The Fellowship of the Rings

UFO Rings versus Fairy Rings

Fungal diseases, mushrooms, fairy rings (a fungus ring), bioluminescent fungi, and slime molds are presented as possible explanations for some UFO rings or "landing rings."

ÁNGEL M. NIEVES-RIVERA

"We all agree that your theory is mad. The problem which divides us is this: is it sufficiently crazy to be right?"—Niels Bohr

Unidentified Flying Object (UFO) phenomena have existed since the beginning of mankind itself; strange and unidentified objects have been seen in the skies for millennia. A "cascade" of UFO cases have been described over the years (Hynek 1972; Steiger 1976; Hendry 1979; Klass 1986; Robiou-Lamarche 1979). Nowadays, with the advances of science in fields such as astronomy, meteorology, and biology, the "flying saucers myth" is seen today with disdain by scientists for the simple reason that there is no physical evidence for it. Many UFO cases are based almost entirely on nothing more than personal observation.

Although personal testimony is considered valid in any court of law, applied sciences have more rigorous standards to validate evidence. This article provides a down-to-earth explanation for the phenomenon known as "UFO landing rings" or "UFO rings."

When a UFO allegedly interacts with the environment and leaves physical or tangible evidence, some call this a "Close Encounter of the Second Kind" (or CE-2). This term was coined by the late J. Allen Hynek, an astronomer who consulted with the U.S. Air Force on Project Blue Book and was a lecturer on UFOs for more than twenty years. According to Hynek (1972) this interaction, what he called "physical trace evidence," can be with abiotic matter (marks, holes, or rings made on the ground), or with biotic matter, as when plants or animals are affected. A catalogue of more than a thousand cases in which the UFO was both seen and left physical traces have been compiled by investigators (Hynek 1972; Steiger 1976; Hendry 1979; Fuller 1997; Phillips 1999).

UFO rings fit the general description provided by Hynek (1972) as "either as circular patch (or patches), uniformly depressed, burned, or dehydrated, with an overall diameter of [about thirty feet] or more and [one foot] to [three feet] thick (the inner and outer diameters of the ring differ by that amount, while the ring itself may be quite large)." Furthermore, "the most frequently reported diameters are twenty to thirty feet" (Hynek 1972). In most cases, the rings persist for weeks or months—sometimes years—and the interior of the ring or the whole circle remains barren for three to six months (Hynek 1972; Howe 1999). Scientific explanations about the origin and implications of the UFO rings were reported by Condon (1968). He concludes, however, that the main problem with the UFO rings is the difficulty of establishing that the rings or imprints actually were made by an extraordinary object or being. The existence of an imprint of odd shape, circular area of crushed vegetation or a barren spot often can be established (figure 1). Its mere existence does not prove, however, that the markings were made by any extraterrestrial being or vehicle (Condon 1968).

The alleged UFO rings I have personally examined can be explained away as hoaxes, meteorological effects, and damage to plants caused by natural factors (abiotic and biotic). Abiotic factors, such as chemical and physical soil effects on plant growth, are extremely complicated; it is difficult to describe the effect of one isolated factor and ignore the influence of others. Examples of abiotic factors include mineral nutrition imbalances (Evans et al. 1991), soil alkalinity or acidity, extreme temperatures, soil humidity imbalance, pollution, and excessive fertilization (Alexander 1991). Examples of biotic factors include diseases, like those caused by insects, nematodes, bacteria, fungi, and viruses (Agrios 1997).

Take turfgrasses for example. Many rings or patches in turfgrasses are caused naturally by fungal (and/or other microorganism) diseases, which are strikingly similar to "unexplainable" UFO rings or crop rings. Fungi, which naturally occur in topsoil, may become a plant disease under certain favorable conditions (favorable to the fungus) such as stress, wounds, immunodeficiency, etc. (Alexander 1991; Agrios 1997). Fungal diseases such as snow mold (*Coprinus, Typhula*; figure 2); powdery mildew (*Erysiphe*); damping-off (*Fusarium*,

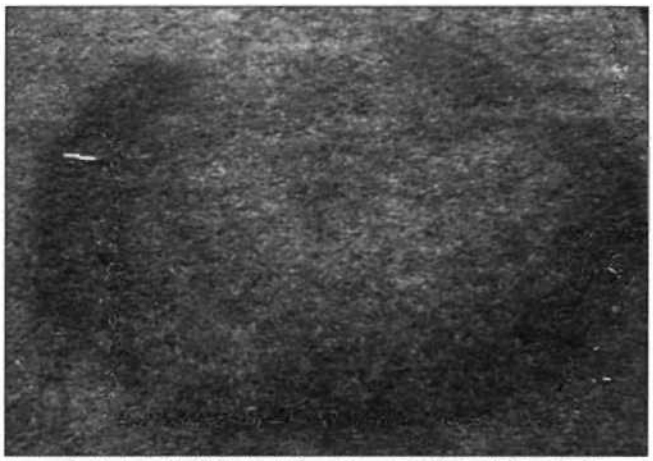

Figure 1. "Enigmatic UFO ring" found on a residence's lawn in Cupey, Puerto Rico. Photo by Lucy Guzmán (www.ovni.net).

Figure 2. Snow mold of turf grass caused by *Typhula*. Photo by J. Drew Smith.

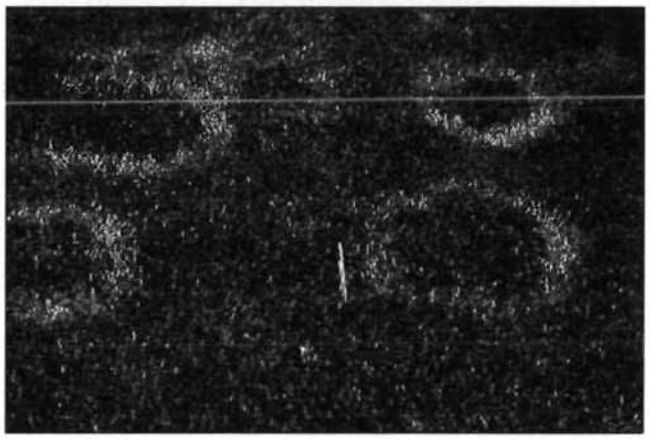

Figure 3. Damping-off of turf grass by *Rhizoctonia*. Photo by J. Drew Smith.

Ángel M. Nieves-Rivera is a doctoral student with the Department of Marine Sciences (DMS), University of Puerto Rico (UPR) and author of several investigative articles in scientific journals and newsletters. Address: Mr. Nieves-Rivera via DMS, UPR, P.O. Box 9013, Mayagüez, PR 00681-9013 or e-mail anieves@coqui.net.

Figure 4. *Pythium* damping-off of turf grass, see enlarged filaments. Photo by J. Drew Smith.

Figure 5. *Ophiobolus* patch caused by *Gaeumannomyces*. Photo by J. Drew Smith.

Figure 6. Fruitbodies and fairy ring: *Marasmius oreades* from *Our Edible Toadstool and Mushrooms* by Hamilton W. Gibson, 1895.

Helminthosporium, *Pythium*, *Rhizoctonia*; figures 3 and 4); take-all or Ophiobolus patch (*Gaeumannomyces*; figure 5); and brown patch (*Rhizoctonia*) commonly infect creeping bentgrass, Kentucky bluegrass, and Bermudagrass, among other turfgrasses (Couch 1995; Agrios 1997; Provey and Robinson, 2001; Nieves-Rivera, 2001, in press). Photos of diseased turfgrasses presented by Couch (1995, plates 1 to 29), Evans (2000), Provey and Robinson (2001), and photos of alleged UFO rings (Robiou-Lamarche 1979; Fuller 1997; Howe 1999) are practically identical. Many of these fungal diseases form rings, spots, or circular formations similar to UFO rings. Curiously, the powdery mildew caused by the fungus *Erysiphe* and the damping-off of seedlings by *Pythium* (see figure 4) produce a white powder or filaments that cover the entire blade of the grass, reminding me of "Angel Hair."[1]

Fairy Rings

Fairy rings may also have been confused with UFO rings (Anonymous 1968; Janosch 2001). Fairy rings are fungus rings, generally produced by mushrooms (some sixty recorded species), and very frequently occur in grass, grasslands, and woods (Hawksworth et al. 1995). It is a fungus mycelial (mycelium) growth in which the fungus, originating in a central spot, spreads outward in an ever-widening ring.

According to Hawksworth et al. (1995) there are three types of fairy rings: (1) those in which the development of the fruitbodies has no effect on the vegetation, i.e., *Chlorophyllum molybdites* (see photos in Fernández 2001); (2) those in which there is increased growth of the vegetation, i.e., *Calvatia cyathiformis*, the fruitbodies of which are at the outer edge of the ring, *Lycoperdon gemmatum*; and (3) those in which the vegetation is damaged, sometimes so badly as to have an effect on its value, i.e., *Agaricus praerimosus*, *Marasmius oreades* (figures 6 and 7). Rings of the third type are frequently made up of outer and inner rings in which the growth of the vegetation is strong with a ring of dead or badly damaged vegetation between (Hawksworth et al. 1995).

Fairy rings started from a mycelium, the growth of which is at all times on the outer edge because of the band of decaying mycelium and used-up soil within the ring of active hyphae. The mean growth of a ring of *A. praerimosus* is twelve cm in radius every year (zero to thirty cm annually); that of one of *Calvatia cyathiformis* is about twenty-four cm. From this, the ages of rings of these two fungi in Colorado, sixty and more than 200 meters diameter, were thought to be 250 and 420 years old; parts of *A. praerimosus* rings were possibly 600 years old (Hawksworth et al. 1995).

Ghost Lights

Among CE-2 cases I have had the opportunity to see and/or read about are tales about glowing marks on the ground, "phosphorescent patches," or "ghostly lights" in the forests. Fungi are capable of lighting up the woods. Bioluminescent mycelium, spores, and fruitbodies of some mushroom species (i.e., *Armillaria*, *Mycena*, *Omphalotus*, *Panellus*) usually grow in wood, soil, and leaf litter. The mushrooms produce a non-

pulsing light which attract insects that spread fungal spores. Studies of bioluminescent mushrooms are included in Newton (1952), Herring (1978), and O'Kane et al. (1990). For excellent photos see www.luxgene.com.

Bioluminescent fungi are by no means a recent discovery. One of the earliest accounts of bioluminescent fungi in the New World was published by Spanish chronicler Gonzalo Fernández de Oviedo in 1526 (Glawe and Solberg 1989). I personally have had the opportunity to see this curious phenomenon in the Big Tree trail at the Caribbean National Forest El Yunque in Puerto Rico (Nieves-Rivera 2001). This might be an explanation for the ghostly green-bluish lights, the glow-in-the-dark "foxfire" in the United States, or apparitions seen at night in the forests by the locals since ancient times. They may also be precursors of many folk tales and legends (Nieves-Rivera in press), including many "ghostly light" tales of the woods (Robiou-Lamarche 1979).

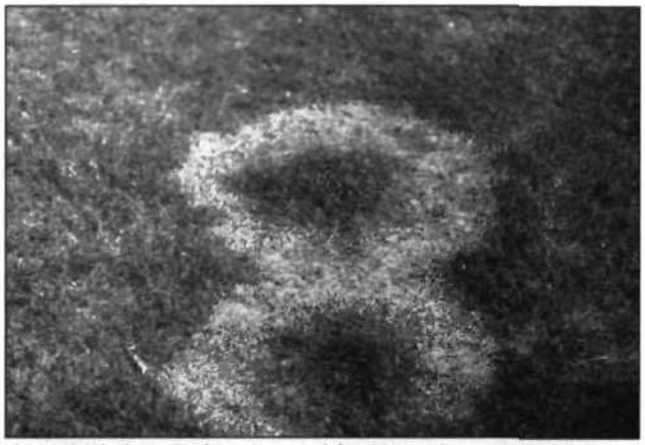

Figure 7. Curious "8-shape" caused by *Marasmius oreades* fairy ring. Photo by Leuan R. Evans.

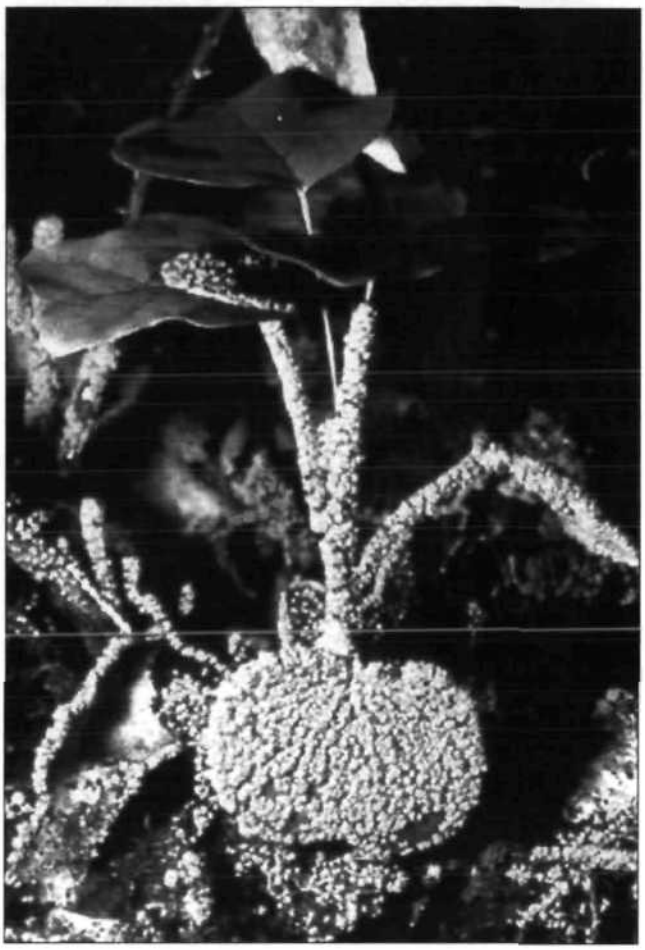

Figure 8. Slime mold *Diachea thomasii*. Photo by Bill Roody.

Bioluminescent fungi might be an explanation for the ghostly green-bluish lights, or apparitions seen at night in the forests by the locals since ancient times. They may also be precursors of many folk tales and legends, including many "ghostly light" tales of the woods.

In 1973, a small suburb of Dallas was terrorized by a moving bright yellow blob of an undetermined organism crawling into house lawns' turfgrasses. This yellow blob known as plasmodium (figure 8) was immediately mistaken as an alien entity in the form of microbes that had started an invasion of Earth (Sharnoff 1991; Nieves-Rivera 2001). The news kept the spellbound attention of many Americans, similar to Orson Welles's classic radio transmission about an alien invasion on Halloween Eve 1938. Fortunately, mycologists quickly dismissed any Extraterrestrial Biological Entity (EBE) hypothesis and identified the blobs as part of a slime mold or myxomycete. The slime mold responsible for the invasion of turfgrasses was the scrambled-egg slime, *Fuligo septica*. For further details of the taxonomy, biology, and distribution of this and other slime molds, see Stephenson and Stempen (1994).

Slime molds, in general, are decomposers that cover low-lying plants with plasmodium and fructification without "infecting" them, for example *Diachea thomasii* (figure 8) and *Physarum cinerea* (figure 9). For those who encounter slime molds in turfgrasses and other plants in your yard, my recommendation is to avoid using fungicides, mow the lawn, and put your fears to rest!

Another interesting association involves fungus lore and naturally atmospheric (thunderstorms, lightning bolts) and astronomic (shooting stars, meteorites) phenomena (Nieves-Rivera in press). This strange association might explain many CE-2 episodes in ancient and modern times. This fascination began with the observation of the skies by ancient cultures and their attribution of unnatural phenomena to the gods. For the ancient Greeks and Romans, after a thunderbolt struck on the ground, mushrooms (single or gregarious, sometimes as fairy rings) such as boleti, puffballs, and tubers arose from it. An

Figure 9. Slime mold *Physarum cinerea*. Photo by J. Drew Smith.

example is the "fairy butter" or "star-jelly" (*Tremella lutescens*), a yellowish jelly-fungus often found after a heavy rain, a favorite folklore candidate associated with shooting stars or meteorites. Even the dye-maker's false puffball (*Pisolithus tinctorius*), which forms a large irregular club with a narrow stem-like base submerged in the substrate, resembles a stony-iron meteorite lying on the ground. If sliced, the peridioles[2] are exposed, giving the false impression of a stony-iron meteorite as shown in Haag's (1997) or NEMS (1998) catalogues.

In conclusion, true fungi (plant pathogenic microfungi, mushrooms) and fungal-like organisms (slime molds) offer an interesting and often overlooked explanation for some UFO landing ring cases. Future eyewitness accounts of such UFO encounters should be taken seriously, but every effort should be made to obtain tangible evidence. Not all CE-2 cases are easily explained, but from what I have seen, there is nothing "unearthly" about them. Current evidence suggests that most UFO landing rings are cases of mistaken identity or willful deception.

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Notes

1. Angel Hair are stringlike lines that fall from the sky and form unique patterns. They look like cobwebs or filamentlike substances, often white, gray, or yellowish. It is said that this substance sublimates in a few seconds after falling (from www.crystalinks.com/angelhair.html).

2. Pea-shaped chambers containing the spores.

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