

◀ See preceding two pages

THE NATURAL EXPLANATION BY ERIN ESPELIE



Gilled mushroom

To experience a jaunt in the woods as photographer Machel Spence does, one would need to scrape, wiggle, and worm over evergreen trees' roots and through mossy thickets, with an eyeball to the elfin. She's developed a kind of sixth sense for finding fungi and slime molds, be it an orange eyelash cup blinking out from wet bark or a fluorescent "dog vomit" plasmodium—an amorphous, amoeba-like stage in the slime mold life cycle—creeping around.

Most days Spence devotes three hours to such forest-floor spelunking in the 135-acre Lincoln Park on the Puget Sound, near her home in West Seattle.

Slime molds, once classified with fungi, are among the many lineages of "simple" organisms whose linkages continue to stymie taxonomists. Macro or micro, in all cases they reproduce by way of spores. The three species pictured on the previous two pages belong to the myxomycetes group and have all finished their feeding stage, chowing down on detritus and bacteria, and have entered into the fruiting-body stage, ready to send out spores.

Photographer and fungi-lover **Machel Spence** began focusing her lens on the mycological world in 2008, when she accompanied her daughter on a school trip to Mount Ranier National Park and came across a massive edible mushroom. She frequently contributes to *Fungi* magazine, and donates a percentage of the sales of her book, *Pushing Up Earth* (Blurb Press, 2011), to the nonprofit publication. To see more of her images, pay a visit to www.spencephotography.com.



Marasmiellus candidus

Although slime molds fascinate geneticists, they have no commercial value. Mushrooms, on the other hand, are big business. In the 2010-2011 growing season, mushroom farming in the United States expanded by approximately 8 percent from the previous year and raked in more than 1 billion dollars. Yet, as with most agricultural endeavors, species diversity in such crop farming, as well as in commercial "wild" harvesting, remains extremely limited. The Pacific Northwest Fungi Database estimates that as many as 20,000 species of fungi live in the region comprising Alaska, British Columbia, Idaho, Montana, Oregon, and Washington, but only 5,000 have been documented.

The forest floor would certainly be a different place without such organisms regulating bacterial populations and soil content. Trees, in particular, have strong symbiotic relationships with their mycorrhiza, or fungal root partners. The latter are far better at absorbing nutrients such as phosphate and even water, which they pass along to the trees in exchange for basic sugars. Fungi are also excellent at absorbing heavy metals, but these they trap in their own tissues, allowing trees to survive in contaminated areas.

That's why Spence never harvests the mushrooms she observes around metro Seattle. There's too much mercury and lead from old paper mills and other industries to warrant beheading the morels, chanterelles, and boletuses. Better she should feast her eyes, and ours.



NATURAL HISTORY

VITTORIO MAESTRO *Editor in Chief*

Steven R. Black *Art Director*

Erin Espelie *Executive Editor*

Senior Editors

Graciela Flores, Rebecca Kessler, Dolly Setton

Hannah Wijana *Assistant Art Director*

Annie Gottlieb *Copy Chief*

Contributing Editors

Marcia Bartusiak, Druin Burch, Rob Dunn,
Cheryl Lyn Dybas, Laurence A. Marschall,
Richard Milner, Robert H. Mohlenbrock,
Joe Rao, Stéphan Reeb

HOWARD RICHMAN *Publisher*

Edgar L. Harrison *Advertising Director*

Meredith Miller *Production Director*

For advertising information

call 203-861-6262

Advertising Sales Representatives

Detroit—Barron Media Sales, LLC, 313-268-3996

Chicago—Robert Purdy & Associates, 630-665-5315

West Coast—On Course Media Sales, 310-710-7414

Toronto—American Publishers Representatives Ltd., 416-363-1388

Atlanta and Miami—Rickle and Co., 770-664-4567

South America—Netcorp Media, Ltd., 51-1-222-8038

TODD HAPPER *Vice President, Science Education*

Educational Advisory Board

David Chesebrough *COSI Columbus*

Stephanie Ratcliffe *Natural History Museum of
the Adirondacks*

Ronen Mir *MadaTeh—Israel National Museum of Science*

Carol Valenta *Saint Louis Science Center*

NATURAL HISTORY MAGAZINE, INC.

CHARLES E. HARRIS *President, Chief Executive Officer*

Cecile Washington *General Manager*

Charles Rodin *Publishing Advisor*

To contact us regarding your subscription, to order a new subscription, or to change your address, please visit our website www.naturalhistorymag.com or write to us at

Natural History

P.O. Box 5000, Harlan, IA 51593-0257.

Natural History (ISSN 0028-0712) is published monthly, except for combined issues in July/August and December/January, by Natural History Magazine, Inc., 105 W Highway 54, Suite 265, Durham, NC 27713, in affiliation with the American Museum of Natural History. Natural History Magazine, Inc. is solely responsible for editorial content and publishing practices. Copyright © 2011 by Natural History Magazine, Inc. All rights reserved. No part of this periodical may be reproduced without written consent of Natural History. E-mail: nhmag@naturalhistorymag.com. Subscriptions: \$30.00 a year; for Canada and all other countries: \$40.00 a year. Periodicals postage paid at Durham, NC, and at additional mailing offices. Canada Publications Mail No. 40030827. If you would like to contact us regarding your subscription or to enter a new subscription, please write to us at *Natural History*, P.O. Box 5000, Harlan, IA 51593-0257. Postmaster: Send address changes to *Natural History*, P. O. Box 5000, Harlan, IA 51537-5000. Printed in the U.S.A.