



The Coontie

and the Atala Hairstreak

by Roger L. Hammer

The story of two historically abundant Florida natives.

The Coontie

The human history surrounding the native cycad called coontie (*Zamia pumila* — *pumila* means “dwarf”) may be more interesting than any other Florida native plant. Cycads were among the first of the earth’s vascular plants. They were here with the dinosaurs, and prehistoric man would later walk among them. Coontie was in Florida along with mammoths, short-faced bears, dire wolves, sabre-toothed cats, American lions, and Paleo-Indians. And somewhere along the line, people learned to use it for food.

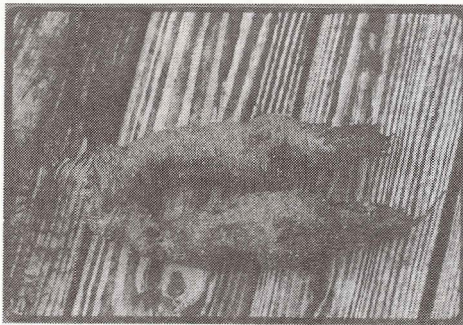
It is unknown when the first people learned how to transform the poisonous underground stem of coontie into an edible starch, but there is strong evidence that it was known by at least

two groups of indigenous southern Florida Indians, the Calusa and Tequesta. It is certain that the Arawak Indians of the West Indies knew of the process, and there is evidence that trade existed between the Arawaks and the Calusa and Tequesta. There was also an overlap in time when the Seminoles arrived in southern Florida and when the last of the Tequesta fled to Cuba in the late 1730s.

Coontie proved to be an extremely important food for the Seminoles during the long wars with the United States. Like the indigenous Indians before them, the Seminoles harvested coontie for the underground stem, which they called *conti* (flour root) or *conti hateka* (white flour root). The stem, or “root,” of coontie contains the

toxin *cycasin*, which, if consumed in its natural state, can be lethal. Spanish explorer Hernando de Soto reported the coontie-related death of one of his army members in Florida in the 1500s. This toxin, however, is water soluble. After proper preparation and processing with water, the grated or pulverized stem was transformed into flour.

Living in the Peace River country in 1880, a settler named Clay MacCauley described the technique used by the Seminoles to process coontie. Chopped stems were placed on pine logs and pounded into pulp with hardwood pestles. The pulp was then “taken to a nearby creek and thoroughly saturated with water in a vessel made of bark. The pulp was then washed in a straining cloth, the starch



The underground root-stem of the coontie provided the flour for the Seminole Indians and a prosperous industry.

draining into a deer hide suspended below. When the starch had been thoroughly washed from the mass, the latter was thrown away and the starchy sediment in the water left to ferment in the deer skin. After some days, the sediment was taken from the water and spread upon palmetto leaves to dry. When dried, it was a yellowish-white flour, ready to use."

In the late 1800s and early 1900s, white settlers developed a prosperous industry processing coontie into arrowroot and for an ingredient in animal crackers. The plant was found in such abundance that early maps of the Everglades region were labeled "Koontee or Hunting Grounds."

The taxonomic history of Florida's *Zamia* is also interesting, although complex and even frustrating. It's not that it hasn't been studied. One of the very early accounts of coontie in Florida is found in a letter dated February 2, 1767, from Dr. Alexander Garden (of *Gardenia* fame), written to Carolus Linnaeus in Sweden. In the letter, Garden stated, in part, "I shall be very happy to know what you call . . . that herb whose leaves look like the Fern Osmund Royal, while its seeds are large red berries in a cone, somewhat resembling the Magnolia in appearance."

Coontie is a fernlike or palmlike plant, with compound 1- to 3-foot-long leaves, and numerous narrow leaflets. Male plants produce narrow, cylindrical, brown cones, and females produce much thicker cones with brown scales covering a mass of orange-coated seeds. Although the seeds are fatally toxic to wild turkeys, it is speculated that the seeds are moved about by native rodents.

The early Florida botanist, John Kunkel Small, listed four species of

coontie in Florida — *Zamia angustifolia*, *Z. integrifolia*, *Z. silvicola*, and *Z. umbrosa*, citing leaflet size, venation, and other morphological and habitat differences. Other authors described a number of species from the West Indies. The modern, popular, and conservative consensus is that there is but a single, highly variable species, *Zamia pumila*, in Florida, southeastern Georgia, and the West Indies.

Overharvesting for production of arrowroot, coupled with destruction of habitat, has drastically reduced the numbers of this once abundant plant in Florida. The coontie story, however, does not end here. Coontie is being used more and more as a landscape

**Botanical synonyms of
*Zamia pumila***
Z. angustifolia
Z. debilis
Z. floridana
Z. integrifolia
Z. media
Z. portoricensis
Z. silvicola
Z. umbrosa

plant for homes, businesses, and roadways, which is fortunate, for one of Florida's most beautiful and rare butterflies is almost solely dependent upon this plant for its survival.

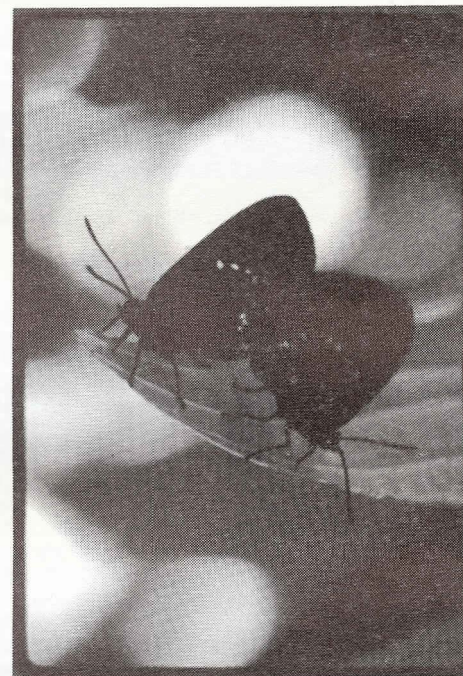
The Atala Hairstreak

The lycaenid butterfly, *Eumaeus atala*, ranges from southern Florida, the Bahamas, and Cuba (including the Isle of Youth), to the small island of Cayman Brac about 200 km. south of Cuba. Some authors separate the Florida population as a distinct subspecies, *Eumaeus atala florida*, but modern studies have failed to confirm any clear differences between the four separate geographical populations.

Commonly called the atala hairstreak or Florida atala, this slow-flying butterfly was once an extremely common sight in southern Florida's pine rocklands, hardwood hammocks, and maritime forests, where its larval food plant, coontie, also abounded. By the mid-1930s, however, it was considered to be rare, and after a Broward County population declined and finally disappeared in 1965, it was feared that the atala was extirpated from Florida.

Several factors probably contributed to the atala's initial demise, including habitat destruction, freezes, hurricanes, spraying for mosquitos, larval food competition with the echo moth, *Sierarctia echo*, over-enthusiastic butterfly collectors, and — most devastating of all — the wholesale harvesting of its larval food plant.

Fortunately for the atala, and for the butterfly gardeners of southern Florida, a small population persisted (or recolonized from the nearby Bahamas) on Key Biscayne in Dade County.



A pair of courting atala hairstreaks.

This population was discovered in November, 1979, and local conservationists began to rear larvae on cultivated coontie plants and move them back into natural areas within the atala's historic range.

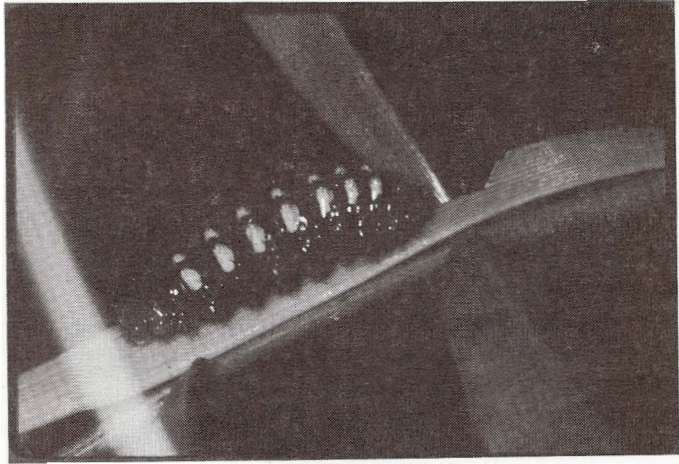
The profound beauty of the atala is difficult to describe in words. The wings are velvety-black with a distinct, iridescent, blue-green sheen covering the middle of each forewing. The hind wings are each dotted with iridescent blue-green spots, and the abdomen is orange. The larvae are bright reddish orange with two parallel rows of

lemon- yellow spots, which are warning colors to would-be predators. Since the larval food plant is poisonous, so are the caterpillars that eat it.

Historically, the atala occurred in extreme southeastern Florida, including the upper Florida Keys (coontie historically occurred on Elliott Key and Key Largo, but has been extirpated from these areas). Today, mainly through conservation efforts, the atala occurs in disjunct populations from Indian River County southward into Everglades National Park. Many urban populations are the result of purposeful introductions by butterfly aficionados or inadvertent introductions by nurserymen selling coontie plants with a hidden cargo of atala eggs, larvae, or pupae attached.

If you live in South Florida and wish to start your own atala population, you will need to plant coontie in your landscape. An atala population requires a considerable number of coontie plants, so one or two plants will not suffice. Tender new growth is preferred by ovipositing females, and they will wander off if it is not readily available. Plants grown in filtered sunlight tend to be less coarse-leaved than plants in full sun and may be more enticing to females. In addition to the native coontie, atala butterflies at Fairchild Tropical Garden in Miami are using a wide array of non-native cycads, including members of the genera *Zamia*, *Encephalartos*, and *Macrozamia*.

In addition to planting coontie, you will need to supply the proper nectar plants for the adults. Atala hairstreaks are quite selective and will visit only certain flowers for nectar. The best Florida natives are saw palmetto (*Serenoa repens*), indigo-berry (*Randia aculeata*), butterfly sage (*Cordia globosa*), and the weedy Spanish needles (*Bidens alba*). You will also need to either have a lot of patience and hope that atalas find your butterfly garden on their own, or you will need to import one of the life-stages of atala to your planting. Since the atala is now a "pest" at Fairchild Tropical Garden, limited quantities of atala eggs, larvae, or pupae would be gladly donated, according to Fairchild Superintendent Don Evans. Call Evans at 305/667-1651, ext. 316, for prior permission.



Photos by Roger Hammer

The atala larva, which feeds only on coontie, has a colorful, reddish brown body with yellow spots.

The Florida Committee on Rare and Endangered Plants and Animals lists the coontie and the atala hairstreak as threatened. Had the coontie been extirpated from Florida, the atala would have gone along with it. The relationship between the coontie and the atala hairstreak leaves no doubt about the importance of native plant conservation.

- A native Floridian from Cocoa Beach, Roger Hammer is a naturalist, Resource Management Supervisor for the Metro-Dade Parks Department's Natural Areas Management Section, and past Director of Castellow Hammock Nature Center in South Dade. Hammer received the first Marjory Stoneman Douglas Award given by the Dade County Chapter of the Florida Native Plant Society in 1982.

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