

KLAUBERINA

A Periodic Newsletter of the Department of Herpetology

September 2000 San Diego Natural History Museum

Plans for the Herpetology Collections Becoming Reality

Transition plans are in full-swing as the Museum moves closer to the completion of construction and renovation. The Department of Herpetology anticipates to be fully moved by the end of summer 2001. This will involve moving the fluid-preserved collection from its offsite location to the new wet range, relocating the osteological collection to the new 3rd floor mezzanine Vertebrate Collections area, and setting up the herpetology lab and office spaces.

Building Progress

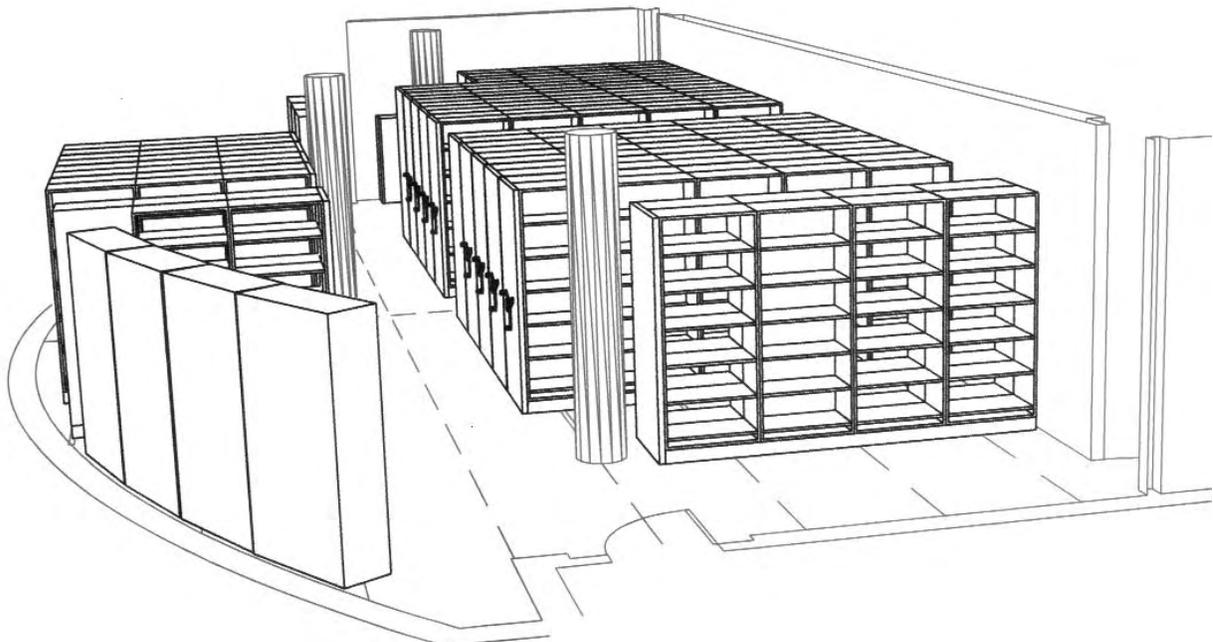
The completion date of April 2001 for the new building appears to be on track with the renovation of the old building to be finished 3–4 months following this. The Department of Herpetology will occupy two areas in the new building. First, the curator's office and laboratory will be located in approximately the same area as it is now. Renovation of the research floor will involve the complete demolition of the existing walls and mezzanine, followed by the construction of an entirely new floor plan. A recently added 3rd floor mezzanine into the plans will provide space for the various vertebrate osteological collections, including the more than 3,000 amphibian and reptile skeletons. Secondly, the fluid-preserved collections will be housed in the new wing in a specially designed room that meets all fire and earthquake safety regulations. A

recent visit to the new fluid-preserved collections room, located three floors below ground level, reveals that progress is moving along quickly. The new wet range floor has elevated grating to absorb spills which will eventually be overlain by a porous floor covering. The preparation lab, located next to the collections room, will have a large counter space, sink, fume-hood, and laboratory benches for collection managers and visiting researchers. The new assistant curator, Dr. Brad Hollingsworth, has met with the architect, Richard Bundy, to design and review the architectural plans. Every detail is being considered, from the position of computer network connections to the design of the lab benches.

NSF Grant Proposal

Drs. Paisley Cato, Katie Boskoff, and Brad Hollingsworth have prepared a three-year, \$300,000 National Science Foundation grant proposal to renovate the herpetology collection. The proposal includes funding for compactor shelving for the fluid-preserved collections room, ten Delta-Design cabinets for the osteological collection, and a collections technician to assist with the move and renovate the collection organization. The latter includes updating the taxonomy in the computerized database and on jar labels, alleviating overcrowded jars, and replacing out-dated lids. Final word will come in February 2001.

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More About *Klauberina*...

Many have inquired about the origin of the name, *Klauberina*, here resurrected from synonymy to serve as the name-bearer for the newsletter of the Department of Herpetology. First, blame it all on paraphyly. The name was originally used by Dr. Jay Savage in 1957 to distinguish *Xantusia riversiana* (Island Night Lizard) from its diminutive mainland cousins. Savage, recognizing this species large size and distinctive morphology, honored Laurence M. Klauber by elevating it to *Klauberina riversiana* (see paper, Studies on the lizard family Xantusiidae. III. A new genus for *Xantusia riversiana* Cope, 1883. *Zoologica* 42[3]:83-86). Since, *Klauberina* has been treated as a junior synonym of *Xantusia*, and thus, removes the name from the scrolls of taxonomy. It was discovered that *Klauberina riversiana* was most closely related to *Xantusia vigilis*, leaving the genus *Xantusia* as an unnatural or paraphyletic group (= a group containing a common ancestor, but *not* all of its descendents). By changing *Klauberina riversiana* back to *Xantusia riversiana*, the genus *Xantusia* is made into a natural group which includes a common ancestor and *all* of its descendents. Many curse the wrath of paraphyly on scientific names, but enlightened evolutionary biologists applaud the recognition of natural groups.



Xantusia riversiana is found on three of the California Channel Islands: San Clemente, San Nicolas, and Santa Barbara. On July 18 of this year, Dr. Brad Hollingsworth was invited by Tammy Conkle, wildlife biologist for the U.S. Navy, to visit San Clemente Island to assist her and Dr. Bill Mautz. San Clemente Island is the southernmost of the Channel Islands and is owned by the U.S. Navy. The island is used for a number of military activities including SEAL training, cruise-missile testing, and ship bombardment.



Dr. Mautz has studied the ecology of San Clemente Island for the last three decades and is currently looking at the population ecology of *Xantusia riversiana*. The Island Night Lizard is a secretive animal, spending most of its life under rocks and is rarely seen crawling in the open. This secretive lifestyle has fooled many to think Night Lizards are nocturnal. Surprisingly, most of their activity occurs during daylight hours. They occur over the entire island, but prefer the cooler, fog-covered western slopes. Despite its secretive life, *Xantusia riversiana* is found in extremely dense numbers. In fact, Dr. Mautz's initial data estimates the population on San Clemente Island to number in the millions.

The U.S. Fish and Wildlife Service lists *Xantusia riversiana* as a federally protected Threatened Species. While the initial population numbers indicate a healthy future for these lizards, San Clemente Island is still recovering from the destruction inflicted by non-native goats, burros, pigs, cats, rodents, and grasses.

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Dr. Jay Savage Honored with Symposium and Roast at International Herp Meetings in La Paz, México

Jay Savage, Professor Emeritus at the University of Miami and world-renowned herpetologist, was honored at the International Joint Meetings of the American Society of Ichthyologists and Herpetologists, The Herpetologists' League, and the Society for the Study of Amphibians and Reptiles. The meetings were held from June 14–20 of this year in La Paz, México. A day-long symposium was held in his name which featured many of Jay's past students and current colleagues. The symposium was nothing less than a walk through time. The symposium was followed by a dinner and roast where his past students honored him with a Viking Crown, comedic performances, and lots of not-so politically correct fun.

Jay moved to San Diego last year with his wife, Dr. Rebecca Papendick, who works as a veterinarian at the San Diego Zoo. Jay has had a long history in southern California, taught at the University of Southern California, and has published a number of papers about the herpetofauna of the Channel Islands and Baja California. Jay currently occupies most of his time putting the finishing touches on his forthcoming book on the herpetofauna of Costa Rica, to be published by the University of Chicago Press.

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Museum Expedition to Isla Guadalupe, Baja California, México

Described in 1875 as a "naturalist's paradise", the island of Guadalupe, 160 miles off the coast of Baja California, was declared a wildlife reservation by the President of Mexico in 1922. Yet today the plants and animals inhabiting this 10 million-year-old island suffer drastically from the last 150 years of abuse and destruction by introduced non-native species. Isla Guadalupe is truly oceanic, having never been connected to the mainland. As a result, many of the plants and animals are found nowhere else in the world. Unfortunately, human-introduced species such as goats, cats and mice have wreaked havoc on this unique ecosystem over the last century. Many native plant and bird species have gone extinct, and many more are extremely endangered.



There had never been a focused effort to survey for the presence of amphibians and reptiles on Isla Guadalupe. To date, no credible report of terrestrial-bound amphibians or reptiles is known from the island. Many herpetologists have visited the island in the past; however, few have had the opportunity to explore the island for any length of time. Visits were also limited to coastal localities, without access to the cypress, pine, and palm forests in the highlands of the northern half of the island. Because many amphibians and reptiles are secretive and nocturnal, there have been high hopes of finding unreported species in the more remote areas. The diversity of habitats and the island's rugged terrain held out the possibility of finding previously undocumented species. The only two herpetofaunal records from the island were obtained during visits by Reinoehl in 1949 (a Loggerhead Sea Turtle, *Caretta caretta*) and Limbaugh and Rechnitzer in 1953 (a single tadpole of the Pacific Treefrog, *Hyla regilla*). While the Loggerhead Sea Turtle is a credible record, the presence of Pacific Treefrogs is doubtful. After uncovering the original fieldnotes for the specimen, it was discovered that the single tadpole was collected in a net, which, at the time, was being used to collect marine invertebrates 200 yards off the coast of Northeast Anchorage in seawater. It is likely the specimen had been left in the net from some previous use (since tadpoles can't survive in saltwater) and was transported to the island before being discovered.

In June of this year, the Museum mounted a 10-day expedition to Isla Guadalupe. Sixteen scientists, three logistics persons, six film and print media, and seven ship crew participated. On June 4, the expedition departed from Shelter Island in San Diego for the 26 hour trip on the 94 foot Shogun with a helicopter, two quadrunners, jet fuel, and two skiffs onboard. Once arriving, the helicopter immediately transported six people to the cypress forest located 3,500 feet above the Northeast Anchorage, including the Museum's herpetologist, Dr. Brad Hollingsworth. The remaining scientists onboard departed for the southern end of the island to explore the two islets, Adentro and Afuera, where their isolation from the ravages of goats and cats provided pristine conditions. In the cypress forest, Museum ornithologist, Phil Unitt, and SDSU's entomologist, Dr. Marshal Hedin, went into immediate action spotting and collecting new species and confirming the presence of previous records. After exploring the cypress forests, the entire scientific team rendezvoused in the pine forest along the Northern Ridge. After exploring the cypress, pine, palm, and oak habitats, no herpetological discoveries were made.

The absence of terrestrial-bound amphibians and reptiles from Isla Guadalupe will always remain a mystery. Reptiles are especially good at over-water dispersal, as demonstrated by their presence on numerous islands. Why haven't they made it the Guadalupe? To answer this, some speculation is needed. It is possible that MacArthur and Wilson's theory on island biogeography holds true and Isla Guadalupe is simply too far away. It is also possible that amphibians and reptiles have made it to the shores of the island, but were unable to establish colonies possibly because the more suitable habitats are at the higher elevations. And, it is possible that amphibians and reptiles were once present on the island, but have since gone extinct due to the ravishes of introduced goats, cats, and mice. While all are possible, it is likely that the island is simply too far away and the ocean currents do not favor colonization. This is supported by looking at other organismal groups. Interestingly, there are no terrestrial-bound vertebrates of any kind native to the island. KB, EE, BDH



The History of the Collection

Soon after the city of San Diego was founded in 1869, a handful of amateur naturalists began collecting scientific specimens of plants and animals and sharing information about their findings in an attempt to learn about the natural resources of this newly settled land. In 1874, the San Diego Society of Natural History was founded with a mission "to promote the study of nature, the acquirement and diffusion of scientific knowledge and the collection and preservation of materials pertaining thereto." The Society began amassing specimens of amphibians and reptiles in the late 1890s, largely through the efforts of the curator of vertebrates, Frank Stephens.

One important amateur naturalist whose influence was felt for many decades was Laurence M. Klauber (1883-1968), who became honorary curator of herpetology in 1922. Klauber was an engineer who became the CEO and president of San Diego Gas & Electric Company. In his spare time, he pursued his passion for amphibians and reptiles, and, through his scholarship, research and field work, became highly respected in the scientific community. He started his personal collection in 1925 and kept a personal collection at home, as well as a collection housed at the museum. Both were catalogued under one numbering system, with the intention of combining them someday. At retirement in 1961, the 44,481 catalogued specimens were bought together and stored as a single collection housed in the Museum.

Klauber's collections focused on areas along the southwestern borderlands. From San Diego County alone are 13,786 specimens. Though Klauber personally collected only 5,415 specimens, his talent for enlisting the help of collectors throughout the region and the country generated many more. For instance, Klauber assembled a collection of 8,600 rattlesnakes representing nearly every known species. Today, the SDNHM collection holds 9,309 rattlesnakes. Among his contributors were Clarence Perkins and Charles Shaw, both reptile curators at the nearby San Diego Zoo, who brought in specimens from the Southwest, Mexico, and islands throughout the Pacific. Shaw curated the SDNHM herpetology collection during World War II when the Museum was used as a U.S. Navy hospital and the collection was temporarily housed at the zoo (Pregill, 1983).

Starting in 1961, Dr. Richard Etheridge, now Professor Emeritus at San Diego State University (SDSU), served as acting herpetology curator with Allan Sloan as his assistant. For the next ten years, Sloan carried out the daily functions of the department. He helped integrate Klauber's personal collection with that of the Museum and oversaw the construction of the Klauber Herpetological Library. During his tenure, the collection grew and records of departmental activities started. In 1962, Sloan added 2,063 specimens from the Belvedere Expedition which explored the islands associated with Baja California. The bulk of these specimens were the basis for one of the first published accounts of the biogeography and distribution of amphibians and reptiles from islands in the Gulf of California (Soulé and Sloan, 1966).

Between 1972-1978, Dr. Thomas Fritts served as curator and added another 7,762 specimens to the collection. He was the first full-time herpetology curator with formal graduate training. Fritts and his assistants updated nomenclature, relabeled jars, and initiated a species index in an effort to modernize the collection. Fritts started the osteological collection, which now contains over 3,000 specimens. He also involved graduate students from SDSU in various tasks and fieldwork.

Dr. Gregory Pregill served as curator between 1982-1993. He expanded the osteological and fluid preserved holdings by 5,747 specimens. Pregill also expanded relationships with SDSU. During Pregill's tenure, graduate students of Drs. Etheridge and Estes routinely collaborated with the SDNHM herpetology department. Among those who utilized the herpetology collection for work on their Master's theses were K. de Queiroz, M. Norell, L. Grismer, V. Wallach, M. Stinson, M. Lang, E. Gergus, J.



McGuire, B. Hollingsworth, and J. Newsome. In 1987, Pregill received an NSF grant to database the collection catalogues. Dr. Robert Sullivan was hired as collection manager to oversee its implementation and the data were all entered into the computer program MUSE.

Between 1993-1999, the collections care and conservation department managed the herpetology collection. In summer 1998, the fluid collection was moved from an outbuilding behind the Museum to temporary offsite housing to prepare for building construction. Ten people were hired to pack, move and reshelve the 8,100 jars of specimens. By late 1998, the collection was again accessible for use. In 1999, the database was transferred from the outdated MUSE to Access. Over the last two years, the process of editing and correcting errors in the database has started. The original catalogue is now linked to taxonomic and geographic tables to allow for querying of broader search criteria.

Dr. Bradford Hollingsworth assumed the responsibilities of the department in summer 2000 as assistant curator. The collection is currently going through an extensive inventory with the help of department volunteers. Reggie Leuty has logged over 60 hours over two months assisting with the inventory. The osteological collection has recently been moved to the temporary offsite facilities in preparation for the demolition of the third-floor mezzanine. The collection continues to grow despite the interruptions caused by building construction. For example, a recent acquisition of amphibians and reptiles collected during the 1997 Lindblad Binational Expedition has been imported and catalogued. Among these specimens, is the holotype of a new species of *Elgaria* (Grismer and Hollingsworth, *in press*).

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