ANNUAL MEETING ANNOUNCEMENT
AND CALL FOR PAPERS
63RD ANNUAL MEETING
SOUTHWESTERN ASSOCIATION OF
NATURALISTS
APRIL 14 – 17, 2016

UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO
INSTITUTO DE BIOLOGÍA
MEXICO CITY
Instituto de Biología, UNAM and The Southwestern Association of Naturalists extend a cordial invitation to all those interested (national and international) to participate in SWAN's 63rd Annual Meeting, April 14–17, 2016, at Radisson Paraíso Hotel, Ciudad de México, México, D.F.. There will be presentations related to taxonomy, systematics, morphology, ecology, behavior, evolution, and physiology of plants, invertebrates, and vertebrates (with a general emphasis on the biota of the SW U.S. and Mexico), with plenary speakers, poster and oral presentations, and special workshops for students. The Local Committee and the entire community of The Instituto de Biología, UNAM extend a warm welcome.

LOCAL COMMITTEE CO-CHAIRS:
Dr. Cornelio Sánchez Hernández
Dr. María de Lourdes Romero Almaraz
M. en C. Sara Beatriz González Pérez

ANY QUESTION WRITE TO swanmexico2016@gmail.com

REGISTRATION AND PAYMENT INSTRUCTIONS:
If you work/study in Mexico or Latin America, see the Instructions in Spanish at the SWAN website at http://biosurvey.ou.edu/swan/meet16/registers.php Fill it out on-line and submit it.

If you work/study in the United States, use the following instructions in English at http://biosurvey.ou.edu/swan/meet16/register.php Fill it out on-line and submit it.

Payment by Credit/Debit Card (Visa and MasterCard only):
Once you have entered the registration site, you will be able to pay on-line using the secure on-line forms. Save a paper copy of the completed Registration Form to take with you to the meeting as proof of registration.

If you reside in Mexico, and need a receipt with RFC and itemized TAX, a deposit must be done to BBVA Bancomer: Buró de Investigaciones y soluciones Biológicas ISB, AC, Number 0191047205. Banking cipher: 012180001910472059. If you are a student, you must send an updated registration voucher. Due to the high variability in the currency unless there is a drastic change in the price, it will be greatly appreciated if you make the conversion to $18.00 per dollar. It is important to send a copy of the deposit voucher with the name of the person who made the payment, the items paid, and the information for the tributary receipt to: the local committee swanmexico2016@gmail.com and Paola Flores Mejia facturasisbio@gmail.com

Early registration deadline: March 1st 2016

Please use on-line form at the SWAN website http://biosurvey.ou.edu/swan/meet16/register.php

EVERYONE MUST REGISTER ON-LINE FOR THE MEETING (SEE LINE ABOVE FOR URL). DO NOT SIMPLY COPY THE LIST OF COSTS BELOW AND SEND IT TO SOMEONE. YOU MUST REGISTER ON-LINE.
Registration:

<table>
<thead>
<tr>
<th>Registration before March 1st 2016</th>
<th>Registration after March 1st 2016</th>
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<tbody>
<tr>
<td>Regular member $115.00 US</td>
<td>$145.00 US</td>
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<tr>
<td>Student member $75.00 US</td>
<td>$95.00 US</td>
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<tr>
<td>*Regular non-member $150.00 US</td>
<td>*$180.00 US</td>
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<tr>
<td>*Student non-member $90.00 US</td>
<td>*$110.00 US</td>
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Options:
Banquet $30.00 US. Please, indicate if you prefer a vegetarian option.
Choose between Pasta _____ or Meat_______
Picnic: $25.00 USD
Field Trip (April 17th) The current options are Xochimilco or Teotihuacan Piramids. Details and prices TBA.

*As a non-member, if you would like to use the sum of $35.00 US (regular) or $15.00 US (student) of your registration fee to become a member of SWAN for one year free, go to http://www.biosurvey.ou.edu/swan/appleng.htm to join. The Local Committee will transfer these dollars to the membership fund.

HOST HOTEL INFORMATION:

| Name                  | Address                          | Contact                                           | Single or Double | Triple |
|-----------------------|----------------------------------|                                                  |                  |       |
| Radisson Paraíso Hotel| http://www.radisson.com.mx/home  | TO MAKE RESERVATIONS PLEASE CONTACT DIRECTLY BY PHONE OR EMAIL TO ROCIO GUZMAN Tel: 011 52(55)5927-6968 011 52(55) 5927-5959 ext 1286 | $ 1,200 about $70.00 US | $1,500 About $80.00 U. S. |

Radisson Paraíso Hotel will be the place where conferences will be presented. Please contact hotel directly for a reservation announced your assistance to SWAN meeting. If you are staying in México City for an extended visit, there are many additional hotels (at varying costs) located around campus (and closer to downtown, “El Zócalo”).

ABSTRACTS:
Deadline for abstract submissions for non-award seeking posters and oral presentations: 01 March 2016

Abstracts must be in English and Spanish, in Times New Roman 12 pt. with a 400-word maximum for both languages combined. The author is responsible for providing the necessary translation. In addition, all posters presented should include the title and abstract in English and Spanish at the time of presentation (when the poster is up for viewing). For oral presentations, while not mandatory, authors
are encouraged to make their presentation friendly to a bilingual audience where possible (e.g., title, labels on figures, and conclusions).

**Deadline for all abstracts for Wilks and Student Field Natural History Award Submissions: 1 March 2016.** Deadline for complete applications for the Wilks and Student Field Natural History Awards to be sent to the President-Elect is 1 March 2016; for more information see [http://www.biosurvey.ou.edu/swan/stuainstruceng.htm](http://www.biosurvey.ou.edu/swan/stuainstruceng.htm)

**Abstract submission:**

**Titles and abstracts must be in English and Spanish.** Please note that the presenting author (oral or poster presentation) must be registered for the meeting.

All abstracts will be submitted electronically from the following webpage: [http://www.biosurvey.ou.edu/swan/meet16/abstract.php](http://www.biosurvey.ou.edu/swan/meet16/abstract.php). Copy and paste the bilingual abstract into the form.

The abstract should include:

- Presentation type (oral or poster) followed by a request for consideration for award competition (Wilks, Student Field Natural History or Hubbs), if applicable.

- The general topic that best describes your presentation (Taxonomy, Systematics, Morphology, Ecology, Behavior, Evolution, Physiology) followed by the taxonomic group of study (Plants, Invertebrates, Amphibians, Fishes, Reptiles, Birds, Mammals).

- Title in capital letters in English and Spanish with a slash between them.

- Author(s) and affiliation(s). Use full names in normal order: first name(s), then last name(s). If there are multiple authors, indicate the presenting author with an underline. Use numbers to identify institutional affiliations.

- Abstract limited to 400 words in total for both English and Spanish combined.

**Examples:**

**Oral**

Morphology - Mammals

DESCRIPTION OF LATE EMBRYONIC DEVELOPMENT OF THE BAT _LEPTONYCTERIS YERBABUENAE_ MARTÍNEZ Y VILLA, 1940 (CHIROPTERA: PHYLLOSTOMIDAE)/DESCRIPCIÓN DEL DESARROLLO EMBRIONARIO TARDÍO DEL MURCIÉLAGO _LEPTONYCTERIS YERBABUENAE_ MARTÍNEZ Y VILLA, 1940 (CHIROPTERA: PHYLLOSTOMIDAE)

|Noemí Juárez-Sánchez^{1} |, Cornelio Sánchez-Hernández^{1} |, María de Lourdes Romero-Almaraz^{2} |, Leobardo Sánchez-Vázquez^{1} | y Oscar Fernández-Barrera^{1} |

^{1}Departamento de Zoología, Instituto de Biología, Universidad Nacional Autónoma de México, A. P. 70-153, Coyoacán, C.P. 04510, México. ^{2}Escuinapa No. 92 bis. Col. Pedregal de Santo Domingo, México, D.F.
In bat’s embryonic development, at least 24 stages may be recognized; the first nine correspond to the early development of the embryo, while the remaining ones to the late development. Late embryonic development in bats has been studied in less than 15 species. The embryonic development aspects of *Leptonycteris yerbabuenae* are completely unknown, so the objective of this work was to define and describe late stages of embryonic development of *L. yerbabuenae*. We collected 18 embryos from 18 pregnant females in three roosts in the Mezcala region, in the municipality of Eduardo Neri, state of Guerrero. The classification and description of each embryonic stage was performed by comparing the embryonic staging system for *Carollia perspicillata* embryos. We determined six stages of late embryonic development and found that the development of morphological structures in *L. yerbabuenae* generally follows the embryonic development pattern for Chiroptera.

En el desarrollo embrionario de los murciélagos se pueden reconocer al menos 24 etapas, de las cuales las primeras 9 corresponden al desarrollo temprano del embrión y las restantes al desarrollo tardío. El desarrollo embrionario tardío de los murciélagos se ha estudiado para menos de 15 especies. Para *Leptonycteris yerbabuenae* se desconoce por completo los aspectos de su desarrollo embrionario, por lo que el objetivo de este trabajo fue definir y describir las etapas de su desarrollo embrionario tardío. Se recolectaron 18 embriones de hembras preñadas de tres refugios de la región de Mezcala, en el municipio Eduardo Neri del estado de Guerrero. La clasificación y descripción de los embriones de cada etapa embrionaria se realizó mediante la comparación con el sistema de estadificación establecido para los embriones de *Carollia perspicillata*. En total se determinaron seis etapas del desarrollo embrionario tardío y se observó que el desarrollo de las estructuras morfológicas de *L. yerbabuenae* corresponde en general con el patrón de desarrollo embrionario de las especies conocidas para el orden Chiroptera.

Global climate change will decrease the availability and sizes of water sources in arid environments, particularly in the Southwest as forecasted mega-droughts occur. Loss of water will likely impact water-dependent species, but mechanisms predicting how these species will be affected are largely unknown. Desert bats are reliant on drinking water, yet the ability to
access water varies by species. Because bats drink during flight, reduced sizes of water sources will likely affect less maneuverable bats more than maneuverable bats. During May to August 2010-11, we acoustically monitored 60 water sources of varying size in two Utah deserts and experimentally reduced surface area at two water sources. Less maneuverable bats experienced a 3.5 fold reduction in drinking and increased competition with maneuverable bats when surface area was reduced. These effects explain the observed absence of less maneuverable bats at smaller water sources from our study areas. Reduced size of water sources due to climate change will impact less maneuverable bats more than maneuverable bats. The morphological differences that evolved for niche partitioning among ecologically-similar bats may now be maladaptive in a changing climate.

El cambio climático global disminuirá la disponibilidad y tamaños de las fuentes de agua en ambientes áridos, particularmente en el suroeste como mega-sequías pronosticadas ocurren. La pérdida de agua probablemente impactará las especies que dependen del agua, pero los mecanismos que predicen cómo se verán afectadas estas especies son mayormente desconocido. Murciélagos del desierto dependen del agua, sin embargo, la capacidad de obtener acceso a agua varía según especies. Debido a que los murciélagos beben mientras vuelan, la reducción de tamaños de las fuentes de agua probablemente afectarán murciélagos menos maniobrables más que murciélagos maniobrables. Durante mayo-agosto 2010-11, monitoreamos acústicamente 60 fuentes de agua de tamaños diferentes en dos desiertos de Utah y experimentalmente redujimos el área de la superficie en dos fuentes de agua. Los murciélagos menos maniobrables tuvieron una reducción de beber de 3.5 veces y enfrentaron competencia aumentada con los murciélagos maniobrables cuando redujimos el área de la superficie. Estos efectos explican la ausencia observada de murciélagos menos maniobrables en las fuentes de agua más pequeños de nuestras áreas de estudio. Tamaño reducido de las fuentes de agua debido al cambio climático impactará murciélagos menos maniobrables más que murciélagos maniobrables. Las diferencias morfológicas que evolucionaron para la partición de nichos entre murciélagos ecológicamente similares pueden ser ahora de mala adaptación en un clima cambiante.

PREPARATION OF PRESENTATIONS:
We ask that Bruce Stewart Student Travel Award winners acknowledge receipt of this award and SWAN in their presentations.

Poster Presentations:
The Local Committee will provide necessary supplies for mounting and exhibiting the poster during the meeting. Poster presenters should be present at their poster during their scheduled poster session. The poster size must not exceed 1.10 m by 0.90 m landscape orientation.

Oral Presentations:
Each presentation will last 15 minutes, 12 minutes for presentation and 3 minutes for questions. We strongly encourage presentations in Microsoft PowerPoint or PDF saved to a USB flash drive. Presenters will be required to load their presentation on the computer prior to the start of their assigned session (see the session chair).
STUDENT AWARDS:
All application materials and information regarding student awards can be found on the SWAN website: http://www.biosurvey.ou.edu/swan/stuaeng.htm

BRUCE STEWART STUDENT TRAVEL AWARDS: The Southwestern Association of Naturalists each year grants Bruce Stewart Student Travel Awards to help defray travel and meeting expenses for students attending the annual meeting. For the 63rd Annual Meeting, these awards will be given to student applicants outside Mexico who are giving an oral or poster presentation. Preference will be given to those students who have not received a SWAN student travel award previously, and who are current SWAN members. Students who have received two travel awards previously are ineligible.

WILKS AWARD: The Wilks Award is presented to the student giving the best oral presentation in the Plenary Session at the Annual Meeting of the Association. Research must be primarily the work of the student, not of the major professor, and the student must be both a member of SWAN and first author of the abstract. From those submitting written summaries, a judging panel will select up to approximately three students to make oral presentations (15 minutes in length) in a special plenary session consisting of approximately six students competing for the Wilks and Student Field Natural History Awards at the beginning of the Annual Meeting. A winner for each award will be selected from this group based on the quality of the oral presentation and the significance of the results. Finalists will receive a $250 honorarium to cover the costs of attending the meeting. The Wilks Award recipient receives an additional cash award of $1000, a certificate, and a set of all available back issues of The Southwestern Naturalist. The winner will be announced at the Annual Banquet. APPLICATION DEADLINE: 1 March 2016.

STUDENT FIELD NATURAL HISTORY AWARD: This is a new student oral presentation award. The Student Field Natural History (SFNH) Award is presented to the student giving the outstanding oral presentation with a substantial field component at the Annual Meeting of the Association. Like the Wilks Award, the presented research must be primarily the work of the student, not of the major professor, and the student must be both a member of SWAN and first author of the abstract. From those submitting written summaries, a judging panel will select up to approximately three students to make oral presentations (15 minutes in length) in a special plenary session consisting of approximately six students competing for the Wilks and Student Field Natural History Awards at the beginning of the Annual Meeting. A winner for each award will be selected from this group based on the quality of the oral presentation and the significance of the results. Finalists will receive a $250 honorarium to cover the costs of attending the meeting. The SFNH Award recipient receives an additional cash award of $1000, a certificate, and a set of all available back issues of The Southwestern Naturalist. The winner will be announced at the Annual Banquet. APPLICATION DEADLINE: 1 March 2016.

CLARK HUBBS STUDENT POSTER AWARDS: The Clark Hubbs Student Poster Awards are presented to students displaying the three best posters at the Annual Meeting of the Association. The first place award provides a certificate, a cash award of $600, and a set of all available back issues of The Southwestern Naturalist. The second and third place awards will receive $400 and $300, respectively. Although posters may be coauthored with the major professor, the work presented must be primarily that of the student and the student must be the first author and a member of SWAN. A panel of judges will select the winners based on the quality of the visual presentation and the significance of the results.

HOWARD McCARLEY STUDENT RESEARCH AWARDS: The Howard McCarley Student Research Fund provides as many as eight awards annually, up to $1000 each, to support student research. Applicants
must be students (undergraduate or graduate) currently enrolled in an institution of higher education, a member of the Southwestern Association of Naturalists, and be sponsored by a faculty member. Awards will be made in support of any aspect of research on biota of the southwestern United States, Mexico, and Central America except for travel to meetings. Individuals may receive a maximum of two grants from the Association. All qualified students are encouraged to apply, especially those in developing countries. Grant applications may be in either English or Spanish. Two letters of recommendation must be submitted in support of the application. One must be from the research advisor and the second from someone familiar with the student’s academic career and proposed research project. Awards will be announced at the banquet of the Annual Meeting of the Association.

**FACILITIES AND EQUIPMENT:**
The majority of the program will take place at the Radisson Paraíso Hotel, Ciudad de México, México, D. F. Concurrent sessions will be held in rooms with PC computers equipped with the most current version of MS PowerPoint and digital projectors.

**FOOD SERVICE:**
Coffee, tea, and bread will be provided for breaks on Friday and Saturday during the meeting. Meals will be available at the hotel’s restaurant. Meals can also be obtained in surrounding restaurants specially in Plaza Perisur. Vegetarian options will be served at the museum reception and banquet on Friday and Saturday nights.

**RECREATIONAL ACTIVITIES:**
Mexico City is the largest city in the world; thus there are numerous entertainment, recreational and natural areas to explore. Because of the great diversity of options, there is not a single website that can come close to capturing all the information. However, a couple starting points might be the Ciudad de México website (http://www.df.gob.mx/), México es cultura (http://www.mexicoescultura.com/), museos de México (http://www.museosdemexico.org/museos/todoslosmuseos.php), and cultura UNAM (http://www.cultura.unam.mx/index.aspx). See what Google and your imagination can discover. And remember that Mexico city has some of the finest handcraft markers in the world!

**TRAVEL:**
Mexico City area is serviced by the Benito Juarez International Airport (http://www.aicm.com.mx/), with convenient connections from across the U.S. and Mexico. The Benito Juarez International Airport is located near downtown “El Zócalo” in México, and is approximately 12 miles from Universidad Nacional Autónoma de México and the Radisson Paraíso Hotel where conferences will be hold.

**FINAL NOTE:**
The local committee of the 63rd Annual Meeting of the Southwestern Association of Naturalists awaits you in México City, to exchange scientific information promoting the understanding and conservation of natural resources and the cultural and academic exchange among the countries of the Association!!!