OF MOSS AND MEN

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From Kelseya, Winter 2003

Mosses continue to amaze me! They survive extremes of temperature and moisture deprivation and find new ways to excite the nerdy moss enthusiast. I experienced an incipient moss epiphany while Toby Spribille and I were waist deep in water and slowly sinking in the muck of Rattlebone Fen, near Murphy Lake. I have no idea how this fen got its name, but for some reason it seems like a place that could harbor the bones of Vikings or some of my former college professors.

As we pondered the weighty possibilities of finding *Meesia, Catascopium*, or other rich-fen bryophytes, Toby grabbed a floating blob and remarked on its resemblance to a furry, green, marshmallow. On cursory inspection, we puzzled over whether we had found evidence that the Lilliputians had colonized northwestern Montana - miniature discarded hand-warming muffs. Alas, keen observation revealed that we had found an opportunistic population of caddis fly (*Limnephilus* sp.) that uses the rare moss, *Scorpidium scorpioides*, for construction of the outer layer of its protective casing. The moat surrounding the fen was full of these bobbing caddis flies.

Typically, caddis flies build casings with grains of sand, twigs, or organic debris from the bottom of ponds or streams. The Rattlebone Fen population is not your run-of-the-mill caddis. It harvests living, photosynthetically active sprigs of moss from the bottom of the pond (two to three feet deep) and weaves them into its casing. The moss continues to grow, seemingly unaffected by transplanting.

While woven into the caddis fly casing, the living sprigs of *Scorpidium* release oxygen bubbles (through photosynthesis) that become trapped in the dense,

fluffy matrix of moss surrounding the cylinder inhabited by the caddis fly. During the day, the moss-enhanced casings float to the surface because of buoyancy brought about by trapped oxygen. Perhaps they sink to the bottom at night when photosynthesis stops. Grizzly bears, bog lemmings, and other wetland denizens that frequent Rattlebone Fen after the moss people have retired might know this.

I suspect that Rattlebone Fen caddis flies benefit from this floating platform, or why would they build an intricately woven structure that floats in response to sunlight? Having a buoyant moss garden on its back may allow the caddis fly greater access to food and provide a convenient take-off platform when the larvae metamorphose into flying adults. I have no idea if Rattlebone Fen caddis flies are a different species from caddis flies in the local creek (I am told that an emerged, adult caddis fly is required for this determination), but I suspect a diligent researcher would find that Rattlebone Fen and other Montana fens have unique and interesting invertebrate faunas as well as wonderful mosses and vascular plants.