

Charlotte's Web Gets Wet: Sea Spiders

Phylum Arthropoda/Class Pycnogonida

Sea spiders are officially known as *pycnogonids* (pronounced pik-no-GO-nids) and can be found both here in San Diego and throughout the world's oceans.

Ranging from La Jolla tide pools to deep in the abyss at 6000 meters, pycnogonids are most often found under rocks or crawling on their favorite foods. Sea spiders are often overlooked because they tend to match the color of their surroundings and can be quite

small, with legs as short as 1mm long—though Antarctic and deep-sea species can grow to a meter across.

These marine arthropods look basically like landlubber spiders, except that a pycnogonid's central core is merged into one piece with joints for its eight to twelve spindly legs. Such a large proportion of the pycnogonid's body consists of legs that some of its digestive and reproductive organs are stored in its "thighs." The sea spider's closest living relatives are probably horseshoe crabs (Class *Xiphosura*), as well as terrestrial spiders, mites, and scorpions (Class *Arachnida*)—but very few fossils of sea

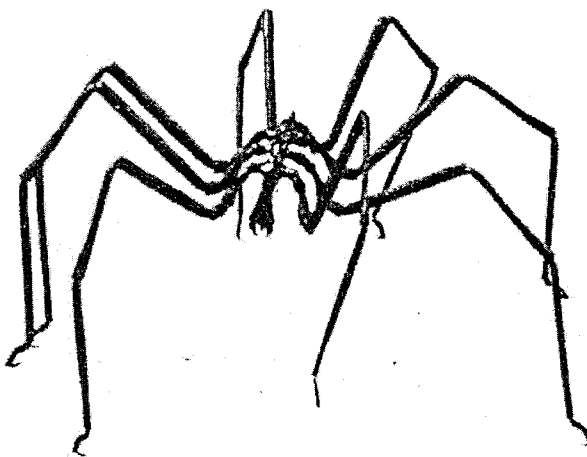
spiders have been discovered and the origins of this group are up for debate.

Unlike land spiders, pycnogonids do not make webs and do not have any species known to be venomous to humans. This hasn't dampened the imaginations of science fiction buffs, however. "Spider Legs," by Piers Anthony and C.A. Pickover, fills a paperback with tales of a mythical giant sea spider attacking humans, though the cover illustration looks more like a rabid lobster.

Many of the true secrets of a sea spider's daily life are unknown, but different species have been spotted while feeding on hydroids, sponges, nudibranchs, bryozoans, other invertebrates, and loose debris. The mouth is at the end of a

long proboscis which can be used to suck fluids from an anemone, like a mosquito drawing human blood. Anemones survive this parasitic annoyance, and sometimes return the favor by eating unwary sea spiders. The proboscis can also be used to reach inside the protective shells of individual bryozoans for precision feeding on these colonial animals. Other kinds of pycnogonids use crab-like claws to tear off hydroid branches and eat them.

Female sea spiders lay their eggs, which are then fertilized and toted around by the male pycnogonid until they hatch. A few pycnogonids intention-



The Sea Spider

ally place the eggs where they will be inhaled by an unsuspecting clam—the eggs then develop inside the clam until hatching. Males of other species hand-carry the egg masses or glue them to one of their legs. Individual males have been seen carrying eggs from fourteen different females.

Even without these reproductive saddlebags, pycnogonids aren't exactly known for speed. While their mode of choice is to plod slowly around the seafloor, certain sea spiders fling themselves into the current to be carried short distances on the way back down. Others can even stay afloat with specialized swimming legs to propel themselves through the water.

Where do they go? Perhaps the savviest travelers are the pycnogonids that hitchhike on passing blades of seaweed, flotsam, and jetsam. Though their current diversity springs partly from their limited travel abilities, over evolutionary time the spiders of the sea have managed to cross the globe.

Resources

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-Margot

Book Review



Future of Life

by Edward O. Wilson

\$22.00; 229 pages.

Edward O. Wilson is a writer with awesome qualifications. He was professor of Biology at Harvard University until he retired in 1997. He is now a research professor and honorary curator of the Museum of Comparative Zoology at Harvard. He has been awarded two Pulitzer Prizes for science writing. He has written several other books on conservation and ecology. He has received many awards, including the Nierenberg prize awarded by Scripps Institution of Oceanography, in 2001 for science in the public interest. He is the first person to be honored with this award.

The book *Future of Life* is considered his most important book. Wilson is not preaching to save a tree. He is showing us how human activity has destroyed natural habitats all over the world to the point that half of the species alive today could be extinct in the next hundred years. Saving the trees is just one part of his plan to save the planet and the living things on it—including human beings.

This is especially applicable to the San Diego area because San Diego county has more endangered and threatened species than any other county in the United States.

Like all of Wilson's books, this one is very readable. He is very good at describing things in terms anyone can understand.

