Southern California Botanist's 37th Annual Symposium

Baja ¡Aha! Botanical Diversity of the Peninsula

Ruby Gerontology Center • California State University, Fullerton

8:00 a.m. - Registration begins.
Morning snacks will be provided.

9:00 - 9:15 a.m.
Introductory comments
Bart O'Brien, SCB President

9:15 – 10:00 a.m.
Pedro Peña Garcillán, PhD.
Ecoregions and Natural History of Baja California
The complex geological and biological history of the Baja California peninsula, combined with its geographical location in the tropical-temperate transition, produces a striking and unique replication of the larger-scale temperate-desert-tropical transition in the North American mainland. This sort of "small-scale continent" has fascinated scholars for almost two centuries. I propose a trip through the perception of the natural history of Baja California following the main biological regions proposed through time by naturalists and scientists. The majority of the biogeographical studies of the peninsula have agreed on a general framework of three main peninsular biomes: northwestern Mediterranean scrub, southern tropical scrub and the desert region lying in between, articulated by three axes of climatic variation, a long latitudinal span, a strong east-west contrasts in climate, and pronounced topography. This common biogeographical outline was delineated by Edward Nelson in 1921 and was refined by Forrest Shreve's work thirty years later. Seven major discrepancy zones are identified between the different approaches of the peninsular's biogeography, which were analyzed at a workshop of regional experts. Together we generated a new synthetic proposal of 14 ecoregions.

10:00 - 10:45 a.m.
Elisabet Whencke, PhD.
Sierra de La Libertad, oases, and blue fan palms
Sierra de La Libertad, a group of prominent mesas and canyons in the Central Desert Region of Baja California is one of the most isolated, intriguing, and ignored areas of the peninsula. Of the numerous scientific explorations performed to of Baja California none have entered this area for more than one hundred years, and actual efforts to delimit this area have just extrapolated data from global information systems. We summarize the information obtained from two biological expeditions performed during 2009 after exploring the southern part of Sierra de La Libertad and its adjacent areas by riding mules. We describe the plant communities found in the most remote desert oases, which are associated with the blue fan palm, the dominant vegetation of this area. Information on the current processes controlling the distribution patterns of relict palm populations at the limit of their northwestern distribution in America are poorly known. We summarize information on the ecology of blue fan palm oases in northern Baja California.

10:45 – 11:00 a.m. - Mid-Morning Coffee Break

11:00 – 11:30 a.m.
Jon P. Rebman, PhD
Undescribed flora of the Baja Peninsula
In the last few years, several new plant taxa from the Baja California region including *Ambrosia humi, Bursera littoralis, B. rupicola, Calyptridium parryi* var. *martirense, Distichlis bajaensis, Grusonia robertsii, Marina brevis, M. victoriae*, and *Salvia pachyphylla* ssp. *meridionalis* have been formally described by various authors. However, many more taxa are still undescribed and more are being discovered all of the time. Recent plant collecting expeditions to an island and to remote and botanically unexplored mountain ranges on the peninsula have also yielded new species discoveries. Furthermore, ongoing botanical research projects like the voucher-based Baja California Vascular Plant Checklist being conducted at San Diego Natural History Museum and the increased accessibility to herbarium specimen data through digitization efforts in databasing and georeferencing are constantly revealing new plant records for the region. It is evident that the Baja California peninsula and its adjacent islands continue to be a botanical frontier and an important source of new floristic discoveries.

11:30- 12:00

Bart C. O'Brien, José Delgadillo Rodriquez, Steve A. Junak, Thomas A. Oberbauer, Jon P. Rebman, Hugo Riemann, Sula Vanderplank**.**

The Rare, Endangered, and Endemic Plants of the California Floristic Province Portion of Baja California, Mexico.

This presentation will provide an overview of the new publication documenting the rare, endangered, and endemic plants of the California Floristic Province portion of Baja California, Mexico (CFP Baja): The northwestern portion of the Baja California peninsula from the border with California to the vicinity of El Rosario and up to, and including, the forests and peaks of the Sierra Juarez and the Sierra San Pedro Martir. Threats to the flora are enumerated, and a summary comparison of the lists will be shown. Comparisons between various aspects of the rare and endangered plants (R&E plants) of CFP Baja to those of the state of California will be presented. These data will include the proportion of R&E plants to the native flora of the area, comparisons of top families and genera, list placement, areas of overlap, etc. Current areas of critical conservation concern to native plants in CFP Baja are identified. Major funding for the project was provided by the Jiji Foundation.

12:00 - 1:30 - Lunch Break

After announcements, the SCB Board will arrange a speaker's lunch at the Fullerton Arboretum. Everyone will be invited to bring their own lunch and join the group.

1:30 - 2:15 a.m.

Alan B. Harper PhD

Floristics from Erindira to Colonet

Punta Colonet (also known as Mesa Colonet) has a unique flora, and is in the region of highest floristic diversity of Baja California. It contains the largest vernal pools in Baja California, and has the most extensive maritime chaparral in the California Floristic Province of the peninsula. Because the Mexican government announced plans to build a major international port in the lee of the point, with an associated city of 300,000 inhabitants, we document the flora and vegetation of region. We find that Punta Colonet has many locally endemic plant taxa, vegetation that is unique to the peninsula, and intact areas of coastal plain that have been largely lost elsewhere in the region. It is also one of the most beautiful and photogenic areas in coastal northwest Baja California. Even though the port is (unofficially) deferred or cancelled, none of the land in the region is protected, and incremental loss continues.

2:15 – 3:00 p.m.

Xavier López Medellín, PhD

Mangroves of Baja

Mangroves reach their northernmost distribution in arid northwestern Mexico where they grow under sub-optimal conditions. They constitute highly productive ecosystems that export organic material to surrounding areas and they maintain the coastal environmental quality and provide ecosystem services to human populations. Despite the harsh environmental conditions, mangroves produce high amounts of organic matter, which is perhaps their most important function in these coastal environment. Nevertheless, these mangroves are threatened by the accelerated development and population growth of the region. However, some studies have shown that mangrove canopies in the Pacific coast of Mexico have been increasing during recent decades. We found that a significant increase in mangrove cover has occurred in Magdalena Bay in Baja California during the last 40 years, attributed to the combined action of sea level rise and El Niño events. This expansion however, does not ease concerns for their future, as it is the seaward fringes that provide the most valuable environmental services for fisheries and coastal protection. The benefits of increased establishment inland are uncertain compared with the growing threats to the seaward fringes.

3:00 – 3:15 p.m.

Mid-Afternoon Coffee Break

3:15 – 3:45 p.m.

Benjamin T. Wilder

Plant life of a Desert Archipelago

The Midriff Islands of the Gulf of California, an archipelago that stretches from Baja California to mainland Sonora Mexico, occur in the midst of one of the most productive seas in the world. Nutrient rich cold-water upwelling leads to a diverse marine based-trophic web, while terrestrial biomes receive irregular precipitation that is dramatically arid at

present, supporting a unique assemblage of desert species. The vegetation of each island is distinct, from cardón cactus forests to agave-studded slopes, the forcing topographic, climatic, and biological forces have sculpted a set of unparalleled desert worlds. A gradient of floristic affinities is seen across the Midriff Island chain, the western – Baja California islands – contain a number of "Californian" winter-rain associated plant species, while those islands to the west – the Sonoran islands – instead have dozens of tropically derived species toward the north of their ranges. Yet, a number of species with trans-Gulf distributions show evidence of migration across the Gulf of California using the islands as stepping-stones. Just one of the botanical mysteries from this magnificent region.

3:45- 4:15 p.m.
Thomas Oberbauer
Isla Cedros a Continental Desert Island with Interesting Diversity
Isla Cedros is the largest of the California and Baja California Islands. It is surrounded by shallow water and would have been connected to the mainland during the Pleistocene when the sea level was lower due to enlarged polar ice caps. While it lies within an arid climatic region where the lowland seasonal rainfall is only 85mm., it contains stunningly sharp environmental gradients on the upper elevations which range up to 1,194m where seasonal precipitation probably exceeds 200 mm. Frequent summer fog on the upper portions of the island also contributes to the precipitation. Because of the fog enhanced climatic conditions, the pine forest grows adjacent to desert communities. This has resulted in a diversity of vegetation community associations that blend in an interesting fashion. These range from sarcocaulescent desert, made up of succulent-stem trees and shrubs, to coastal sage scrub, chaparral and maritime pine forest typical of southern and central California more than 700 km to the north. The Island supports approximately 230 native taxa including a number representing a flora from the north including Alta California, a number representing a flora from the south and roughly a dozen that may be endemic.

4:15 – 5:00 p.m.
Steve Junak
Good News from Guadalupe Island, Baja California's Western Frontier
Located about 160 miles off the west coast of Baja California, Mexico, and 200 miles south of San Diego, Guadalupe Island has an area of 98 square miles and supports a unique flora. Recent conservation efforts on the island have yielded some amazing results, and there is now hope for the continued survival of many of the island's unique plants.
Feral goats that were introduced in the 1800s have drastically altered the island's ecosystems. Once-extensive stands of endemic cypress, palm, and pine trees, as well as groves of junipers and island oaks, have been dramatically reduced and non-native plants have invaded large areas.
Goats have now been removed from the island, and dramatic recovery of the island's plant life is taking place. Eroded areas that were formerly bare are being recolonized by endemic shrubs and vines, and thousands of tree seedlings have started to grow. In a few short years, Guadalupe Island has become one of the best examples of an island that is quickly recovering from past damages. Several plant species that were thought to be extinct on Guadalupe Island have been rediscovered, a number of new plant records have been documented, new populations of endemic plants have been mapped, and native plants that have not seen for decades have been found.

5:00 – 6:00 p.m. – Poster session at CSU Fullerton Arboretum

6:00-9:00 p.m. Banquet at CSU Fullerton Arboretum

7:00-8:00 p.m. Keynote Speaker at Banquet
Exequiel Ezcurra PhD – *History of Baja California Botany*