- 8:05–8:25 a.m. **Genome Sequence of a California Golden Eagle: Foundation of a New Tool for Wildlife Management;** Jacqueline Doyle, Todd Katzner, Peter Bloom, Yanzhu Ji, Bhagya Wijayawardena and Andrew Dewoody
- 8:25–8:45 a.m. **Density and Sex Ratio Estimates of Columbian Black-tailed Deer (*Odocoileus hemionus columbianus*) in the Mendocino National Forest from Fecal DNA;** Zachary Lounsberry, Tavis D. Forrester, Maryjo T. Olegario, Heiko U. Wittmer and Ben N. Sacks
- 8:45–9:05 a.m. **Development of Methods for Non-invasive Genetic Monitoring of Endangered Giant Kangaroo Rat (*Dipodomys ingens*) from Hair and Scat;** Dou-Shuan Yang, Robert K. Burton, Howard O. Clark, Jr., Francis X. Villablanca and Brian B. Boroski
- 9:05–9:25 a.m. **Quantifying Great Horned Owl Predation on Endangered Giant Kangaroo Rats on the Panorama Ranch;** Adam Yaney-Keller, John Perrine, Bob Stafford **Student Paper**
- 9:25–9:45 a.m. **Using Dermatoglyphics for Noninvasive Abundance Estimates of Ringtails in Zion National Park, Utah;** Adrian Roadman
- 9:45–10:10 a.m. BREAK
- 10:10–10:15 a.m. Announcements
- 10:15–10:35 a.m. **Western Section Field Course Professional Development for Mentors & Students;** Cynthia Perrine, John D. Perrine and Karen Swaim
- 10:35–10:55 a.m. **A Demonstration of Field Experience Detecting and Counting Wildlife with a High-Resolution Cryogenically-cooled Infrared Video Camera from Aerial and Ground Platforms;** Bruce Greenhalgh and John Romero
- 10:55–11:15 a.m. **Use of Nest Cameras to Evaluate Hatch Date Estimation and Hatch Timing for the Western Snowy Plover (*Charadrius nivosus nivosus*);** Jamie Miller, Regina Ball, Lynne Hargett and Dan P. Robinette

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- 11:15–11:35 a.m.      **The Use of Novel, Non-invasive Bioacoustic Techniques to Monitor the Elusive California Great Gray Owl;** Joe Medley, Holly Ernest, Kurt Fristrup, Ryan Byrnes, Claire Gallagher and John Keane
- 11:35–11:55 a.m.      **Assessing the Use of Social Calls to Attract Bats to Artificial Roost Sites;** Alyson Brokaw and Joseph M. Szewczak **Student Paper**
- 11:55 a.m.–12:15 p.m.      **Photographic Analysis of Scale-Intersection Pattern as a Means of Individual Identification of Alligator Lizards (*Elgaria spp.*);** Catherine Yasuda.

### NOTES:

# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 13 Game Management Friday, January 31, 2014; 8–9:45 a.m.

### Nevada 8

**Chair:** **Dominic Bachman**

8–8:05 a.m. Introduction and Announcements

8:05–8:25 a.m. **Habitat Associations of Sierra Sooty Grouse Include Elements of Old Forest;**  
James Bland

8:25–8:45 a.m. **Impacts of Mining on Mule Deer Migration in Nevada;**  
Marcus Blum, Kelley M. Stewart, Cody Schroeder and Tony Wasley **Student Paper**

8:45–9:05 a.m. **Migration Behavior, Body Condition, and Sex Differences in Survival of Mule Deer;** Cody Schroeder, Kelley M. Stewart and Tony Wasley **Student Paper**

9:05–9:25 a.m. **Going Buck Wild; Mule Deer are Crazy about Wildlife Safety Crossings in Nevada;** Nova Simpson, Kelley M. Stewart, Kari Huebner, Tony Wasley and Mike Cox

9:25–9:45 a.m. **Trends in Deer Harvest, Population, Management, and Citizen Participation;**  
Kent Webb

### **NOTES:**



# The Western Section of The Wildlife Society 2014 Annual Meeting

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## Contributed Papers Session # 14 Human Dimensions in Wildlife Friday, January 31, 2014; 10:10 a.m.–12:15 p.m.

### Nevada 8

<b>Chair:</b>	<b>Jeff Lincer</b>
10:10–10:15 a.m.	Introduction and Announcements
10:15–10:35 a.m.	<b>Illegal Recreation Use on Wildlife Movement Patterns;</b> <u>Kristina Cary</u> , Cheryl Brehme , Kim Roeland, Betsy Miller and Keith Greer <b>Student Paper</b>
10:35–10:55 a.m.	<b>The Economic and Conservation Impact of Recreational Spending to Own or Access Private Land in the U.S.;</b> <u>Luke Macaulay</u> <b>Student Paper</b>
10:55–11:15 a.m.	<b>Complexities of Conflict: Lessons from the Critically Endangered Hawaiian Monk Seal;</b> <u>Rachel Sprague</u> , Megan M. Draheim and Francine M. Madden
11:15–11:35 a.m.	<b>Shorebird Movements Among Wetland and Agricultural Complexes of the Klamath Basin and Central Valley of California;</b> <u>Blake Barbaree</u> , Matthew E. Reiter, Catherine M. Hickey and Gary W. Page
11:35–11:55 a.m.	<b>Using Bird Monitoring Results to Plan and Assess Meadow Restoration in the Sierra Nevada;</b> <u>Helen Loffland</u> , Rodney Siegel and Bob Wilkerson
11:55a.m.–12:15 p.m.	Discussion, Questions and Answers; Session Concludes

### **NOTES:**

**POSTER SESSION**

**Wednesday January 29, 2014 . 6:30–8 p.m.  
Nevada Room**

**Session Chairs: Jessica Martini-Lamb and Carlos Alvarado**

**Origins of Increasing Red Foxes in Relation to Sage-Grouse Predation Hotspots in the Great Basin of Nevada;** Preston Alden, Randall Stroeberl, Russell Woolstenhulme, Rachel Mazur, Mark Statham and Ben Sacks **Student Poster**

**Forest Management and Flammulated Owls at Lake Davis;** David Arsenault and David Hamilton

**Evaluating Wildlife Crossing Tunnels Through Behavioral Analyses and Movement Rates of the California Tiger Salamander, *Ambystoma californiense*;** Tracy Bain, David Cook and Derek Girman **Student Poster**

**Conservation Projects for Burrowing Owls in Imperial Valley's Renewable Energy Mecca;** Kelly Bishop, Jessica L. Lovecchio, Bruce Wilcox, Bobby Brock and Graham Chisholm

**Succession of Vertebrate Communities After Fires in Chaparral;** Shane Brown **Student Poster**

**Winter Plumage Color and Diet Diversity in the Lesser Goldfinch;** Jessi Brown, Melanie Frincke-Craig, Chris W. Briggs, Simon Polson, Chris A. Feldman and Michael W. Collopy

**Using a Live Web Camera to Monitor California Condors in Central California;** Joe Burnett

**Relocation of Giant Kangaroo Rats at the California Valley Solar Ranch: Summary Report;** Robert Burton, Howard O. Clark, Jr., Kristy Uschyk and Brian Boroski

**Providing Water in Arid Environments: Effects on Movement Rates and Home Range Size of Mule Deer in Mojave National Preserve, CA;** Anthony Bush, Kelley M. Stewart, Vernon C. Bleich and Neal Darby **Student Poster**

**Evidence of Kangaroo Rat Occurrence within a Eucalyptus Forest on Southern Carrizo Plain Conservation Lands, San Luis Obispo County, CA;** Howard Clark, Robert K. Burton, Dou-Shuan Yang and Francis X. Villablanca

**Effects of Elk Population Density on Immune Function as Mediated by Body Condition;** Cynthia Downs, Kelley M. Stewart, Brian L. Dick and Michael J. Wisdom

**Courtship of Northern Pintail in Relation to Sex Ratios, Pairing Chronology and Hunting Pressures;** Stephanie Foster

**Human Disturbance to Common Murre (*Uria aalge*) Breeding Colonies on the Central California Coast;** Allison Fuller, Gerard J. McChesney, Richard T. Golightly, Lisa E. Eigner, Sandra J. Rhoades and Sage Tezak

**Trophic Relationship Between Deer, Manzanita and Manzanita Leaf-gall Aphids in the Big Chico Creek Ecological Reserve;** Badri Ghimire **Student Poster**

**Monitoring Temporal Fluctuations in Coastal Ecosystem Health and Wildlife Utilization using a Linear Survey Approach at Vandenberg Air Force Base, CA;** Lynne Hargett, Regina B. Ball, Jamie K. Miller and Dan P. Robinette

**American Pika Occupancy and Relationship to Above and Below-talus Ambient Temperatures;** Faye Healy and Gail H. Collins

**Abundance and Habitat Associations of the Pale Kangaroo Mouse (*Microdipodops pallidus*) in the Lower Smoky Valley of Nevada;** Sarah Hegg, Marjorie M. Matocq, James S. Sedinger and Peter J. Weisberg **Student Poster**

## The Western Section of The Wildlife Society 2014 Annual Meeting

**Population Genetic Structure of the Giant Kangaroo Rat (*Dipodomys ingens*) in the Panoche-Ciervo Area;** Luis Hernandez, Mark Statham, Tim Bean, Susan Fresquez, Mike Westphal and Ben Sacks

**Range Expansion and Distribution of the Barred Owl in the Sierra Nevada, California;** John Keane, Claire V. Gallagher, Ross A. Gerrard, Gretchen Jehle, Thomas E. Munton and Paula A. Shaklee

**Population Genetic Structure of the American Pika, *Ochotona princeps*, in Bodie, CA, 25 years later: Has Climate Change Influenced Movement Dynamics?;** Kelly Klingler, Mary M. Peacock and Veronica Kirchoff

**Assembling Tricky Mitochondrial Genomes using Next-generation Sequencing: A Case Study with Three North Pacific Albatrosses (*Phoebastria spp.*);** Zachary Lounsbury, Paul W. Collins, Robert W. Henry, Hannah Nevins, Michael Etnier, Seth D. Newsome and Benjamin N. Sacks

**Effects of Malathion on Adaptive Plasticity in *Pseudacris sierra*;** Michael Maples, Emily N. Taylor

Student Poster

**Avian response to fire in the Lower Sonoran Desert of Arizona;** Chris McCreedy, Todd Esque, Charles Van Riper III and Lindsay Smythe

Student Poster

**The Rangeland Watershed Initiative – A Collaborative Partnership to Improve California Rangelands;** Melissa Odell, Melany Aten, Alissa Fogg, Geoffrey R. Geupel, Wendell Gilgert, Tiffany Russell, Kelly Weintraub and Alicia Young

**Alameda Creek Riparian Bird Community Occupancy Analyses;** David Riensche, Douglas A. Bell, L. Jay Roberts and Julian Wood

**Control of Invasive Exotic Mayweed Chamomile and its Effect on nesting California Least Terns;** David Riensche, Douglas A. Bell, Rick Miller, Bill Nantt, Sara A. Lockett and Cody A. Newell

**Associating Predators and the Distribution and Persistence of the Critically Endangered Amargosa Vole (*Microtus californicus scirpensis*);** Austin Roy, Deana L. Clifford, Greta M. Wengert, Robert C. Klinger, Amanda M. Pouslen and Janet E. Foley

**Building Partnerships and Enhancing Wildlife Habitat in Sierra Mountain Meadows;** Tiffany Russell, Ryan D. Burnett, Alissa Fogg, Kelly Weintraub and Melissa Odell

**Winter Ecology of the Northern Saw-Whet owl (*Aegolius acadicus*) in the Sierra Nevada Foothills of California;** Julie Shaw and Colleen Hatfield

Student Poster

**Translocation of Raptors fitted with Satellite Transmitters;** Barak Shemai, Wendy Pearson and Jeff Kidd

**Resource-based Scaling of Home-range Size in Black-backed Woodpeckers;** Rodney Siegel, Morgan W. Tingley, Robert L. Wilkerson, Monica L. Bond and Christine A. Howell

**Field Examination of Diet Preferences in the Endangered Salt Marsh Harvest Mouse;** Katherine Smith, Lauren Barthman-Thompson, Melissa Riley and Doug Kelt

Student Poster

**Avian Use of a Solar Photovoltaic Energy Facility;** Bridget Sousa and Stephen Peterson

**The East to West Migration of Steppe Eagle (*Aquila nipalensis*) and Other Raptors in Nepal, Autumn 2012;** Tulsi Subedi, Robert Decandido and Jeffrey L. Lincer

**The Status of Swainson's Hawks Breeding in the Antelope Valley of California;** Scott Thomas, Karyn J. Sernka and Peter H. Bloom

**Golden Eagle Population Surveys for the Desert Renewable Energy Conservation Plan Area – Preliminary Results;** Joel Thompson, Thomas L. George, Ryan M. Nielson

## The Western Section of The Wildlife Society 2014 Annual Meeting

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- Effects of Illegal Pastoralism on Midday Habitat use in Spotted Hyenas (*Crocuta crocuta*);** Emily Thorne **Student Poster**
- Effect of Food Availability on Staging Site Use by American Wigeon;** Emily Thorne and Emily Trejo-Sypolt **Student Poster**
- Using the Wildlife Picture Index to Measure Ecosystem Health and Connectivity in Sonoma County;** Susan Townsend, Lisa Micheli and Michelle Halbur **Student Poster**
- Ground-truthing a Habitat-Suitability Model for Wrentits and Pacific Wrens in Humboldt County, CA;** Emily Trejo-Sypolt and Tim Bean **Student Poster**
- Screening-Level Ecological Risk Assessment Approach for Quantifying Lead Ammunition Ingestion and Adverse Effects in Upland and Wetland Birds;** C. L. Tsao, Matthew Zafonte, Beckye J. Stanton, Regina Donohoe, Carolyn Rech, Charlie Huang and Michael J. Anderson
- Effect of Temperature on Capture Rate of *Thamnophis gigas*;** Trisha Velasquez **Student Poster**
- Ruin or Recovery: Loss of the Desert Tortoise Conservation Center will have Adverse Impacts to Mojave Desert Tortoise Recovery;** Allyson Walsh, Ron Swaisgood, Roy Averill Murray and Kim Field
- Molecular and Morphological Identification of *Leucocytozoon franchini* (Haemosporidia: Leucocytozoidae), Found in American Kestrel (*Falco sparverius sparverius*);** Erika Walther, Gediminas Valkiūnas, Elizabeth Wommack and Ravinder N.M. Sehgal
- Using Public Data and Satellite Imagery to Construct Natural Resource Management Databases: Wind Turbine Installations in Nevada and California;** Matthew Weldy, Tricia A. Miller, Stephen Wood, Michael Strager and Todd Katzner
- Morphology and Habitat Selection in Diamond Area 1, the Namib Desert, Namibia, of Six Testudine Species;** Justin White and Jill S. Heaton **Student Poster**
- Status of the California Department of Fish and Wildlife's Spotted Owl Database;** Katherine Whitney
- Habitat, Temporal, and Dietary Resource Partitioning of Mesocarnivores on Ranchland in Coarsegold, California;** Cristal Williams **Student Poster**
- Ketamine as an Effective Tranquilizing Agent for Ringtails (*Bassariscus astutus*);** David Wyatt and Kathleen M. Norton
- Population Characteristics of the Endangered San Francisco Gartersnake in Coastal California Scrub Habitat;** Glenn Wylie, Brian J. Halstead and Michael L. Casazza
- Terrestrial Habitat Use by Western Pond Turtles (*Actinemys marmorata*) in the Sierra Foothills;** George Zaragoza, Jonathan P. Rose, Kathryn Purcell and Brian D. Todd

## The Western Section of The Wildlife Society 2014 Annual Meeting

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### FUTURE MEETING DATES

- TWS National Meeting, October 25-30, 2014  
**Pittsburgh, Pennsylvania**
- TWS - Western Section, January 28-30, 2015  
**Santa Rosa, California**
- TWS National Meeting, October 17-21, 2015  
**Winnipeg, Manitoba**
- 5<sup>th</sup> International Wildlife Management Congress, July 2015  
**Sapporo, Japan**

***Where should we go next?***

***Talk to your Chapter Representative!***

### **NOTES:**

**SESSION ABSTRACT ELECTRONIC ACCESS INFORMATION**

To conserve paper and reduce energy consumption, abstracts for concurrent and poster sessions are provided electronically. Abstracts are available to view, download or print via the Western Section webpage ([http://wildlifeprofessional.org/western/tws\\_abstract\\_display\\_2014.php](http://wildlifeprofessional.org/western/tws_abstract_display_2014.php)).

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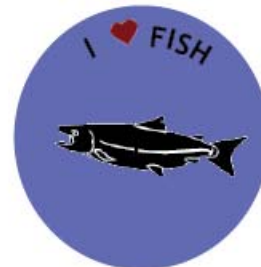
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Vertebrate Field Zoology is an intensive, resident field camp emphasizing wildlife identification and field techniques for vertebrates. Administered by California Polytechnic State University, San Luis Obispo and Western Section of The Wildlife Society, the 4-unit course, held at Cal Poly's scenic Swanton-Pacific Ranch near Santa Cruz, will include hands-on opportunities, data collection and a team research project. Instructors include wildlife professionals from agency, academic, private and non-profit sectors. Informal time provides additional mentoring opportunities.



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