



*Symposium in Honor of Founder*  
*Dr. Glenn R. Stewart*  
**Program**

**51<sup>st</sup> Annual Meeting and Symposium**  
**Hybrid**

February 25, 26, and 27, 2026



# **51st Annual Desert Tortoise Council Symposium Sponsors**

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## **REQUIREMENTS FOR SPEAKERS AND PRESENTATIONS**

The Desert Tortoise Council **does not permit inappropriate images** as part of presentations in the program or as any part of symposia. Inappropriate photos include, but are not limited to: vulgar, lewd, or suggestive images of people; people in awkward positions or scanty attire; and people engaged in personal and private activities. The Desert Tortoise Council expects all participants and speakers to maintain a high level of professionalism.

### **Guidelines for Asking and Answering Questions at the Symposium**

Several years ago, several attendees approached members of the Board of Directors with concerns about the tone of questions to speakers. The concerned parties included members of the audience as well as speakers. Some members of the audience noted that some questioners appeared to be vitriolic and angry; some questioners used the opportunities at the microphone to present their views in long winded soliloquies rather than to ask questions. Furthermore, some speakers were irritated with the questions asked of them. To avoid a similar occurrence at future meetings, the Board of Directors developed guidelines for asking and answering questions at Symposia. These guidelines offer an opportunity to review the purpose for holding annual symposia and to reiterate our long-standing policy of professionalism and civility to all participants.

The Desert Tortoise Council promotes conservation of the desert tortoise in a variety of ways, including annual symposia. One purpose of the symposia is to bring together scientists, wildlife biologists, managers, representatives of non-government organizations, and other interested parties to share the latest information on tortoises and their management. The speakers vary in their interests and areas of expertise, as well as in experience in giving presentations. Some speakers are giving their very first public presentations; others have presented hundreds of lectures and power point programs. All are welcome. The symposium is a learning experience and learning is facilitated by respect and courtesy. All speakers should receive courteous and professional treatment and, in turn, all speakers should treat the audience with respect. By following the simple guidelines outlined above, the Board hopes to have a collegial atmosphere and productive meeting.

To assist with the policy of professional and civil behavior, the Board requests that questioners follow the guidelines listed below:

1. Ask one question at a time. If you have two questions, do not ask both at once. Allow the speaker to answer the first question before proceeding to the second question.
2. If more than one person is waiting to ask, then ask only one question.
3. All questions are legitimate. However, the way the question is framed is usually the issue. Each question can be framed in a professional and courteous manner. Speakers, too, can draw on the following guidelines when answering questions.
4. Speakers should consider that all questions are legitimate and fair. However, some may be poorly worded because the questioner may not fully understand the subject or may need some assistance in framing the question in a professional manner. The speaker may need to clarify the question and should then repeat the question to the audience so that the audience will hear it clearly.

5. Some questions are not easily answered for a variety of reasons: no data, insufficient data, topic cannot be discussed because court proceedings are underway, etc. The speakers should state why the question cannot be answered or can only be addressed in part. The speaker may need to think at length about an appropriate answer and, in such cases, may need to say just that. The speaker may refer the questioner to the email in the Abstracts.

**DRAFT PROGRAM: details for presenters are in Abstracts**

**51<sup>st</sup> ANNUAL DESERT TORTOISE COUNCIL SYMPOSIUM  
(Hybrid)**

February 25<sup>th</sup>, 26<sup>th</sup>, and 27<sup>th</sup>, 2026  
Palace Station Hotel and Casino, Las Vegas, Nevada  
In the Grand Ballroom, Salons F and G

All sessions and presentations are in Pacific Standard Time

**Note:** Speakers are the first person noted for each presentation unless \*denotes otherwise  
Raffles and announcements be held at the beginning of each day and end of each break

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**FEBRUARY 24, TUESDAY EVENING**

6:00 p.m.      Pre-Conference Mixer  
*Sponsored by Southern Nevada Environmental, Inc., and Ecocentric LLC*

**FEBRUARY 25, WEDNESDAY MORNING**

8:00 a.m.      **Annual Business Meeting of the Desert Tortoise Council**  
*Mari Quillman, Chair: Desert Tortoise Council*

9:30 a.m.      **Introduction of Desert Tortoise Council Chair, Meeting Chairs and Opening Remarks**  
*Mari Quillman, Chair; Ed LaRue, Max Havelka, and Mary Lane Poe, Meeting Chairs: Board of Directors of the Desert Tortoise Council*

9:45 a.m.      **Desert Tortoise Council Activities - 2025**  
*Mari Quillman, Chair: Desert Tortoise Council Board of Directors*

**Session 1. Corridors and Connectivity of Tortoise Populations in the Ivanpah Region**

10:05 a.m.      **Turning a management dilemma into conservation research**  
*Todd Esque<sup>1</sup>, K.E. Nusssear<sup>2</sup>, S.M. Murphy<sup>1</sup>, F.C. Chen<sup>1</sup>, A.M. McDonald<sup>1</sup>, J.A. Swart<sup>1</sup>, K.K. Drake<sup>3</sup>, M.T. Massar<sup>4</sup>, P.E. Myers<sup>4</sup>, A.G. Vandergast<sup>1</sup>, A. Mitelberg<sup>1</sup>, C.I. Mitchell<sup>3</sup>, K.L. Holcomb<sup>3</sup>, R.C. Averill-Murray<sup>3</sup>, A. Fesnock<sup>4</sup>, and M. Slaughter<sup>4</sup>: <sup>1</sup>U.S. Geological Survey; <sup>2</sup>University of Nevada, Reno; <sup>3</sup>U.S. Fish and Wildlife Service; and <sup>4</sup>U.S. Bureau of Land Management*

10:20 a.m.      **Notes from the field: Ten years of conservation corridors. Student Paper**  
*Benjamin O. Gottsacker<sup>1\*</sup>, Gretchen E. Gantz<sup>1\*</sup>, A.M. McDonald<sup>1</sup>, R.A. Van Gaalen<sup>1</sup>, F.C. Chen<sup>1</sup>, C.S. Poage<sup>1</sup>, E.J. Gaylord<sup>1</sup>, J.A. Swart<sup>1</sup>, B.L. Cunningham<sup>1,3</sup>, A.G. Vandergast<sup>1</sup>, K.E. Nusssear<sup>2</sup>, and T.C. Esque<sup>1</sup>: <sup>1</sup>U.S. Geological Survey; <sup>2</sup>University of Nevada, Reno; and <sup>3</sup>Western Ecosystems Technology, Inc.*



- 10:35 a.m.     **From scats to satellites: Multi-scale approaches to desert tortoise connectivity**  
*Ken Nussear<sup>1</sup>, T. Esque<sup>2</sup>, A. Vandergast<sup>2</sup>, A. Mitelberg<sup>2</sup>, C. Mitchell<sup>1</sup>, K. Dutcher<sup>1</sup>, J. Best<sup>1</sup>, F. Machuca<sup>1</sup>, G. Pugh<sup>1</sup>, and R. Ononeme<sup>1</sup>: <sup>1</sup>University of Nevada, Reno; and <sup>2</sup>U.S. Geological Survey*
- 10:50 a.m.     **Dispersal mechanisms and demographics of the Mojave desert tortoise - Who's new here?**  
*Akpoezi R. Ononeme<sup>1</sup>, T.C. Esque<sup>2</sup>, A. Vandergast<sup>2</sup>, and K. Nussear<sup>1</sup>: <sup>1</sup>University of Nevada, Reno; and <sup>2</sup>U.S. Geological Survey*
- 11:05 a.m.     **Tortoise movement ecology informs connectivity in the Ivanpah region**  
*Steven J. Hromada<sup>1</sup>, T.C. Esque<sup>2</sup>, A.G. Vandergast<sup>2</sup>, and K. Nussear<sup>3</sup>: <sup>1</sup>Fresno Chaffee Zoo, CA; <sup>2</sup>U.S. Geological Survey; and <sup>3</sup>University of Nevada, Reno*
- 11:20 a.m.     **Tortoise genetics and family structure: From plots to populations**  
*Amy Vandergast<sup>1</sup>, A. Mitelberg<sup>1</sup>, T. Esque<sup>1</sup>, K. Nussear<sup>2</sup>, F. Chen<sup>1</sup>, A.M. McDonald<sup>1</sup>, B.O. Gottsacker<sup>1</sup>, S. Hromada<sup>3</sup>, and K. Dutcher<sup>4</sup>: <sup>1</sup>U.S. Geological Survey, <sup>2</sup>University of Nevada, Reno; <sup>3</sup>Fresno Chaffee Zoo, CA; <sup>4</sup>University of California, Irvine*
- 11:35 a.m.     **Connectivity counts: The relationship between population genetic structure, barriers to gene flow, and density for Mojave desert tortoise connectivity**  
*Kirsten E. Dutcher<sup>1</sup>, K.E. Nussear<sup>2</sup>, T.C. Esque<sup>3</sup>, J.S. Heaton<sup>2</sup>, M. Matocq<sup>2</sup>, A. Mitelberg<sup>3</sup>, and A.G. Vandergast<sup>3</sup>: <sup>1</sup>University of California, Irvine; <sup>2</sup>University of Nevada, Reno; <sup>3</sup>U.S. Geological Survey*
- 11:50 a.m.     Panel: Questions and Discussion
- 12:05 p.m.     Break for Lunch

## **FEBRUARY 25, WEDNESDAY AFTERNOON**

- 1:30 p.m.     Announcements

### **Session 2. Using *Gopherus* Genomes for Conservation Actions**

- 1:35 p.m.     **Lessons from *Gopherus* genomes: Current progress towards conservation efforts using a genomic toolkit**  
*Christopher D. Robinson<sup>1</sup>, J. Tleima<sup>2</sup>, G.M. McDaniels<sup>3</sup>, S. Baty<sup>1</sup>, J. Mellor<sup>3</sup>, P. Crump<sup>4</sup>, S.F. McCracken<sup>2</sup>, G.A. Dolby<sup>3</sup>, and K. Kusumi<sup>1</sup>: <sup>1</sup>Arizona State University; <sup>2</sup>Texas A&M University, <sup>3</sup>University of Alabama; and <sup>4</sup>Texas Parks and Wildlife Department*
- 1:50 p.m.     Questions and Discussion with the Speaker

Session 3. **PLENARY SPEAKER.** Long-term Population Research on Turtles, Mass Mortalities, and Catastrophes

2:00 p.m.      **Chasing catastrophes slowly: Changes in turtle population patterns over time**

*Jacqueline D. Litzgus: Laurentian University, Canada*

2:35 - 2:45 p.m. Questions and Discussions with the Plenary Speaker

2:45 p.m.      Break

Session 4. Findings from Long-term Population Studies and Modeling of Population Stressors

3:15 p.m.      **Disease- and drought-associated reduction in tortoise growth in the Colorado Desert: Evidence from 46 years of mark-recapture data**

*Steve Lee<sup>1</sup>, K.H. Berry<sup>1</sup>, P. Woodman<sup>2</sup>, and M.T. Massar<sup>3</sup>: <sup>1</sup>U.S. Geological Survey; <sup>2</sup>Kiva Biological Consulting; and <sup>3</sup>U.S. Bureau of Land Management*

3:30 p.m.      **Fidelity to site in a tortoise population in the Colorado Desert: 1977–2023**

*Kristin H. Berry<sup>1</sup>, Steve Lee<sup>1</sup>, P. Woodman<sup>2</sup>, and M.T. Massar<sup>3</sup>: <sup>1</sup>U.S. Geological Survey; <sup>2</sup>Kiva Biological Consulting; and <sup>3</sup>U.S. Bureau of Land Management*

3:45 p.m.      **Mojave desert tortoise population response to multiple stressors across its range**

*Madeline P. Standen<sup>1</sup>, A. Parsons<sup>1</sup>, E. Olimpi<sup>1</sup>, M. Lacey<sup>1</sup>, S.J. Hromada<sup>2</sup>, K. Shoemaker<sup>3</sup>, T.C. Esque<sup>4</sup>, K.E. Nussear<sup>3</sup>, L.J. Allison<sup>5</sup>, K.K. Drake<sup>5</sup>, B. Folt<sup>4</sup>, J. Freilich<sup>6</sup>, E. Hunter<sup>4</sup>, J.E. Lovich<sup>4</sup>, A.M. McLuckie<sup>7</sup>, C.I. Mitchell<sup>5</sup>, M.S. Vamstad<sup>6</sup>, A.G. Vandergast<sup>4</sup>, M.A. Walden<sup>3</sup>, and B. Dickson<sup>1</sup>: <sup>1</sup>Conservation Science Partners, Inc.; <sup>2</sup>Fresno Chaffee Zoo, CA; <sup>3</sup>University of Nevada, Reno; <sup>4</sup>U.S. Geological Survey; <sup>5</sup>U.S. Fish and Wildlife Service; <sup>6</sup>Joshua Tree National Park; and <sup>7</sup>Utah Division of Wildlife Resources*

4:00 p.m.      Panel: Questions and Discussion

Session 5. Study of an Island Population of Sonoran Desert Tortoises and Results of Surveys in Sonora

4:15 p.m.      **Return to Tiburón Island-land of the Comcaac People, after twenty-four years. A Desert tortoise (*Gopherus morafkai*) and biocultural expedition**

*Mercy Vaughn<sup>1</sup>, A. Karl<sup>2</sup>, A. Barnett<sup>3</sup>, R.A. Lara Resendiz<sup>4</sup>, G. Castañeda Gaytán<sup>5</sup>, L. Meltzer<sup>3</sup>, G. Smart<sup>3</sup>, C. Furman<sup>6</sup>, and M. Maurer<sup>7</sup>: <sup>1</sup>Sundance Biology, Inc.; <sup>2</sup>Alice Karl and Associates; <sup>3</sup>Prescott College; <sup>4</sup>Instituto Tecnológico de Sonora; <sup>5</sup>Universidad Juárez del Estado de Durango;*

*<sup>6</sup>Metta Biological, LLC; and [maxmaurer@mac.com](mailto:maxmaurer@mac.com).*

4:30 p.m.      **El Pitayal, Sonora biodiversity expedition**

*Lydia Lozano<sup>1</sup>, M. Vaughn<sup>2</sup>, and E. Bustamante<sup>3</sup>: <sup>1</sup>Turtle Conservancy, México Program; <sup>2</sup>Sundance Biology, Inc.; and <sup>3</sup>Instituto de Ecología UNAM-unidad Hermosillo, Sonora, MX*

4:45 p.m.      Panel: Questions and Discussion

#### Session 6. Passings of Note in 2025

4:55 p.m.      **Vita Sheehy**  
*David Hedrick, Desert Tortoise Council*

5:00 p.m.      Posters

#### **FEBRUARY 25, WEDNESDAY EVENING**

6:00 p.m.      Evening Social

#### **FEBRUARY 26, THURSDAY MORNING**

7:00 a.m.      Breakfast provided

7:55 a.m.      Announcements

#### Session 7. New Methods for Demographic Monitoring of Desert Tortoises Range-wide

8:00 a.m.      **Advancing population models for the Mojave desert tortoise (*Gopherus agassizii*) through expanded SECR and CJS models. Student Paper.**  
*Griffin J. Pugh<sup>1</sup>, K.E. Nussear<sup>1</sup>, K.T. Shoemaker<sup>1</sup>, T.C. Esque<sup>2</sup>, S.M. Murphy<sup>2</sup>, and A.G. Vandergast<sup>2</sup>: <sup>1</sup>University of Nevada, Reno; and <sup>2</sup>U.S. Geological Survey*

8:15 a.m.      **Keeping the baby without the bathwater: Unification of distance sampling and capture-recapture facilitates spatially explicit desert tortoise demographic monitoring**  
*Sean M. Murphy<sup>1</sup>, C.I. Mitchell<sup>2</sup>, and T.C. Esque<sup>1</sup>: <sup>1</sup>U.S. Geological Survey; and <sup>2</sup>U.S. Fish and Wildlife Service*

8:30 a.m.      **Walking the line toward new methods to inform and improve range-wide monitoring for the Mojave desert tortoise**  
*Corey I. Mitchell<sup>1</sup>, S.M. Murphy<sup>2</sup>, T.C. Esque<sup>2</sup>, K.K. Drake<sup>1</sup>, K.L. Holcomb<sup>1</sup>, and B. Croft<sup>1</sup>: <sup>1</sup>U.S. Fish and Wildlife Service; and <sup>2</sup>U.S. Geological Survey*

8:45 a.m.      Panel: Questions and Discussion

#### Session 8. PLENARY SPEAKER: An Important Topic for Now

9:00 a.m.      **The past, present, and future of drought and aridification in southwestern North America**  
*Jason E. Smerdon: The Columbia Climate School, Columbia University, New York*

9:35 a.m.      Questions and Discussion with the Speaker

### Session 9. Climate Challenges for the Endangered Bolson Tortoise

- 9:45 a.m.      **And now, where will we take refuge? Climate change effect on *Gopherus flavomarginatus* and its accompanying vertebrates**  
*Tamara M. Rioja Paradela<sup>1</sup> and G. Castañeda Gaytán: <sup>1</sup>University of Sciences and Arts of Chiapas, MX; and <sup>2</sup>Juarez University of the State of Durango, MX*
- 10:00 a.m.      Questions and Discussion with the Speaker
- 10:05 a.m.      Break

### Session 10. Activities of Federal and State Agencies Directed Toward Recovery of Tortoises

- 10:30 a.m.      **Nevada Department of Transportation desert tortoise program update**  
*Kristi Holcomb, G. Church, R. Hampshire, K. Nasereddin, and A. Godinez: Nevada Department of Transportation, Carson City*
- 10:45 a.m.      **Clark County Multiple Species Habitat Conservation Plan update**  
*Scott Cambrin: Clark County Desert Conservation Program, NV*
- 11:00 a.m.      **Overview of recovery priorities and 2025 spring monitoring**  
*Ann M. McLuckie, L.C. Otterness, S. Bailey, M.J. Cumming, N.A. Evans, J.M. Gass, C. Mullaney, J.A. Portillo, T.J. Thomas, and K.O. Wood: Utah Division of Wildlife Resources*
- 11:15 a.m.      **Update on the recovery and sustainment partnership (RASP), a collaborative tortoise recovery effort in the western Mojave**  
*Clay F. Noss: Mojave Desert Land Trust, CA*
- 11:30 a.m.      **U.S. Fish and Wildlife Service desert tortoise recovery updates: An ongoing need for integrated recovery actions and future collaboration**  
*Kerry Holcomb: US. Fish and Wildlife Service*
- 11:45 a.m.      Panel: Questions and Discussion
- 12:00 noon      Lunch

### **FEBRUARY 26, THURSDAY AFTERNOON**

### Session 11. Recovery Efforts of Non-Profit Organizations on Behalf of Tortoises

- 1:25 p.m.      Announcements
- 1:30 p.m.      **Practical raven predation reduction in and around the Desert Tortoise Research Natural Area, Kern County, California**  
*Tim Shields<sup>1</sup> and J.Y. Lee<sup>2</sup>: <sup>1</sup>OrniLogic LLC; and <sup>2</sup>Desert Tortoise Preserve Committee, Inc.*

1:45 p.m.      **Updates on tortoise protection and recovery**  
*Lisa Belenky<sup>1</sup>, I. Anderson<sup>1</sup>, and P. Donnelly<sup>2</sup>: Center for Biological Diversity,  
<sup>1</sup>Oakland, CA, and <sup>2</sup>Las Vegas, NV*

2:00 p.m.      Panel: Questions and Discussion

Session 12. New and Revised Methods to Enhance Protection, Conservation, and Research of Tortoises

2:15 p.m.      **Three decades without change: Revisiting desert tortoise exclusion fence standards and opportunities for innovation**  
*Lee Rousey and T. Drake: ERTEC Environmental Systems*

2:30 p.m.      **Recent developments in aerial tortoise surveys**  
*Matthew S. Bandy: Resi Solutions*

2:45 p.m.      Break

3:15 p.m.      **Accelerometer-enabled trackers: A promising tool for exploring the hidden world of desert tortoise nesting ecology and activity**  
*Talisin T. Hammond, T.A. Radzio, M.J. Merrick, and R.R. Swaisgood: San Diego Zoo Wildlife Alliance*

3:30 p.m.      **Specialized wildlife cameras used to evaluate desert tortoise: Case studies with crossing structures and dry washes**  
*Jesse S. Lewis<sup>1</sup>, J. Armstrong-Ullberg<sup>2</sup>, M. Bigham<sup>1</sup>, T. Bommarito<sup>3</sup>, K. Hamilton<sup>1</sup>, J. Holm<sup>1</sup>, C. Rubke<sup>4</sup>, and T. Shepherd<sup>5</sup>: <sup>1</sup>Arizona State University; <sup>2</sup>Maricopa County Parks and Recreation; <sup>3</sup>U.S. Bureau of Reclamation; <sup>4</sup>Arizona Game and Fish Department; and <sup>5</sup>Bureau of Land Management*

3:45 p.m.      Panel: Questions and Discussion

Session 13. Celebrating the Life of a Founder, Dr. Glenn R. Stewart

4:00 p.m.      **Celebration of Life for Dr. Glenn R. Stewart**

**FEBRUARY 26, EVENING: GRAND BALLROOM, SALONS A, B, AND C**

5:30 p.m.      No Host Mixer

6:30 p.m.      Banquet

7:30 p.m.      Winners of the Photography Contest  
*Margaret Fusari*

7:45 p.m.      Student Awards  
*Michael Tuma*

7:50 p.m.      Recipients of Desert Tortoise Council Awards  
*Kristin H. Berry and Ed LaRue*

8:05 p.m.      Raffle and Auction

## **FEBRUARY 27, FRIDAY MORNING**

7:00 a.m. Breakfast provided

7:50 am. Announcements

### **Session 14. Augmentation of Populations Through Head-starting and Translocation**

- 8:00 a.m. **From exile to entry: An update on the Gemini Solar Project**  
*Alice E. Karl<sup>1</sup>, J. Smith<sup>2</sup>, and S. Lindey<sup>2</sup>: <sup>1</sup>Alice E. Karl and Associates; and <sup>2</sup>Cadre Biological, LLC*
- 8:15 a.m. **Origin of translocated animals is associated with time to settlement and post-translocation survival**  
*Seth M. Harju<sup>1</sup> and S.M. Cambrin<sup>2</sup>: <sup>1</sup>Heron Ecological; and <sup>2</sup>Clark County Desert Conservation Program*
- 8:30 a.m. **Nine years of adult survival in the Marine Corps Air Ground Combat Center's desert tortoise translocation**  
*Brian T. Henen: Marine Air Ground Task Force Training Command*
- 8:45 a.m. **Update on survival of head-started Mojave desert tortoises and releases in climate refugia at Mojave National Preserve**  
*Brian D. Todd<sup>1</sup>, C. Harris<sup>1</sup>, J. Hernández<sup>1</sup>, T.D. Tuberville<sup>2</sup>, and K.A. Buhlmann<sup>2</sup>: <sup>1</sup>University of California, Davis; and <sup>2</sup>University of Georgia's Savannah River Ecology Lab*
- 9:00 a.m. **Evaluating early post-release behavior and growth of bolson tortoises (*Gopherus flavomarginatus*) on federal lands**  
*Endi Piovesana<sup>1</sup>, V. Wolf<sup>1</sup>, S. Vassallo<sup>1</sup>, S. Sartorius<sup>1</sup>, and A.J. Lawson<sup>2</sup>: <sup>1</sup>U.S. Fish and Wildlife Service; and <sup>2</sup>U.S. Geological Survey*
- 9:15 a.m. **Improving sex-ratio predictions in desert tortoises using a mechanistic temperature-sensitive period model**  
*Thomas A. Radzio, L. Fallon, R. Felton, T.T. Hammond, C.W. Tubbs, R.R. Swaisgood, and M. J. Merrick: San Diego Zoo Wildlife Alliance*
- 9:30 a.m. Panel: Questions and Discussion
- 9:45 a.m. Break

### **Session 15. Pathogens in ticks (*Borrelia* spp.) and repair of tortoises damaged by trauma**

- 10:15 a.m. **Abundant ticks but limited *Borrelia* spp. pathogens in Mojave desert tortoise habitat**  
*Molly J. Bechtel<sup>1</sup>, T.C. Esque<sup>2</sup>, K. Drake<sup>3</sup>, J.E. Lovich<sup>2</sup>, N.C. Nieto<sup>4</sup>, K. Parise<sup>5</sup>, J.T. Foster<sup>4,6</sup>, and M.B. Teglus<sup>7</sup>: <sup>1</sup>Arizona State University, <sup>2</sup>U.S. Geological Survey, <sup>3</sup>Boulder Solutions, LLC; <sup>4</sup>Northern Arizona University; <sup>5</sup>TGen North; <sup>6</sup>Pathogen and Microbiome Institute; and <sup>7</sup>University of Nevada, Reno*

10:30 a.m.      **Rehabilitation of Mojave desert (*Gopherus agassizii*) tortoises**  
*Shell Brewer: Rehab Lab of Southern Nevada*

10:45 a.m.      Panel: Questions and Discussion

Session 16. Outreach Events for Tortoise Conservation and Responses in the Social Media

11:00 a.m.      **Using community engagement and behavior change strategies to promote desert tortoise conservation**  
*Kaitlyn Shaw, A. Lonetree, E. Thomas, M. Thomas, and J. Danoff-Burg: The Living Desert Zoo and Gardens*

11:15 a.m.      **Investigation online sentiment toward the Mojave desert tortoise and outreach efficacy using natural language processing**  
*M. Standen<sup>1</sup>, Mae Lacey<sup>1\*</sup>, A. Robillard<sup>1</sup>, J. Danoff-Burg<sup>2</sup>, K. Shaw<sup>2</sup>, J. Suraci<sup>1</sup>, E. Olimpi<sup>1</sup>, and B. Dickson<sup>1</sup>: <sup>1</sup>Conservation Science Partners, Inc.: and <sup>2</sup>The Living Desert Zoo and Gardens*

11:30 a.m.      Panel: Questions and Discussion

11:45 a.m.      Close out and Adjourn

## POSTERS

**Variation in desert tortoise burrow structure and overwinter microclimates across life stages**

*Katelyn N. Rock, T.A. Radzio, T.T. Hammond, R. Newman, D. Essary, R.R. Swaisgood, and M.J. Merrick: San Diego Zoo Wildlife Alliance*

**Desert tortoise headstarting: Multi-year comparison of desert tortoise hatchling growth rates**

*Emily Thomas, M. Thomas, Luis Ramirez, and James Danoff-Burg: The Living Desert Zoo and Gardens*

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