

# Volunteer Association Newsletter



NMMNHS

JUNE - JULY 2013

## TITANIC, SO FAR...

In this edition of the VAN I want to share with you some numbers reported since the Titanic exhibition opened March 23.



Together, we faced the challenge to fill 105 volunteer shifts a week and serve the needs of the exhibition and visitors. With the help of many new volunteers and with NMMNH long-term

volunteers taking on more shifts,

we met the challenge. Maybe it hasn't been perfect, but visitors seem to be delighted with their experience here.

I want to thank those of you who took the lead figuring out so many details that I couldn't get to in my half-time position. You are wonderful, professional, and caring people!

Quite a few volunteers have had fun with costumes and roles, and the rest of us with learning a lot of things we didn't know about before. I think that's why we love to serve in a Museum setting!

In June, about half-way through the voyage, Deb Novak, Chief of Education, and I plan to celebrate all of our Titanic crew with a whole week of festivities. It will be a time to "toot your horn."

OK, here are the numbers you've been waiting for, representing the first 60 days of the exhibition. (Thanks to Paul Narbutas, NMMNH Statistician for providing them).

<b>Titanic Attendance:</b>	<b>25,196</b>
<b>Titanic Revenue:</b>	<b>\$225,571</b>
<b>Museum Attendance:</b>	<b>54,906</b>
<b>Museum Revenue:</b>	<b>\$220,045</b>
<b>Same Period 2012</b>	
<b>Museum Attendance:</b>	<b>32,544</b>
<b>Museum Revenue:</b>	<b>\$116,682</b>

-Doug Simon, Volunteer Coordinator

## CONTINUING EDUCATION SEMINAR

Tuesday, June 25, 2013 10:30 AM - 12:30 PM +/-

### MODERATOR:

John Throne

### OPENING REMARKS:

Deb Novak, Director of Education

### SCIENCE UPDATES:

Dwight Jennison, Ph.D., Docent

### MAIN SPEAKERS:

Ayesha Burdett, Ph.D., and Partner

### SUBJECT:

*Fish and Bugs of the Rio Grande Rift*

### REFRESHMENTS & SNACKS:

Christy Lucero, Paleopreparator

[The September-October Continuing Ed Seminar will feature Larry Crumpler, Ph.D., Research Curator, speaking about *Field Reports from Mars*.]

-John Throne



**Correction:** I erroneously stated in my last column that the Albuquerque Bernalillo County Library does not have Walter Lord's *A Night to Remember*. The ABC Library does have this title as well as his sequel, *The Night Lives On*. I apologize for this misinformation.

### BOOK REVIEW:

#### *Remarkable Creatures*

Chevalier, Tracy. *Remarkable creatures*. New York: Plume, 2010 (PS3553 H4367 R46 2010)

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**Remarkable Creatures** tells the story of two women: Mary Anning and Elizabeth Philpot, early English fossil hunters. The time is the early nineteenth century in Lyme Regis, England. The story is told in alternating chapters, each chapter from the point of view of one of the women.

Mary Anning, whose father was a carpenter and fossil hunter, finds the first ichthyosaur and plesiosaur fossils in Great Britain. She works with scientists such as William Buckland to identify them and present the scientific papers. The Anning family has a business selling what are then called curies, short for curiosities, such as ammonites and crinoids to visitors.

The Philpot sisters, Elizabeth, Louise and Margaret, move to Lyme Regis, and Elizabeth becomes interested in fish fossils, which is how she meets Mary. There is class conflict between the daughter of a solicitor, Elizabeth, and the daughter of a carpenter, Mary. In a small place like Lyme Regis, this conflict isn't as divisive as it would be in London. Because of her station, however, Elizabeth serves as a mediator between Mary and the scientists, especially when Mary is younger.

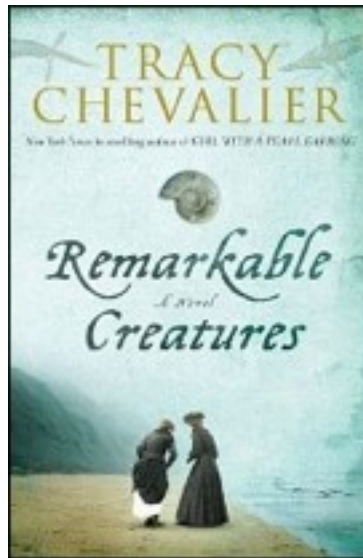
Although a work of fiction, *Remarkable Creatures* brings the early hunt for fossils, their importance to science and their impact on how the world view began to change. This glimpse into the impact of these fossils of unknown creatures had on the thinking of scientists is very interesting.

## OUR REFERENCE COLLECTION

On the top of the last section of library shelving is the reference collection, which consists of a variety of materials including works about the Museum; dictionaries, both general and subject specific; atlases, and other general works. These works serve to find quick information on a topic. They cannot be checked out, so, they should always be available.

I decided to review this collection after a request for a newer science dictionary. (Our current one is the *Random House Concise Dictionary of Science and Computers* from 2004.) Subject areas covered

are amphibians and reptiles of New Mexico, dinosaurs, earth sciences, geography, geology, mineralogy, ornithology, space science, and volcanoes. We seem to have ample coverage of geology. *Spaces Sciences* is a four volume work covering space business; planetary science and astronomy; humans in space, and our future in space. The collection also includes more general works such as an English language dictionary, a work on the 50 states and two atlases. The atlases were published in 1987 and 1992 so we should probably get a more recent one.



Another general work is the *New Mexico Blue Book*. Our copy is the 2005-2006 edition. This work comes out every two years and 2011-2012, the *Centennial Edition*, is the latest available on line. I didn't find information about purchasing on the Secretary of State's web site ([www.sos.state.nm.us](http://www.sos.state.nm.us)). If we should have a newer edition, I will do more searching. Some of the information doesn't change very often, such as state songs, flowers, birds, trees, fossils, etc. The information about state government does change, but is also easily found on line.

The collection also has works about the Museum, including a copy of the *Docent Guidebook*, both the first and second editions, and *Host Orientation*. A copy of *STARTUP...*, background for the exhibit, is also available. There is an unpublished history of the Museum from 1977-1991.

You can help me makes our reference collection as useful as it can be by answering the following questions:

- Are there other subject areas that should be covered?
- How important is it to have an up-to-date atlas?
- Do we need a newer edition of the New Mexico Blue Book?
- What other types of works would you like the collection to have?

Please let me know your thoughts. If you don't use email, you can leave a note for me in the *Return Book* space in the Volunteers' Lounge.

-Your Librarian, Mina Jane Grothey  
[mgrothey@unm.edu](mailto:mgrothey@unm.edu)

## EXPERIENCING THE POWER OF THE SUN, Solar Sunday, April 2013

Over 300 visitors shared Solar Sunday with our crew on April 14, 2013. After 4 years of successful programming, this was the last event of this kind we will host. Volunteers have educated and interacted with close to 8,000 visitors in that time span. Thanks to all the volunteers who came forth in cold and hot conditions to bring solar science to our community and visitors.



--Roger Kennedy



## FRIENDS OF PALEONTOLOGY

There will be no FOP meetings in June, July, and August of 2013.

-Dick Yeck, VP for Programs

## EARLY PALEOCENE OF NM: LIFE AFTER THE MASS EXTINCTION

**Dr. Tom Williamson**, speaker for the March 18, 2013, FOP meeting, opened his talk with the question, "What animal species best survived the Mass Extinction?" The answer is *mammals*--specifically three groups: *multituberculates*, *placentals* and *marsupials*.

Of these groups, the multituberculates had the highest survival numbers possibly due to their dentition, which enabled them to take advantage of the new and abundant food sources. The herbivore placentals were the most diverse (eventually producing "everything from bats to whales"). The marsupials survived but were eventually overwhelmed by the placentals. Small crocodylians also survived. The absence of the large carnivores that dominated the Cretaceous and the new and abundant vegetation along with a warm climate enabled the rapid growth and expansion of mammals.

Regarding the stratigraphy, NM Paleocene is represented by the Ojo Alamo, Animas and Nacimiento Formations in the San

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Juan Basin, and by the Poison Canyon and Raton Formations in the NE corner of the state.

Much of the talk centered on climate during the Paleocene and included complex climate slides from many sources that document the effort to decode the Paleocene and Eocene epochs around the world. It is believed that during that time the ocean's "biological pump"--a process that pumps dissolved carbon to the deep ocean floor where various organisms remove carbon in organic form and return inorganic carbon to the ocean's surface and atmosphere--was active. This process did not function properly over a long period of time, which caused unprocessed carbon monoxide to be released into the atmosphere. Temperatures became much higher and, over a period of about 125k years, reached a peak at the Paleocene - Eocene boundary. Called the Paleocene-Eocene Thermal Maximum (PETM), atmospheric CO<sub>2</sub> and temperatures spiked. Many questions remain concerning other reasons for the huge climate change, such as the fluctuating sea level during a time when there was no polar ice melt.

As a consequence mammal body sizes decreased 30% during the Eocene. The fossil assemblage is mostly teeth and some jaw and skull pieces of larger species. Young mammal tooth structure correlated with leaf designs as most were herbivores. There was also more precipitation, evidenced by the size, abundance and new features found in fossil leaves, such as "drip points," that indicate heavy rain fall. And, for reasons not understood, the leaf taxa in NM is more diverse in the Raton Basin than the San Juan Basin.



Dr. Williamson and six colleagues with varied backgrounds continue to search for the K-T boundary in NM. Using the Argon 40 isotope on siderite in volcanic strata and Paleocene palynomorphs for flora, they are closing in on

numbers in the 66.x million years ago range in the San Juan basin.

## FROM SMALL VERMIN OF THE MESOZOIC TO GIGANTIC HERBIVORES: THE EVOLUTIONARY HISTORY OF MAMMAL BODY SIZE

This interesting title describes the subject that guest speaker **Dr. Felisa Smith**, UNM biology professor and Director of Interdisciplinary Biology and Biomedical Science at UNM chose for the April 15, 2013, FOP meeting. The *Small Vermin* refers to the appearance of *Adelobasileus* in the Triassic period, and the *Gigantic Herbivores* refers to *Argentinosaurus* of the late Cretaceous.

The issue that started the research was a lack of a coherent data base on the history of mammal body size development. Dr. Smith, UNM graduate students and colleagues from other universities came together in 2007 to document the evolution of mammal body sizes worldwide. Collaborating with the NCEAS (National Center for Ecological Analysis and Synthesis) and the National Science Foundation, they gathered a broad spectrum of information and created a data base for terrestrial mammal growth. From that they developed comprehensive space--time statistical models that correlate global weather patterns, maximum body size, atmospheric oxygen and other factors with the development of several mammal clads from the Triassic to the present. The terrestrial mammal orders studied were *multituberculata*, *condylarthra*, *pantodonta*, *perissodactyla* and *proboscidea*.

Starting with Triassic data, they found that mammals increased very little in size for 140 million of the 220 million years they have been on the earth, likely because various carnivores were dominant. The end Cretaceous asteroid impact opened the door for diversification of terrestrial mammals. The data indicate that mammal characteristics, i.e., a small, burrowing animal, favored survival, and show a near-exponential increase in body size after that time. In the mid-Tertiary the size of terrestrial mammal body sizes leveled off and mammals flourished, in part because the carnivores were extinct and there was plenty of food. Allometric regressions on teeth or limbs showed rapid growth.

Teeth became the key growth characteristic because mammal teeth were the most diverse of all animals, which enabled them to eat a large variety of foods. And mammal molars correlate nicely with body size and are, therefore, excellent growth indicators. Other results of the data show that mammals evolved in cold and warm climates, lived on every continent, and grew in size in proportion to the size of the land areas they occupied. Hyrax, a small rodent, has numerically dominated the land for the last 20 million years.



**Rock Hyrax** (photo: Wikipedia Commons)

If we consider terrestrial and ocean domains, the mammal spectrum is represented by a two gram Pigmy Shrew and a 200,000,000 gram Blue Whale.



**Pygmy Shrew** (photo - Wikimedia Commons)

Mammal evolution has been generally equal around the world. Contemporary mammals are well ensconced worldwide and the herbivores are larger, more numerous, and more widespread than are the carnivores.

*-Dick Yeck, VP for Program*

## JUNE AND JULY 2013

Lectures • Coffees • Classes • Field Trips  
• Special Events • Museum Adult and Family Educational Programs

### JUNE

June 8 • field trip  
**Silvery Minnow**

June 12 • curator's coffee  
**Las Conchas Fire**

June 13 • for students  
**STARTUP: Sound!**

June 13 • for volunteers  
**Butterflies**

June 14 • special event  
**Luau! Adult Night**

June 15 & 16 • field trip  
**Mountain Lions and Frogs**

June 19-22 • field trip  
**San Juan Raft Trip**

June 20 • dino symposium  
**Collecting in the San Juan Basin**

June 25 • lecture  
**Titanic**

June 29 • for students  
**STARTUP: Scratch**

June 24-28 • young explorers  
**Summer Programs begin**

### JULY

July 2 • for teachers  
**Bosque Education Guide**

July 3 • for students  
**STARTUP: Silly Putty?**

July 7 • tour  
**Bioscience Collections Public Tour**

July 17 • for students  
**STARTUP: Scan**

July 18 • dino symposium  
**Cretaceous San Juan Basin**

July 25 • lecture  
**Dawn Mission**

## LECTURE

### TITANIC: A PERSONAL AND SCIENTIFIC JOURNEY

Tuesday, June 25 • 7:00 – 8:30 PM

**Penny Boston, Ph.D.**

Professor of Cave and Karst Science, Director, Cave and Karst Studies, Dept. Earth & Environmental Science, New Mexico Tech and Associate Director, Academics, National Cave and Karst Research Institute, Carlsbad, NM

**Dr. Penelope Boston** studies extreme microbial lifeforms who live in environments that share features with the microorganisms that are breaking down the hulls of the Titanic. But more personally, Dr. Boston's grandfather, William John Boston, served aboard Titanic as a crew member on her maiden voyage in 1912—profoundly affecting her family and perhaps leading to Dr. Boston's own unusual career. Hear about the time in which the Titanic sinking occurred, its aftermath, and the emerging science as we watch the Titanic break down in the extreme environment of the cold, deep, mid-Atlantic.

*Dr. Penny Boston travels to some of the most exotic and dangerous extreme environments on Earth, including many caves in New Mexico. Her areas of research include cave geomicrobiology, microbial life in other highly mineralized or extreme environments, unique or characteristic biominerals, and biosignature detection. She is also deeply involved in astrobiology, the search for life beyond Earth, and cave formation mechanisms on other planetary bodies. She heads the Cave and Karst Studies Program, in conjunction with the National Cave and Karst Research Institute (NCKRI) of which she is the Associate Director (Academics). NMT is the major academic partner associated with this national institute.*

**\$6** (\$5 members, \$4 students) (Volunteers are always free, as long as seats are available. Sign up on the sheet in the volunteer lounge.)

**Purchase in advance** online to guarantee seats; go to [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org) Our ticketing system has changed; online ticket fees may apply) or purchase tickets at the Admissions desk prior to the event. Doors open at 6:15 PM.

**Questions:** August Wainwright (505) 841-2861 email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

## LECTURE

### NASA's DAWN MISSION TO VESTA AND CERES: A CLOSE-UP VIEW OF THE ASTEROID BELT

Thursday, July 25 • 7:00 – 8:30 PM

**Thomas Prettyman, Ph.D.**

Senior Scientist, Planetary Science Institute (PSI) Tucson, AZ

NASA's *Dawn* mission is exploring two of the largest objects in the main asteroid belt, the dwarf planet Ceres and the giant asteroid Vesta. These are thought to be planetary embryos, relics of the ancient solar system providing clues about how the terrestrial planets formed. Since their discovery in the 19th century, our understanding of asteroids has changed with advances in astronomy and space exploration. *Dawn* has transformed Vesta from a fuzzy patch of light to a complex, geological body providing insights into processes, such as volcanism and impacts that shaped this asteroid. Learn about *Dawn* and its ion propulsion system and see images from its orbit around Vesta. And learn what *Dawn* might find upon its arrival at Ceres in 2015.

*Dr. Tom Prettyman is one of several PSI scientists working in New Mexico and is proud to call Albuquerque home. Tom's Ph.D. is in Nuclear Engineering, and his area of expertise is planetary remote sensing. He has experience working on NASA planetary missions, including Lunar Prospector and 2001 Mars Odyssey. He is a co-investigator of the Dawn mission, for which he serves as the lead for the Gamma Ray and Neutron Detector "GRaND", the only US payload instrument.*

**\$6** (\$5 members, \$4 students) (Volunteers are always free, as long as seats are available. Sign up on the sheet in the volunteer lounge.)

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All evening lectures are held at the New Mexico Museum of Natural History & Science  
1801 Mountain Rd. NW, Albuquerque, NM 87104  
(505) 841-2800

## SPECIAL EVENT

### 2013 DINOSAUR DISCOVERIES FORUM

June 20, and July 18 • 7:00 – 8:30 PM

In conjunction with the *Dinosaur Century* exhibit, this symposium features speakers covering a range of dinosaur science. Lectures are hosted by Dr. Spencer Lucas and will be followed by his tour of the *Dinosaur Century* Exhibit.

#### June 20. Robert Sullivan, Ph.D.

Research Associate, NMMNHS.

**100 Years of Collecting Dinosaurs in the San Juan Basin: New Mexico Pentaceratops, Parasaurolophus, and Tyrannosaurus rex.**

#### July 18. Amanda Cantrell

Student Intern, NMMNHS.

**The Latest Dinosaur Discoveries in the Cretaceous of the San Juan Basin**

\$8 adults \$4 for museum members, \$4 children) each lecture (First 20 volunteers are free, sign up on the sheet in the volunteer lounge)  
Entire Series (January–July) \$50 adults, \$25 members and children

Tickets can be purchased in advance online at [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org) or at the door the night of event.

**Questions:** August Wainwright  
email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)  
call (505) 841-2861

### 300 Seconds of Science

Catch the Museum every Monday morning at **11:00 AM** on **KOB TV 4** for the exclusive series—*300 Seconds of Science*. Designed to bring the museum to your home and classroom. Learn about all of the sciences at the Museum.

Be a part of it!

## FIELD TRIP

### LOS LUNAS SILVERY MINNOW REFUGIUM

Saturday, June 8 • 7:45 AM – 1:00 PM

The Rio Grande Silvery Minnow. Have you heard about it? Join us on a trip to the Los Lunas Silvery Minnow Refugium (LLSMR)—a special fish hatchery built to rear this endangered species. Learn all about this famous little fish and about the ecology past, present and future, of the Rio Grande. We will tour the Refugium, then head to the Rio Grande to see current conditions there and eat lunch.

Bring your own lunch, sunscreen, water and dress appropriately for the weather. Meet at the Museum at 7:45am. One Museum van (12 people) will be available and others can carpool as needed.

#### TRIP LEADERS:

#### Ayesha Burdett, Ph.D.

Freshwater Ecologist, is the Bioscience Curator at the NMMNHS.

#### Tish Morris

Tish has been teaching about Rio Grande bosque ecology since the 1990s.

#### Douglas Tave, Ph.D.

Manager of the Los Lunas Silvery Minnow Refugium.

#### Alison Hutson, PhD,

Associate Manager, LLSMR.

#### Louie Toya

Aquaculture tech at LLSMR.

\$40 adult (\$35 members); \$20 children (age 6-12)  
Children (age 6 or over) are welcome, but must be able to abide by safety rules and limits.

**Purchase in advance**, Space is limited, go to [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org) (Our ticketing system is changing, online ticket fees may apply.)

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call (505) 841-2861

## FIELD TRIP

### TRACKING MOUNTAIN LIONS AND FROGS ON THE LADDER RANCH

**Saturday–Sunday, June 15 – 16**

Located near Hillsboro, New Mexico, the spectacular Ladder Ranch encompasses more than 250,000 acres and is home to a diversity of wildlife including mountain lions and the endangered Chiricahua leopard frog. Dr. Perry will provide in-the-field instruction on recognizing mountain lion signs, tracks, and cache sites; learn about mountain lion behavior, their role in the ecosystem, and their interaction with humans; participate in ongoing research and use telemetry to track the collared mountain lions on the ranch. Ms. Small is working to breed and release the rare leopard frogs; the Ranch supports a native population and we will try some evening frog “spotting.” Join us on this exclusive experience limited to only 12 participants. Look forward to two exciting days on the Ladder Ranch. Meals and lodging are included. Expect moderate hiking, in summer temperatures, up to one-half mile.

*Travis Perry, Ph.D. is an Associate Professor of Biology at Furman University in South Carolina. He has four mountain lion research projects ongoing in the Southwest. His research interests include evolutionary ecology and conservation biology. Hanne Small works with the Turner Endangered Species Fund on the Chiricahua leopard frog project on the Ladder Ranch. Ayesha Burdett, Ph.D. Freshwater Ecologist, is the Bioscience Curator at the NMMNHS. She is particularly interested in food web dynamics of aquatic ecosystems.*

**\$499 per person (\$449 members)**

**Preregistration** is required, go to: [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org)  
Register early. Limited Space. (Our ticketing system is changing, online ticket fees may apply.)

**Questions:** August Wainwright  
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call (505) 841-2861

## FIELD TRIP

### FAMILY FUN ON A RIVER RUN!

**Wednesday–Saturday, June 19 – 22**

Join us for a family rafting adventure this summer! Float 26 miles on the San Juan River between Bluff and Mexican Hat, Utah. Learn about the natural history of this river ecosystem, and the plants and animals of the area through games, stories and other fun activities.

For children 7 years and over with parent(s), grandparent(s), aunt(s) or uncle(s)—no experience necessary. Complete itinerary available.

Includes all food from dinner Day 1 through lunch Day 4, expert staff, river guides, group equipment and supplies. Families meet in Bluff, Utah on the evening of June 19th. Camping equipment may be rented.

#### Expert Guides:

**Tish Morris**  
Naturalist

**Kristin Gunckel, Ph.D.**  
Geologist

*Cosponsored by Four Corners School of Outdoor Education.*

**\$715 adults, \$690 child (age 7–12) \$695 adult/\$670 child (members)**

**Preregistration** is required, go to: [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org)  
Register early. Limited Space. (Our ticketing system is changing, online ticket fees may apply.)

**Questions:** August Wainwright (505) 841-286  
email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

## FIELD TRIP

### BUTTERFLIES AND BUGS— FAMILY FIELD EXPLORATION

**Saturday, August 10 • 8:15 AM–1:00 PM**

**Mike Sanchez**

Biologist and the Museum’s Naturalist Center  
Supervisor

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Join great naturalists to search for some small creatures of summer. Exploration will take place at the Museum's Sandia Mountain Natural History Center (SMNHC) in Cedar Crest (it is about 30 minute drive from the Museum). Together we will look for beautiful butterflies, amazing ants, burnished beetles, and spinning spiders. We will have bug boxes, nets, and microscopes.

Bring your own lunch, sunscreen, water and dress appropriately for the weather. Meet at the Museum at 8:15 AM. One Museum van (12 people) will be available and others can carpool as needed. If you prefer, meet the group at the SMNHC at 8:45 AM. Directions to the SMNHC are available on the Museum website.

All ages welcome. Limited to 25 participants.

**\$40 Adult (\$35 Member), \$20 Children (age 4 - 12); Children under age 4 free.**

**Purchase in advance**, Space is limited, go to [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org) (Our ticketing system is changing, online ticket fees may apply.)

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call (505) 841-2861

## ADULT NIGHT



### IT'S A LUAU!

**Friday, June 14  
6:30 - 10:30 PM**

It's a Luau!—take a trip back in time to the Cretaceous Period, when Albuquerque would have been located

along New Mexico's Seacoast. Enjoy a tropical, beach themed evening with surf music and more!

**\$9, \$6 members**

**Purchase tickets at the door the night of the event.** (Ticket prices do not include admission to *Titanic*.) No preregistration required.

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email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

## CURATOR'S COFFEE

*A Café Style Program*

*Join us for a casual discussion followed by a themed tour. Limited to 15 people and includes coffee, light refreshments, and Museum admission.*

### LAS CONCHAS FIRE AND ITS EFFECTS ON WATER QUALITY

**June 12, 2013 - 9:30 AM - 11:00 AM**

**Clifford Dahm, Ph.D.**

Professor, Department of Biology, Hydrogeoecology Research Group, UNM



As part of the Museum's enhanced partnership with the University of New Mexico Department of Biology, we are privileged to have Dr. Clifford N. Dahm as the speaker for this Curator's Coffee. Dr. Dahm has been studying water resources in New Mexico for nearly three

decades. He will discuss changes in stream water chemistry after the major Las Conchas fire in the Jemez Mountains in 2011, and the way water quality affects biology.

*Dr. Cliff Dahm is an expert in freshwater ecology, oceanography, and aquatic chemistry. He studies stream and river ecology, ground waters, ways nutrients cycle through aquatic ecosystems, and riparian ecology. He also recently completed a four year assignment as the lead scientist for the Delta Science Program in Sacramento, California. His Ph.D. in oceanography and aquatic ecology is from Oregon State University.*

Limit 15 participants.

**\$8** (10% discount for members and volunteers)

**Preregistration required.** To guarantee your place, register online, go to [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org) (our ticketing system has changed; online ticket fees may apply)

**Questions:** August Wainwright (505) 841-2861  
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## FIRST SUNDAYS

### FREE ADMISSION TO THE MUSEUM FOR ALL NEW MEXICO RESIDENTS

**Sunday, June 2 & July 7, 9:00 AM – 5:00 PM**

On the first Sunday of every month, the New Mexico Museum of Natural History and Science is FREE to all New Mexico residents. (Bring NM ID or proof of residence. Regular admission fees for DynaTheater, Planetarium shows and Titanic Exhibit.)

#### First Sunday Special Events

**Guided Tour of the Museum Public Exhibits  
Every First Sunday • 1:30 – 2:30 PM**

Take a free, fact-filled, fun, guided tour of the Museum exhibits.

Limited to 14 participants ages 13 and up .  
**No registration required.** Tours are first-come, first served.

#### **Ham Radio Day!!**

**Sunday, July 7 • 2:00 – 3:00 PM**

Learn what ham radio is, talk to experts and make worldwide connections!!

### FREE ADMISSION TO THE SANDIA MOUNTAIN NATURAL HISTORY CENTER

**Gates open for the public • 9:00 AM – 4:00 PM**

The Sandia Mountain Natural History Center (SMNHC), the Museum's offsite environmental education facility, is located in the Sandia Mountains. Attend a special natural history presentation, and experience geocaching, the bird blind, self-guided hikes, and picnicking.

#### Presentations at SMNHC

June 2 – *Wildflowers of the Sandias*

July 7 – *Arthropods*

**No Registration Required.** For directions to the center and other info, go to [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org)

**Questions:** August Wainwright (505) 841-2861  
email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

## MUSEUM TOURS

### MUSEUM EXHIBIT TOURS

**Every Monday • 1:30 – 2:30 PM**

Take a docent-led, fact-filled, fun, guided tour of the Museum exhibits. Limited to 14 participants ages 13 and up. Meet in the Atrium at the stadium seating.

**Free** (with Museum Admission)

**No registration required.** First-come, first served.

**Questions:** August Wainwright (505) 841-2861  
email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

### BEHIND THE SCENES BIOSCIENCE TOURS

**Sunday, July 7 • 1:00 – 2:00 PM**

Bioscience Collections Manager, **Patricia Gegick**, will conduct a tour of the Museum's biological collections, which includes plants, insects, mammals, mollusks, and birds. Learn the importance of museum collections, how they are used, and how they are preserved and maintained.

Limit 12 people. No strollers or children under the age of 7. Children must be accompanied by an adult.

**Free** (with Museum Admission)

**No registration required.** Tours are 45 to an hour in length, and first-come, first served.

**Questions:** August Wainwright (505) 841-2861  
email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

## FOR VOLUNTEERS

### SPECIAL CONTINUING ED EVENT FOR VOLUNTEERS

**Thursday, June 13 • 9:00 AM**

#### Butterflies

Talk by Ralph Charlton, BioPark Curator of Insects and Head of the Butterfly Pavilion. Followed by a free showing at 10 AM of the large format film, *Flight of the Butterflies*.

Presentation for volunteers of the Museum and the BioPark. In the **MPR** at the Museum.

## FOR TEACHERS

### BOSQUE EDUCATION GUIDE WORKSHOP FOR TEACHERS

Tuesday, July 2 • 8:30 AM – 4:30 PM

At the Rio Grande Nature Center State Park

Join other educators in getting to know this amazing hands-on, Elementary–12<sup>th</sup> interdisciplinary curriculum about the Middle Rio Grande bosque ecosystem. For more information, visit the Bosque Education Guide website: <http://www.nmnaturalhistory.org/bosque-education-guide.html>

**Pre-registration is required. To reserve a space call: 505-344-7240**

Workshop is free. \$3 per vehicle day-use fee (exact change or check) for the RGNC. Curriculum and kit of materials included with full-day workshop.

Rio Grande Nature Center State Park  
2901 Candelaria NW, Albuquerque, NM 87107  
(505) 344-7240

## FOR STUDENTS

### STARTUP (for Students)

Explore the Museum's *STARTUP: Albuquerque and the Personal Computer Revolution* Gallery. The NM Highlands University Department of Media Arts & Technology, at The Museum, is offering four workshops for students age 7–17.

#### INSTRUCTORS:

##### Miles Tokunow

AmeriCorps Cultural Technology member, NMHU graduate student

##### Miriam Langer

Ph.D., Professor of Media Arts & Cultural Technology, NMHU

##### Stan Cohen, Ph.D.

Visiting Professor, Department of Media Arts & Technology, NMHU

Thursday, June 13 • 1:00 – 3:00 PM

**STARTUP: Sound!**—Participants will explore sound and technology by creating their own

synthesizers and/or creating new sounds with old toys via circuit bending.

Saturday, June 29 • 1:00 – 3:00 PM

**STARTUP: Scratch**—An introduction to programming language with an educational tool called Scratch. Participants will produce their own mini-games with the program.

Wednesday, July 3 • 10:00 AM – 12:00 Noon

**STARTUP: Silly Putty?**—To celebrate the 4th of July, why not make things light up! Participants will explore non-traditional circuitry like conductive paint, copper tape, and conductive silly putty to make designs with LEDs!

Wednesday, July 17 • 1:00 – 3:00 PM

**STARTUP: Scan**—This workshop can serve as an introduction to 3d printing and scanning with iPhone and Kinect. Older students, with experience in architectural design and/or computer programming, will learn even more.

#### \$5 for each participant per session

**Pre-registration required.** For more information or to guarantee your place in this class, register online, go to [www.NMnaturalhistory.org](http://www.NMnaturalhistory.org). (Our ticket system is changing, online ticket fees may apply.)

**Questions:** August Wainwright 505) 841-2861  
email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

### CHILDREN'S CLASSES: YOUNG EXPLORERS SUMMER SCIENCE DAY CAMP 2013

**29 years of nature, outdoors, science and summer fun!**

Experience an adventure this summer! Explore mountains, climb volcanoes, dig fossils, hike forest trails, or learn about dinosaurs with experienced instructors. Discover the biology, geology, paleontology, and ecology of our state. Create art through natural exploration and experience the outdoors.

June 24 – 28

**Weather and Climate Around Us** (2nd–4th grade) \*  
**Dinosaur Detectives** (K–1st grade)

July 15 – 19

**Art Adventures** (5th–7th grade)  
**Natural World Around Us** (2nd–4th grade)

CONTINUED

## Base Camp to Summit: SMNHC to Sandia Crest

(2nd–4th grade) \*

Dinosaur Detectives (1st–2nd grade)

July 22 – 26

Sandia Explorers (4th–5th grade)

Natural World Around Us (2nd–3rd grade)

Dinosaur Detectives (K–1st grade)

July 29 – August 2

Eco Adventures (4th–6th grade)

Natural World Around Us (2nd–3rd grade)

Nature Detectives (K–2nd grade)

August 5 – 9

Summer Science Sleuths (1st–5th grade)

\* new camp this summer

**Half-day camps are \$140 and Full-day camps are \$285.** Aftercare is available for an additional fee. Discount for museum members and scholarships are available. For camp descriptions, schedules, and registration, visit

<http://nmnaturalhistory.org/>

**Questions:** August Wainwright (505) 841-2861  
email: [programs.NMMNHS@state.nm.us](mailto:programs.NMMNHS@state.nm.us)

## ADDENDUM

### LECTURE

## IMPACTS OF CLIMATE CHANGE ON THE UPPER RIO GRANDE BASIN

July 10, 2013 • 7:00 PM - 8:30 PM

Dagmar Llewellyn

Hydrogeologist. US Bureau of Reclamation

Joint lecture sponsored by the Museum, the New Mexico Academy of Science, and the New Mexicans for Science and Reason

FREE No registration required.

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## The VAN

The VAN is published bimonthly. There are six regular issues each year: *February-March*, *April-May*, *June-July*, *August-September*, *October-November* and *December-January* and an occasional *Special Issue*. The deadline for submitting articles or photographs for the next regular issue is always the fifteenth of the month prior. The deadline for the *August-September* issue, for example, will be July 15, 2013.

Please send items for the VAN to Louise Harris, VAN Editor, <[louise@goingourway.net](mailto:louise@goingourway.net)>, with a copy to Chris Sanchez DCA <[chris.sanchez@state.nm.us](mailto:chris.sanchez@state.nm.us)>

The VAN mission is to inform, engage, and enhance the experience of NMMNHS Volunteers, by acting as a vehicle of *continuing education*, keeping volunteers informed about the Museum, and relaying news of volunteers and their activities.

***We welcome your articles pertaining to the museum. We may edit for clarity and space limitations.***

Submission Request: Please leave only one space between sentences. Thanks!

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