

# Plant Press Arizona

THE ARIZONA NATIVE PLANT SOCIETY

Volume 47, Number 2

Winter 2024

*Baileya multiradiata*,  
Desert Marigold

Cora Estelle Mosher

## A Botany Extravaganza

- 3 Cliff Milkvetch: A Very Rare Plant on the North Kaibab Plateau
- 8 Conservation Work for Two Rare Wetland Endemic Plant Species at Las Cienegas National Conservation Area
- 12 Bridging Botanical Traditions with Tribal Knowledge
- 17 *Calochortus* Biogeography and Phenology in Arizona

### Plus

- 25 SEINet: What can it do for you, and what's coming soon?
- 31 Coastal Thornscrub Flora and Vegetation in the Municipality of Huatabampo, Sonora, Mexico
- 31 Iris Rodden, In Remembrance
- 48 Gymnosperm issue comments

## With Regular Features

- 2 President's Note
- 27 Book Review: Richard Felger's Final Masterpieces — Two books that open the southern edge of the Sonoran Desert as never before
- 50 Spotlight on a Native Plant: Saguaro (*Carnegiea gigantea*)
- 51 Who's Who at AZNPS

©2025 Arizona Native Plant Society.  
All rights reserved.



El Cañon de la Balandrona. Photo courtesy Sue Carnahan. See page 27 for "Richard Felger's Final Masterpieces — Two books that open the southern edge of the Sonoran Desert as never before."

## Introduction

by J. Douglas Ripley, President Arizona Native Plant Society

This issue of *Plant Press Arizona* features several papers presented at the Society's August 2024 Conference held at the Pima Community College. Those describe interesting native plant survey work and conservation projects for several endangered species. One paper provides an update on new features coming soon to the invaluable SEINet network. Also included is a discussion of the background and accomplishments of the Society's Hakḍtagwi:va Peach Springs Chapter, possibly the only Native American native plant society in the country. Finally, we present a paper on the coastal thornscrub flora and vegetation in the Municipality of Huatabampo, Sonora, Mexico.



Richard Felger in Cañón Las Pirinolas, Sierra el Aguaje. Photo credit Jesús Sánchez-Escalante.

## Richard Felger’s Final Masterpieces — Two books that open the southern edge of the Sonoran Desert as never before

by Benjamin T. Wilder<sup>1</sup>, Next Generation Sonoran Desert Researchers

*Plants and Animals in the Yoeme World: Ethnoecology of the Yaquis in Sonora and Arizona* by Richard Stephen Felger and Felipe Silvestre Molina. Desert Institute Press, 2024

*The Desert Edge: Flora of the Guaymas–Yaqui Region of Sonora, Mexico*

by Richard Stephen Felger, Susan Davis Carnahan, and José Jesús Sánchez-Escalante. BRIT Press, 2023

Nineteen fifty-three was the first time Richard Felger (1934–2020) crossed into Sonora, Mexico and ventured to where the desert grades into the tropics. That experience in Nacapule Canyon, just outside San Carlos and Guaymas where the Sonoran Desert hits its southern limits on the Mexican mainland, was the beginning of a life-long pursuit. Now, some 70 plus years later, and after his passing, we have been given two magnificent works that capture the full diversity of what is known of the plant life (*The Desert Edge*, 2023, BRIT Press) and the biocultural knowledge of the

plants and animals of the Yoeme People (*Plants and Animals in the Yoeme World*, 2024, Desert Institute Press) of the southern edge of the Sonoran Desert.

In the interim, Richard went on to become a botanical expert of the Sonoran Desert and arid lands of the world. His more than 100 publications, including 13 books, are nothing short of floristic bibles of the desert. With decoded identification keys that are each customized and tailored to the flora of that region, they are definitive and easily accessible works. They include *People of the Desert and Sea* (Felger & Moser 1985), *Flora of the Gran Desierto and Río Colorado of Northwestern Mexico* (Felger 2000), *Trees of*

<sup>1</sup>Dr. Benjamin T. Wilder is a desert ecologist, botanist, and biographer who began working with Richard Felger in the early 2000s and served as editor on these two books.

*continued next page*

## Richard Felger's Final Masterpieces *continued*

*Sonora* (Felger et al. 2001), *Plant Life of a Desert Archipelago* (Felger & Wilder 2012), and now these two works.

Though they each have their own origin stories, Richard always saw these two most recent books as sister publications, both decades in the making. From that first trip in the early 1950s, Richard began making herbarium collections from the Sierra el Aguaje, the expansive and largely unknown massif that rises just to the north and east of San Carlos. The range's deep canyons, several only accessible from a boat ride up or down the coast of the Gulf of California, quickly revealed themselves to be home to tropical species, found here at the northern limits of their ranges. Those collections built on themselves, soon numbering in the thousands, augmented by thorough research in the herbarium and the literature. The first product of this decades-long effort was his 1999 publication of the flora of Nacapule Canyon (Felger 1999).

In parallel, his interest in the peoples of the desert and their knowledge deepened. As his work with the Comcaac (Seri People) was reaching a milestone in the publication of the *Seri Ethnobotany* (Felger & Moser 1985), his interest in the knowledge of the Yoeme grew. He soon connected with Felipe Molina, who was raised by his extended family and community members in different Yoeme communities of Arizona and Sonora, and soon became a well-recognized expert of *Yoeme Bwiara* (the sacred, traditional land of the Yoemem centered along the lower Río Yaqui, or *Hiak Vatwe*, in Sonora, Mexico). Richard and Felipe began extensive field trips in the late 1980s, with the creation of a thorough treatment of Yoeme biological knowledge in mind. They then received tribal authorization and grant support in the 1990s to further their efforts. The work largely paused as the first two decades of the twenty-first century saw them pursue other projects, though in Richard's final years, the completion of his work with Felipe became almost a singular focus. He knew how much vital

knowledge they had assembled, and how much would be lost without its publication.

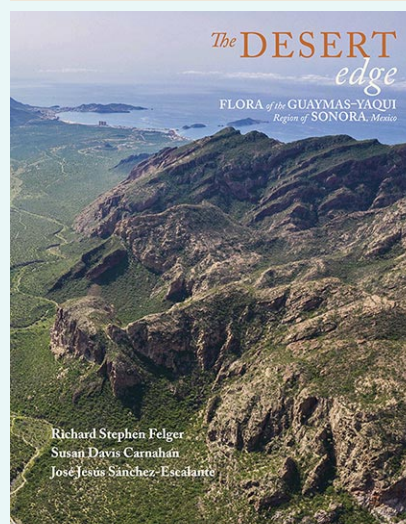
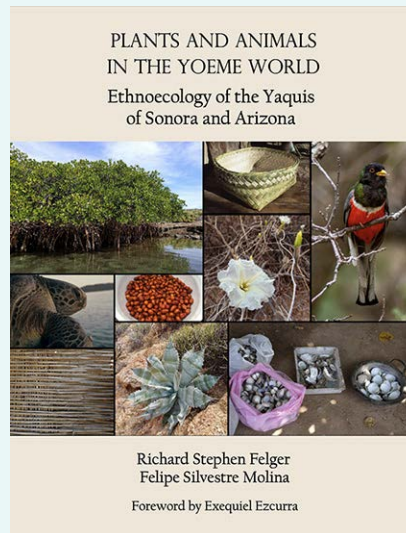
Similarly, he was driven to continue what he started in the Sierra el Aguaje. He partnered with Jesús Sánchez Escalante, Sonoran botanist and curator of the herbarium of the University of Sonora (now curator emeritus). Jesús added hundreds of collections and dozens of new additions to the flora. Richard also connected with botanist Sue Carnahan,

whose interest in the region, determination, and editorial expertise rapidly pushed the project toward completion. Sue also contributed hundreds of beautiful photos of the flora, which bring to life the 800+ plants that are found there. As a prelude, this team of three published a revised and updated Flora of Nacapule Canyon (Felger et al. 2017). That proved to be the tip of the iceberg, with the two volume, 1,100+ page *Desert Edge* masterpiece in the works.

As you begin to dig into *The Desert Edge*, the magnitude of the work is quickly apparent. A quick flip through, or scroll of the freely available digital version, is filled with stunning landscape images, macro photos of nearly all 837 plant taxa found in the flora area, and images and stories of the people that helped document these plants. You will also see dozens of taxonomic keys, "the poetry of botany" as Richard would say, at the outset of each family, generic, and species descriptions. As you push deeper, you begin to soak in the endless details that are brought together on these pages. Information of this place on the Mexican mainland is melded with

botanical knowledge that unites the global context of a plant family with hyper-local treatment of a species in this Sierra complex and its adjacent areas. As you read, facets of this tropically infused flora seep in. In many ways, you can choose your own adventure. No need to lug the two-volume set into the field (though it is well worth the investment). Download the single-file pdf and quickly navigate to the

*continued next page*





Alacran Rada. Photo credit Sue Carnahan.

## Richard Felger’s Final Masterpieces *continued*

family or genus of interest, made effortless by the search and find function on whatever digital device you may be using. If truly stumped, start at the key to families, which is not as daunting as you may think, due to reduced jargon and years of refinement of the multi-stepped couplets. The quality and quantity of photos is so good that even the page-flipping, key-adverse will readily find an answer to their botanical questions.

Equally monumental, *Plants and Animals in the Yoeme World* is anchored in a person’s responsibility to pass on knowledge to future generations. It is based in Yoeme cosmivision which encompasses multiple spiritual worlds or realms — *Aniam* — that are connected, flexible, and overlapping. Each of the more than 415 species of plants and over 600 forms of animal life described via individual species descriptions in this work can best be understood by starting with Part 1, especially the section “Way of Life” (page 10). This short and synthetic overview grounds the reader in the depths of the relationships and interconnections between humans, other life forms, the land, and different dimensions of existence. In this light,

each species description, Yoeme species name, song, or other cultural connection is not a factoid, but a piece of a larger whole. That larger whole is shared with us here, as Richard and Felipe intended, to perpetuate ways of knowing and interacting with the world that manifest the intrinsic life forces all around us.

Perhaps more than anything else, these sister works document the biological and cultural wealth of an area too often overlooked. Prior to their publication, floristic and biocultural information was fragmented and incomplete. In fact, these works fill a long-standing gap of botanical information, not just in the Sonoran Desert, but for all of Mexico. Perhaps in part due to a lack of information, the Sierra el Aguaje remains outside of any formal protected status at the state or federal level. Meanwhile, urban encroachment edges ever closer, especially to Nacapule Canyon. At the same time, centuries of appropriation, disenfranchisement, and oppression of the Yoemem, their water, and their lands continue. These two books stand as a testament, and hopefully a pillar and calling, for the

*continued next page*



Exploring Los Anegados. Photo credit Jesús Sánchez-Escalante.

## Richard Felger's Final Masterpieces *continued*

preservation of the diversity and worldviews of the sacred lands pulsed by rivers and bordered by tropical canyons.



### Cited works

Felger, R.S. 1999. The flora of Cañón del Nacapule: A desert-bounded tropical canyon near Guaymas, Sonora, Mexico. *Proceedings of the San Diego Society of Natural History* 35:1–42.

Felger, R.S. and M.B. Moser. 1985. *People of the Desert and Sea: Ethnobotany of the Seri Indians*. University of Arizona Press, Tucson.

Felger, R.S. 2000. *Flora of the Gran Desierto and Río Colorado of Northwestern Mexico*. University of Arizona Press, Tucson.

Felger, R.S., M.B. Johnson, and M.F. Wilson. 2001. *Trees of Sonora, Mexico*. Oxford University Press, New York.

Felger, R.S. and B.T. Wilder in collaboration with H. Romero-Morales. 2012. *Plant Life of a Desert Archipelago: Flora of the Sonoran Islands in the Gulf of California*. University of Arizona Press, Tucson.

Felger, R.S., S.D. Carnahan, and J.J. Sánchez-Escalante. 2017. *Oasis at the Desert Edge: Flora of Cañón del Nacapule, Sonora, Mexico*. Proceedings of the Desert Laboratory Contribution 1, University of Arizona: 1–220.

Visit Richard Felger's website, [www.desertfoodplants.org](http://www.desertfoodplants.org)

You can download or order these two books here:

***The Desert Edge: Flora of the Guaymas–Yaqui Region of Sonora, Mexico*** by Richard Stephen Felger, Susan Davis Carnahan, José Jesús Sánchez-Escalante (BRIT Press, 2023)

Available for purchase:

<https://shopbritpress.org/products/desert-edge-flora-of-guayamas-yaqui-region-of-sonora-mexico-vol-i>

and for free download:

[https://www.desertfoodplants.org/\\_files/ugd/d133c2\\_7bdc031c4f9c4dbf9907de20f1944079.pdf](https://www.desertfoodplants.org/_files/ugd/d133c2_7bdc031c4f9c4dbf9907de20f1944079.pdf)

***Plants and Animals in the Yoeme World: Ethnoecology of the Yaquis in Sonora and Arizona*** by Richard Stephen Felger and Felipe Silvestre Molina (Desert Institute Press, 2024)

Available for purchase: [https://www.amazon.com/Plants-Animals-Yoeme-World-Ethnoecology/dp/B0CXG9BMSK/ref=sr\\_1\\_1?crd=22F2TA6U5H822&dib=eyJ2ljojMSJ9.U D6FnM0QsQuDXE9IaxVze\\_hFBHJSScAKGcwglnraMqU.U cCpSy2I8FsB7sCAFfuJSdzSNRMEhCWclD2kEAXeSD8&dib\\_tag=se&keywords=plants+and+animals+in+the+yoeme+world&qid=1724086413&prefix=plants+and+animals+in+the+yoeme+world%2Caps%2C190&sr=8-1](https://www.amazon.com/Plants-Animals-Yoeme-World-Ethnoecology/dp/B0CXG9BMSK/ref=sr_1_1?crd=22F2TA6U5H822&dib=eyJ2ljojMSJ9.U D6FnM0QsQuDXE9IaxVze_hFBHJSScAKGcwglnraMqU.U cCpSy2I8FsB7sCAFfuJSdzSNRMEhCWclD2kEAXeSD8&dib_tag=se&keywords=plants+and+animals+in+the+yoeme+world&qid=1724086413&prefix=plants+and+animals+in+the+yoeme+world%2Caps%2C190&sr=8-1)

and for free download:

[https://www.desertfoodplants.org/\\_files/ugd/d133c2\\_d32a7ef228754ac1962c91222bb6e143.pdf](https://www.desertfoodplants.org/_files/ugd/d133c2_d32a7ef228754ac1962c91222bb6e143.pdf)