

PSILOTUM NUDUM

Survivor of Eons

by Steve Farnsworth

Psilotum nudum, commonly called whisk fern, is an ancient and primitive Florida native that is little changed from ancestral forms that were probably the first plants to invade dry land 400 million years ago. To call it a "plant dinosaur," however, is a misnomer, since it predates the dinosaurs by hundreds of millions of years, and is still surviving. Its primitiveness is self-evident, as it lacks leaves, roots, and seeds — all the things plants are supposed to have.

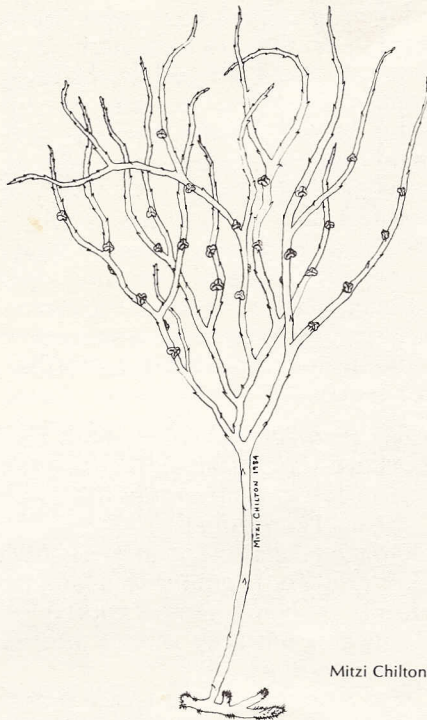
Its major claim to fame is as one of the few species remaining in the Psilotophyta, a small and never-numerous plant division, nevertheless credited as having the first terrestrial vascular plants. Vascular means having conducting cells for water and nutrient transport, and in an evolutionary sense, vascular tissues were a great advance. For the first time, parts of plants could survive without being in contact with moisture, and specialization of plant tissues into leaves, stems, roots, etc., was made possible.

The whisk fern never got that far. My first contact with *Psilotum* was in junior college when I took a beginning botany course. We studied all the divisions of the plant world in due course, and the whisk fern, as the local and commonest representative of the Psilotophyta, was available as a preserved specimen for laboratory study. I was quite eager to see it in the wild, and you can imagine the thrill I received when I finally spotted it — growing among a network of strangler fig roots in a coastal hammock. I decided then and there that I would go back and collect spores when they were ready, and attempt to germinate them.

Fortunately for me, I never had to because I found a large patch of it growing on my own property, under — of all things — a Brazilian pepper. This colony must produce spores prolifically because I now have whisk fern popping up nearly everywhere — in my nursery pots, on rotting tree stumps, underneath trees where humusy topsoil has formed. And, as my knowledge of the plant's habits and preferences increased, I found it in nearly every decent-sized patch of natural vegetation I visited.

Psilotum nudum ranges through-

out Florida and the southeastern United States and most tropical and subtropical regions of the world. It can either be epiphytic or terrestrial, growing wherever its requirements of partial shade and pockets of organic, humusy, moist-but-well-drained material can be found.



The name "whisk" fern comes from the resemblance of the tufts of naked, green, branched stems to whisks. The stems are dichotomously branched, that is, the stem splits into two equal parts, those two parts split into two more equal parts, and so on. One stem can branch five or six times, and as the stems arise in clumps, quite a whisk-like appearance results. In reality, it is not even a fern (division Pteridophyta), but is considered one of the fern allies because it shares the trait of reproducing from spores, but not much else.

Whisk fern is not a large plant, with the clumps of stiff, thin, angular, wiry stems rarely exceeding one foot in height. Along the angles of the stems are scattered tiny scalelike appendages called microphylls which are the barest rudiments of leaves.

In the upper portion of the stems these microphylls subtend globose three-lobed sporangia that turn yellow and split to release spores. Underground, *Psilotum* has creep-

ing, whitish, translucent rhizomes, which are elongated horizontal underground stems, and rhizoids, which are cellular filaments that perform some of the functions of roots. A fungus is invariably associated with the rhizomes and may symbiotically assist with nutrient gathering.

The spores germinate underground, but rarely produce plants when intentionally sown, according to a book on fern culture I consulted. The plant does volunteer prolifically, though, and transplants easily, thriving in partial shade and an organic, friable media with good drainage and moisture retention.

What, then, is the lesson the whisk fern can teach us? Perhaps it is that being complicated and important doesn't assure success, but that being simple and modest is a better strategy. After all, 400 million years is a long time.

The Package Deal Join FCF's Spring

Led by John Edscorn

Wed. & Thurs., March 28-29, 1984

Shake off the shackles of a mercurial winter! Spend two delightful days discovering the beauty and diversity of natural Florida under the guidance of a master naturalist who probably knows the backroads of this state better than anyone. For some years, Edscorn was Florida correspondent for "American Birds," and many know John for his penetrating assessments of Corps of Engineers projects.

Under sponsorship of the Florida Conservation Foundation, the 39-passenger bus will leave Winter Haven's Audubon Center at 9 a.m., March 28, and head for the Green Swamp — a little-known area larger than Okefenokee or the Great Dismal. While observing this varied complex of land and water, which is the headwaters for four major rivers, we expect to stop for a picnic lunch in the Withlacoochee State Forest. Afterwards we will visit several places of interest best known to John Edscorn, before proceeding to charming old Chinsegut Hill in Brooksville. There we will settle into our modern cottages and enjoy a dinner prepared just for us at the historic Manor House located on one of the highest points in Florida.

Next morning, eagle man and naturalist, Steve Fickett, will be our guide for a walk through the Chinsegut Nature Center, which he was instrumental in establishing. Steve recently served as chairman of the Florida Nature Conservancy and has just completed a distinguished career as a biologist for the state Game Commission.

Depending upon time and whether they are still around, we may catch a