

Fern makes Pensacola a tad more famous

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Pensacola native James Burkhalter has found one of the rarest plants in Florida thriving in the thousands in Pensacola Bay Area cemeteries.

On Saturday morning, Burkhalter — a bit of a Pensacola legend when it comes to native plant lore — led his Third Annual Winter Grapefern Survey at one of the tiny fern's little-known hiding places, the St. John's Cemetery in the heart of urban Pensacola.

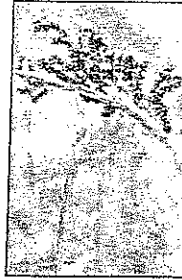
The volunteers found the elusive, odd-looking *Botrychium lunarioides*, or winter grapefern, springing several inches out of the soil by closely inspecting all of the cemetery's historic family plots and open spaces.

The winter grapefern is the kind of odd-looking plant you

Close-up on nature

The Florida Native Plant Society local chapter's next event is a wildflower walk on Saturday at Ed Ball Nature Trail at the University of West Florida. To attend, meet at 7:30 a.m. in the JC Penney's parking lot at University Mall.

For more information about local events, visit the society's Web site: www.fnps.org, and click the Longleaf Pine chapter link.



might see in your back yard and briefly wonder what it is before you rip it out of the lawn and dump it on a pile with the other weeds.

That would be a travesty. It's one of the rarest plants in Florida and in the entire world, Burkhalter says.

Burkhalter's discovery of the plant in St. John's Ceme-

tery in 2001 was significant enough to prompt visits from out-of-town botanists and a nod in the American Fern Society bulletin.

"Finding it was his trip to Mecca because he's a botanical nut," said Jack Jordan, who assisted Burkhalter on Saturday morning with the annual survey.

"It's sort of like we found King Tut's tomb, and now we are cataloguing the treasure," said Burkhalter, as he and other Florida Native Plant Society volunteers combed through the cemetery.

Annual plant surveys — which the volunteers proudly call "science in action" — is the only way to learn the size of the winter grapefern population. "We could turn out to have the most grapeferns here in the world," said volunteer Richard Mason of Pensacola who spent Saturday flagging and counting the little plants.

Named in the 1700s by French explorer Andre Michaux (who also named the rhododendron and brought crape myrtles to America), the winter grapefern is found mostly now in historic cemeteries like St. John's.

See RARE FERN, 5C



James Burkhalter, left, and Richard Mason scour St. John's Cemetery in Pensacola for one of the world's rarest plant species, the winter grapefern.

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Rare fern spurs frenzy

FROM IC

"Its native habitat (open, grassy areas) has been destroyed. It is in refuge in cemeteries," Burkhalter said.

As further evidence of that somber phenomenon, small clusters of the fern also are being discovered in a handful of cemeteries in Santa Rosa, Okaloosa and Walton counties. One of them, the Magnolia Cemetery near DeFuniak Springs, contains nearly 5,000 winter grapeferns, the largest colony ever found in Florida.

The family of grapefern plants — numbering many species — is found worldwide. In medieval Europe, the plants were called

Moonwort or Unshoe-the-Horse and were believed to have the magical property of unlocking doors and safes.

But the rare winter grapefern still is rather mysterious.

"We do know that they produce billions of spores, annually. But we don't know how long they take to reproduce," Burkhalter said. "Hopefully we can learn more about this plant just by monitoring it every year."

Within a few weeks, the winter grapeferns will go dormant and their unique stalks and leaflets will shrivel away. The stalks will rise again in late winter, sustained by a deep root and symbiotic fungi in the soil.

Winter Grapefern

When days are stifling
And nights uncomfortably warm
Wisely and surreptitiously
I lie dormant,
My fleshy stem and spindly roots
In quiet suspended repose
Buried in the cooler sandy soil
Of uncounted human graveyards,
Resting peacefully above your dear departed,
Right in their plots and gravesites,
With no regard for, no cognizance of,
Remains of my human companions.
Though they are but a few feet away
They are of a different world--
Their gravestones and monuments mean nothing to me--
For I am merely hiding among your dead
And I am truly alive, only resting,
Waiting patiently for my seasonal resurrection.
From early spring to late autumn I wait
And then, when days have become cool and nights chilly,
I begin to grow again:
I lay my one parsley-like leaf flat on the ground,
Nearly concealed among the grasses and weeds,
And in late winter, early each year,
My second leaf, a sporophyll,
Uncoils upward like a slender tan arm,
Reaching above the grass
With its brown grapelike clusters
Borne on tiny flattened fingers;
I release my uncountable dustlike spores
Before the onslaught of your mowers and weedwhackers--
They cannot harm me, nor can your treading footfalls.
Your cemeteries are fine grassy fields to me:
A nice place to grow and thrive.
But why am I here among your hallowed dead?
Because your tilling and sowing,
Plowing, digging, scraping,
Building, burning, cutting
Have driven me from my original home:
Sandy open fields and high dry grasslands;
Now I am dwelling here with your deceased.
This is my new home,
My refuge, my sanctuary.
Do not disturb me
And I will remain placidly here
As the centuries roll by.

--James R. Burkhalter
March 2004

WINTER GRAPEFERN

Botrychium lunarioides (Michx.) Sw.
Ophioglossaceae
Filicinae

OTHER NAMES: Prostrate Grapefern.

DESCRIPTION: Winter Grapefern is an odd fern, so inconspicuous that it may be easily overlooked. The leaves appear only during the winter months, November through February. They are perfectly flat on the ground, and the 3-parted blades, up to 5 cm long, are finely divided into wedge-shaped segments about 0.5–0.8 cm long and 0.4–0.7 cm wide. At the base of the leaf blade an erect stalk, up to 12 cm tall, arises in March and bears little ball-like, yellow sporangia 1 mm in diameter. The whole plant disappears, except for the buried stems and roots, in April, not to reappear until the following winter.

RANGE: Collections are few and very widely scattered, but from the evidence at hand the species is distributed from North Carolina to northern Florida and in the Gulf Coast states to eastern Texas.

HABITAT: Apparently the species is confined to open, sandy places in natural Broomsedge (*Andropogon*) fields, the edges of man-made pastures, mowed areas along roadsides, and cemeteries. Man-made habitats such as those mentioned presumably provide disturbance of such a nature that the natural competition from other plants is reduced to a minimum, so that the Winter Grapefern can survive. It is so rare that botanists are not likely to search

for it per se with the expectation of finding it. It is usually discovered during a search for some other plant, and seems to be encountered almost by accident. There is no immediate explanation for its rarity, but it is one of the rarest ferns in the United States, and not one botanist in a thousand has seen it alive. Of the few collections known, a number were made in the 1700s and 1800s. Now that there is more awareness of this curious species, it is possible that more localities will be discovered in Florida.

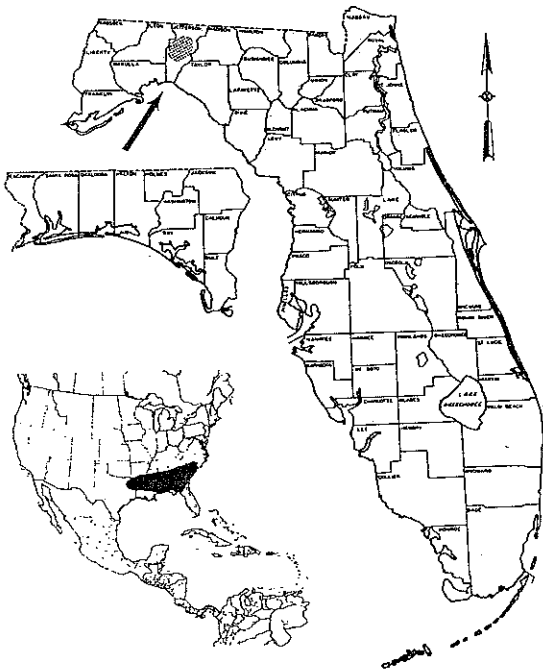
SPECIALIZED OR UNIQUE CHARACTERISTICS: The most remarkable feature of this plant is its seasonality: it appears and grows only during the winter when most other plants are dormant. It is the only fern in North America that grows only during the winter months. Another feature, unique among ferns, is the orientation of the leaf blade, which is perfectly flat against the ground. It is this attribute that accounts for its alternate English name of Prostrate Grapefern. In this respect the parts of the leaf blade resemble the plants known as liverworts more than typical ferns. A third oddity, also unique among ferns (and, in fact, all vascular plants), is the presence of peculiar cells, called "tracheoidal idioblasts," in the axes of the leaf blade. These cells are greatly exaggerated in size and have distinctive spiral or annular walls. They can only be seen in special preparations under the microscope. Their botanical significance is as yet unknown.

BASIS OF STATUS CLASSIFICATION: Botanists know of only two collections of this fern in Florida. The places of their collection have not been rediscovered and the original colonies are probably gone. No colony of this unusual species is at the present time known in Florida.

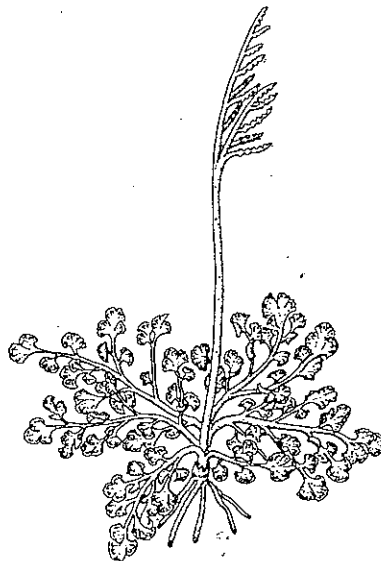
SELECTED REFERENCES:

- Arnott, H. J. 1960. Tracheoidal idioblasts in *Botrychium*. *Trans. Amer. Microscopical Soc.* 79:97–103.
Wagner, W. H., Jr. 1961. Nomenclature and typification of two botrychiums of the southeastern United States. *Taxon* 10:165–169.
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PREPARED BY: Warren H. Wagner, Jr.



Winter Grapefern (*Botrychium lunarioides*)

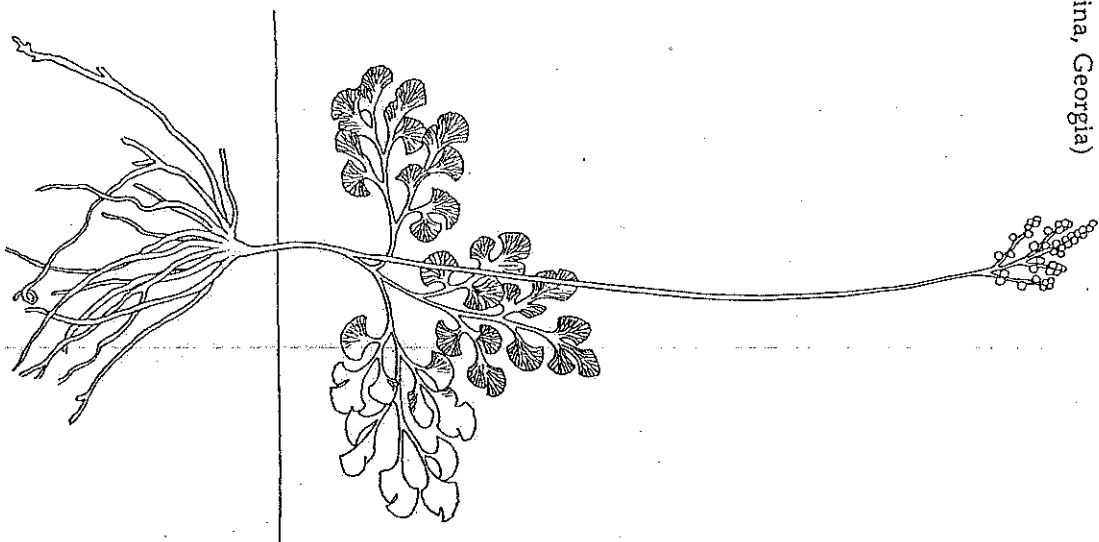


Botrychium lunarioides (Michaux) Swartz

Winter grapefern; Moonwort; Lunar; Unshoe-the-horse

Family: Ophioglossaceae

(South Carolina, Georgia)



59. *Botrychium lunarioides*/Moonwort

Throughout history, the moon has often been associated with mystery, romance and curiosity, and the fern associated with this heavenly body has its own share of lore, magic and superstition. *Botrychium lunarioides* is a fleshy plant, often no more than 4 to 6 inches high. Its sterile blade, triangular in shape and prostrate on the ground, is divided two to three times with half-moon shaped, finely toothed subleaflets. The fertile frond grows alongside the sterile and is topped by a cluster of sporangia from which the name *Botrychium* is derived.

Some early observers saw the shape of a horseshoe in the moonwort's subleaflets. To them this association gave the fern the ability to attract metal. Thus, moonwort had the ability to unlock houses and safes, and if a horse trod on a pasture containing this small fern, the horse would lose his metal shoes. From this ability comes another of the fern's common names, unshoe-the-horse.

The half-moon shape of the plant's subleaflets probably inspired the authors of the Doctrine of Signatures to give mysterious lunar properties to the plant. Early astrologists assigned the moon a cold, moist nature, the color white and the metal silver. Alchemists in the Middle Ages combined magical associations with changing base metals into more valuable ones, and saw in moonwort the ability to change quicksilver (mercury) into the more highly prized silver.

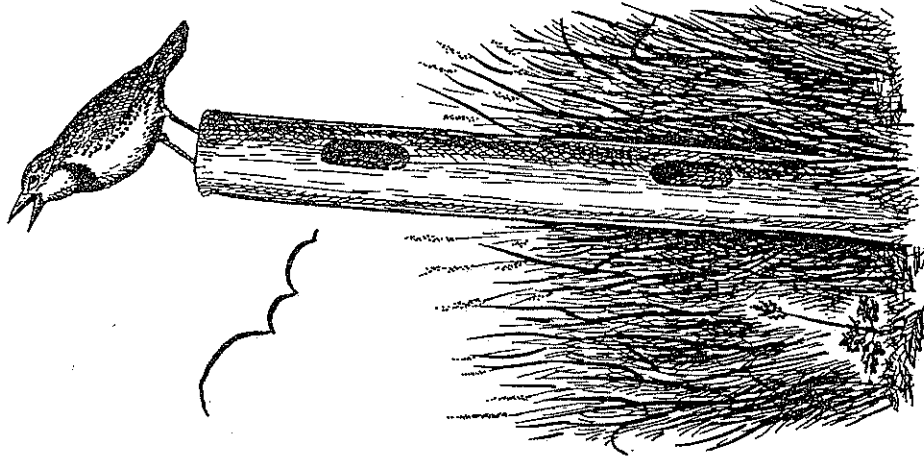
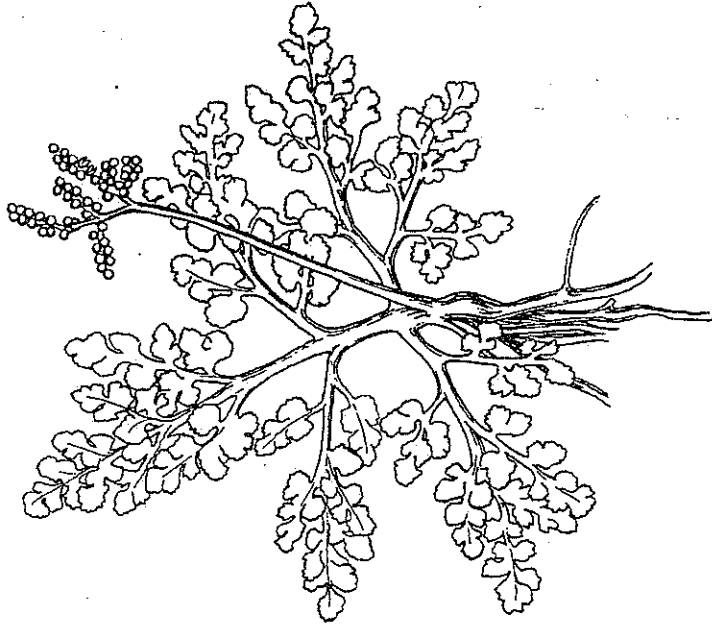
Debates continue as to whether more accidents and crimes are committed during a full moon. Many of us when explaining what seems an excessive amount of irrational behavior will say in jest, "There must be a full moon tonight," and an old North Carolina belief says that if one sees the moon through the branches of a tree, he will go crazy. But the belief of the moon's influence on unusual behavior dates back centuries. The word *lunatic* comes from the Latin word *lunaticus*, meaning moonstruck or epileptic. People thought, too, that the phases of the moon influenced such periodic disorders as sleepwalking and epilepsy by its waxing and waning. To help in these instances, the moonwort fern was sympathetically employed, provided, of course, that it was gathered only by the light of the moon.

While superstitions abound, early practitioners did indeed use the fern in their medicines. According to the seventeenth-century

Ferns of the Coastal Plain, Their Lore, Legends and Use
LIV DUNBAR, Univ. S. C. Pr. 1989.

herbalist, Culpepper, the leaves of *Botrychium lunaria* were boiled in white wine and taken to stop bleeding and vomiting, and the mixture was helpful when applied to bruises and fractures.

Finding the rare, "magic-filled" moonwort fern is difficult. Leaves begin their growth in the fall, with sporangia ripening from January to April, after which time the plant completely dies back. Early winter, then, would seem a better time to begin the hunt. Moonwort prefers the dry, sandy soil of old fields, pastures and open woods, but because of the usually standing grasses, leaf litter, other plants and the fern's diminutive size, *Botrychium lunarioides* is often inconspicuous.



Botrychium lunarioides habitat