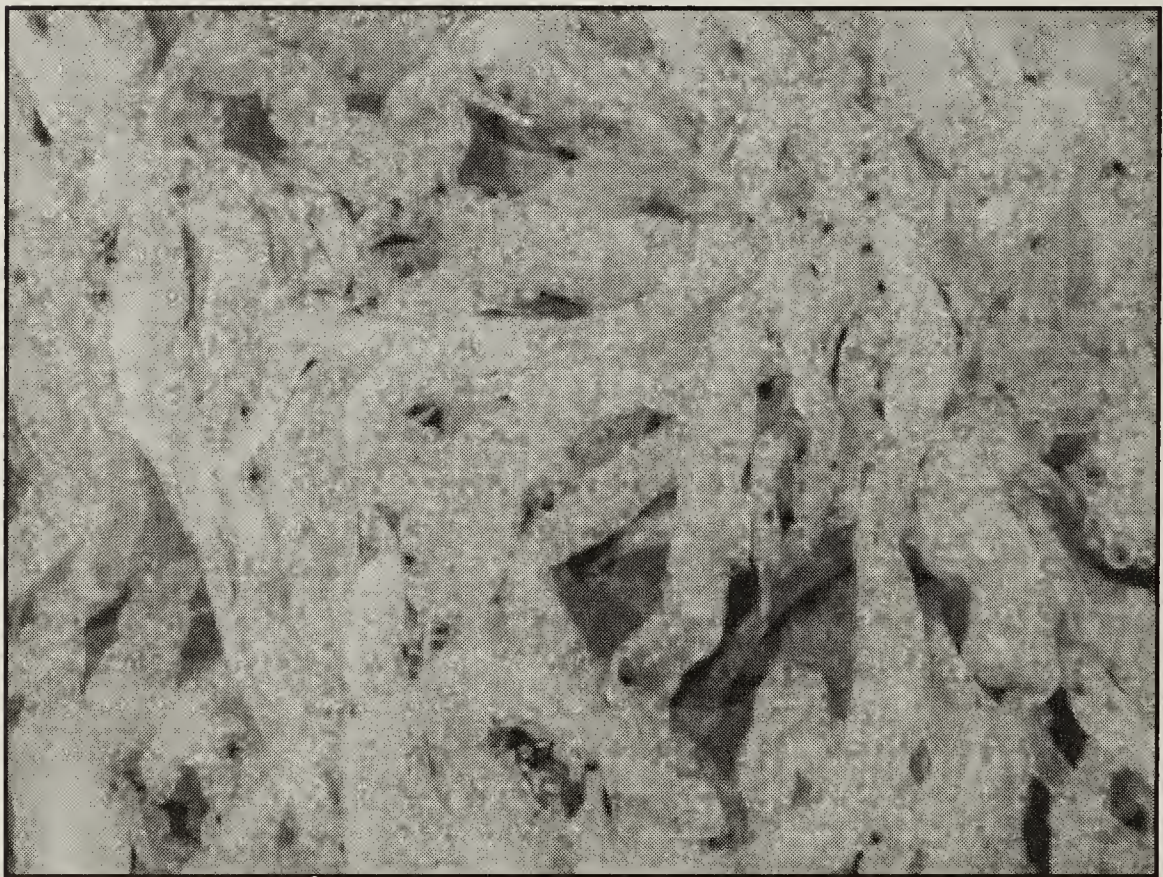
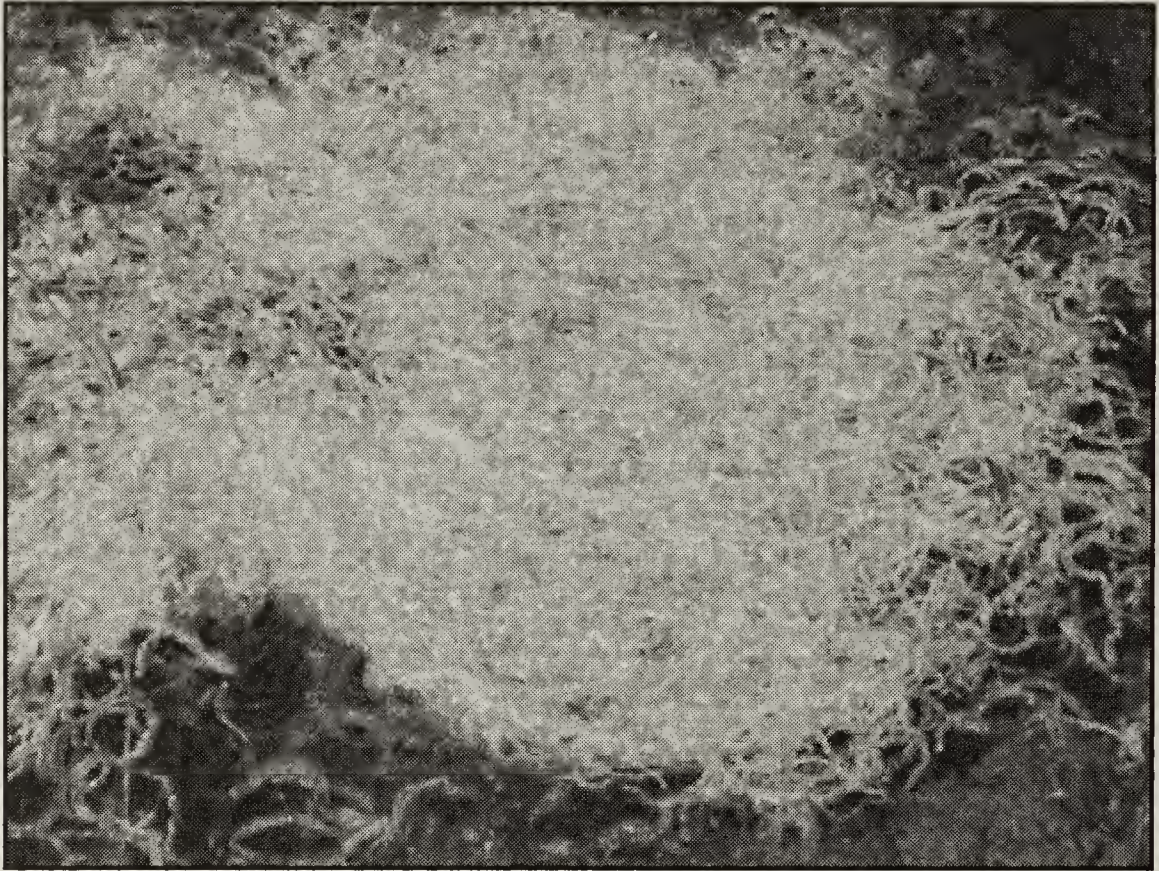
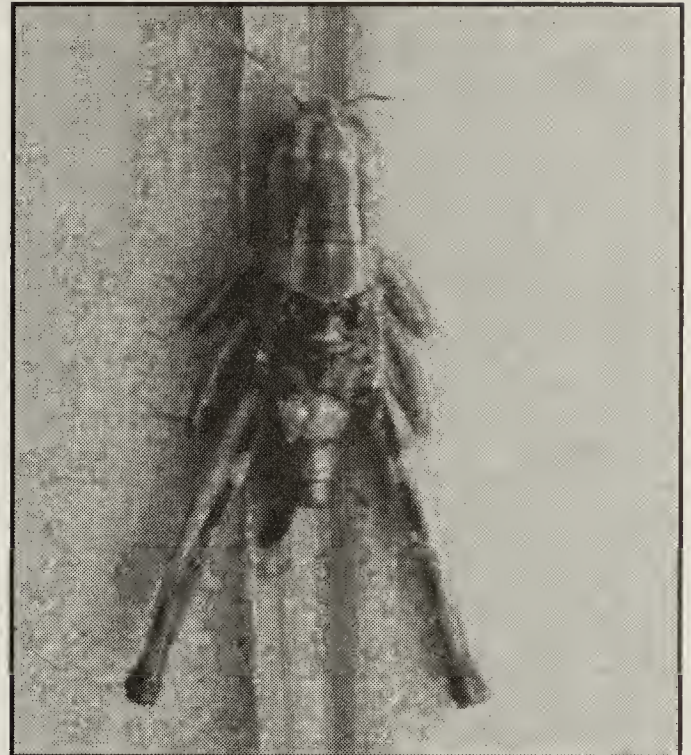
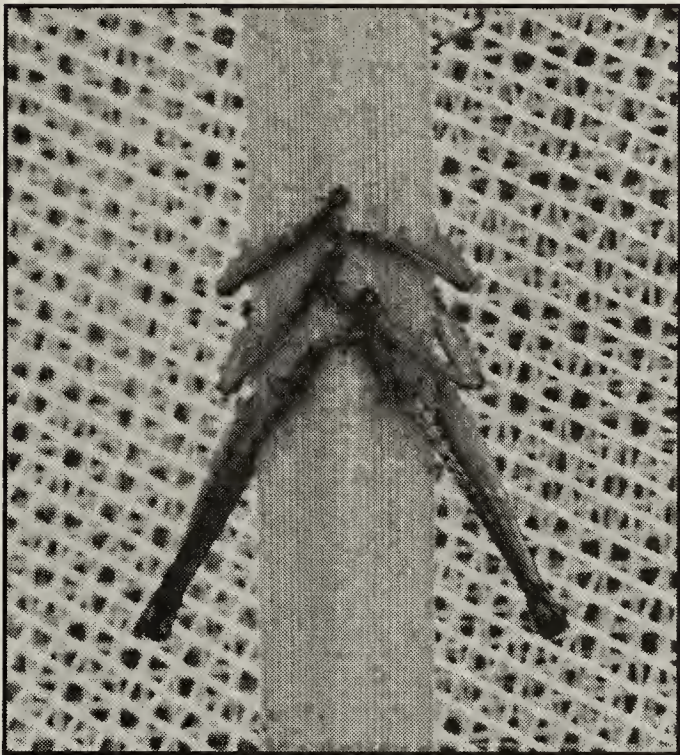

MYSTERY PHOTO

MARCH 2004 MYSTERY PHOTO



What are these translucent strands floating on the surface of a prairie slough 12 km east of Liebenthal in southwestern Saskatchewan? The large ant at the bottom of the close-up image will give you an idea of the scale. The photographs were taken on June 12, 2003 by Michelle Lanoie.

ANSWER TO DECEMBER 2003 MYSTERY PHOTO



The December mystery photo shows the legs of a dead two-striped grasshopper tightly gripping a grass blade. If you turn the blade over (right photo) you can see the remains of this insect. One of our Nova Scotia readers, Jean Timpa, correctly identified the mystery object as a grasshopper, but no one offered an explanation for the characteristic pose of the insect on the grass blade. This has been a common sight on the prairies over the past few summers, and may be so again this year. The editors would like to thank Dan Johnson for the following explanation.

This two-striped grasshopper has been killed by the fungus *Entomophaga grylli*. The last act of a grasshopper with this disease is to climb high and then hold on in the death grip visible in the left photograph. The fungus fills the grasshopper with spores that are released from the disintegrating body of the dead insect. If you opened up this grasshopper, wet it and made a smear on a microscope slide, you might see thousands of perfectly round resting spores, or the less well-shaped protoplast precursors. The genus name, *Entomophaga*, is Greek for insect-eating, and *grylli* refers to grasshoppers and their relatives.

This fungus infects a small percentage of grasshoppers on the grassland every year.

Lately it has been low in incidence, and not much help in slowing the grasshopper outbreak, but it has done better in the past. In 1962, one of the largest grasshopper outbreaks in recent history was brought crashing down by this fungus; the millions of infected clear-winged grasshoppers shed so many spores that the ground surface in some places had a pale patina.

There are two main types of this fungus on the Prairies. One (like this one) kills mainly the two-striped, but I have seen it kill close relatives such as the little spur-throated grasshopper, the lesser migratory grasshopper and Packard's grasshopper. Many other species of grasshoppers are apparently immune. The other pathotype infects the clear-winged grasshopper, as well as some of the related band-winged grasshoppers such as the Carolina grasshopper, and even a slant-faced grasshopper, the marsh meadow grasshopper. This version of the fungus produces a conidiophore on the abdomen of the insects, and getting the fungus to sporulate in a humid container makes a nice science project.

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PASTURE MAGIC

Magic playground of my childhood,
a pasture filled with wonders—
Three-flowered Avens,
always three, never two or four,
counted out correctly like candies.
Did a gene in the coarse black rootstock
decide three was the perfect number
for this member of the Rose family,
programming it to produce a trinity?

A pinkish stem stretches above the basal rosette
of dark-green, deeply-cut leaves.
A small tuft of finely-toothed leaflets
circles the long stem as it divides into three
ending in pointed roselike buds.
But the buds stay closed
assuming eternal youth—
five scarlet sepals hide
five smaller yellow petals—
until surprised by old age,
the ripe seedhead bursts
into pinkish feathery plumes.

Seeing its reddish-purple glow
in early spring,
the pioneers called it “Torch Flower”;
later when it waved fine delicate hairs,
“Old Man’s Whiskers” and “Prairie Smoke.”

My one surviving scrawny transplant
yields three nodding rosy droplets
that change to tiny puffs of captive smoke,
bringing back brief glimpses
of distant prairie magic.

- Jean MacKenzie, 2002. *An Exhilaration of Flowers*.
Nature Saskatchewan, Regina.