

DIDYMO

[*Didymosphenia geminata* (Lyngb.) M. Schmidt]



Fig. 1

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Problem: Didymo or rocksnot is a single-celled freshwater alga belonging to the division Bacillariophyta (diatoms).^{1,4} Although present in the western United States for over 100 years,³ it is expanding its geographical range in North America and Europe² and is invasive in New Zealand.^{1,4} Didymo has the potential to cause serious ecological and economic impacts.^{2,3,4} During nuisance blooms, didymo cells can create copious amounts of stalk material that form thick mats on the bottom of rivers and streams.⁴ These mats, which can be over 20 cm (~8 in) thick, are capable of completely covering the substrate and streambed, smothering aquatic plants, and altering macroinvertebrate community composition² (Fig. 1).

Identification: As the diatom cells attach to the substrate and begin to produce stalks, colonies appear as small, circular clumps (Fig. 2). As the colonies grow (Fig. 3), they merge together and may cover the substrate completely.



Fig. 2

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Fig 3.

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Fig. 4

Tim Daley Fig. 5

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As colonies coalesce and stalk production increases, the clumps become thicker. The colonies are frequently 1-2 cm ($\sim\frac{3}{8}$ to $\frac{3}{4}$ in) in thickness, but may be greater.⁵ The coverage on the streambed may be patchy, or the substrate may be completely covered (Fig. 1). Under periods of low flow or with favorable growth conditions, colonies have the opportunity to form blooms.⁵ The cells produce excessive amounts of stalk many times the length of the microscopic cells. As the stalks lengthen, they form ropy strands that can be brown, tan or white in color (Figs. 4 and 5). Some reports describe the strands as tissue, fiberglass, toilet paper, or sheepskins.⁵ Although the cells may die, the stalks persist on the stream substrate or stranded above the stream wetted zone. The stalks may persist for 2 months, or more.⁵

Similar Species: In the field, didymo can be easily confused with other stalk-forming diatom species. However, didymo is distinctive to the touch. When didymo stalks are pulled apart, there is some resistance and the stalks feel like wet cotton balls. Other diatom species have no such resistance, and they are slimy and slippery.⁵