

# Fragile and Fleeting ... Ice Flowers in the Forest

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If you can get out early enough in the late fall or early winter, when the temperature is hovering around freezing or below and the air is still, you might get to see some ice flowers. These phenomenal attractions are rather rare and fleeting. When the sun fully rises, they often melt! Besides getting the timing down, the conditions must be right. The ground must be still unfrozen, yet the air above has to be cold enough to form ice. If you get down to ground level, you'll see that some 'leaves' are as thin as onion skin and quite fragile.

Ice flowers, ice ribbons, ice fringes, ice filaments, and (very commonly) frost flowers are names describing the beautiful frozen formations found at the base of just a few plants in North America. The two most common plants in our area are dittany (*Cunila origanoides*), sometimes called wild oregano, and white crownbeard (*Verbesina virginica*), also known as wingstem or frostweed. 'Ice flowers,' the term coined by Dr. Bruce Means, an adjunct professor of Biological Science at Florida State

University, is actually the most appropriate name as these structures are a product of freezing water and not frost. Dr. Robert Harms, a professor emeritus of linguistics from the University of Texas, proposed the scientific name *Crystallofolia* from the Latin

*crystallus* (ice) and *folium* (leaf).

Ice segregation is the process which best describes how ice flowers are formed. First, cold (but not frozen) water is brought up axially by root pressure and capillary action to the base of a (usually dead) plant. With freezing temperatures above the ground, the water freezes and expands in the stem forming very small

longitudinal cracks. The water then exits tangentially (as ice) through these openings and begins to form crystals. As the water freezes, it pushes previously formed crystals outward and draws more water to the openings by molecular cohesion. The continuation of this process forms the characteristic leaves or ribbons or petals we see.



*This large feathery-looking ice flower actually measured 9 inches in length.*



*No, it's not cotton, but a field full of ice flowers!*

You might ask, “Why just late fall and early winter?” The simple answer is, before that time the temperatures generally aren’t cold enough for freezing above ground, and in late winter the ground is often frozen, preventing water from moving through the soil. Also, by late winter we’ve usually seen multiple freezes and thaws which literally tear up the structures (stems) that produce the ‘flowers.’ There are always exceptions though, so be ready on those bitter cold, calm mornings.

If not for my wife, I may have never seen these little treasures. She’s been a jogger for 46 years and since I have to keep in shape for the AFC’s yearly pack test, I regularly go with her in the mornings . . . and when I say ‘morning,’ I mean 5:30 a.m. out the door. This means going to bed earlier than most, but watching the sun come up, hearing the birds get cranked off, being fully awake when I go to work, and seeing things such as ice flowers make it all worthwhile.🙏



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