

MUSHROOMING (WITH THE FOLKS WHO LOVE THEM)
Wild mushroom foraging in Vancouver, B.C.

by

Mike Green

H.B.A., The University of New Brunswick

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

MASTER OF JOURNALISM

in

The Faculty of Graduate Studies

(Journalism)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

April 2011

© Mike Green, 2011

Abstract

Edible wild mushrooms are part of the world economy. Wild mushrooms are an important food source around the world, playing a valuable role in many local diets and economies.

Mushroom foraging is not suitable work for amateurs; it is a dangerous practice as many edible mushrooms have poisonous doppelgangers and it takes a good deal of training to look for signs as to where mushrooms will appear. Because of this, wild mushroom foragers can be seen as a unique community of people despite the existence of various ethnic and cultural factions.

Professional foragers are often part of a migrant work force that travels around the Pacific Northwest, depending on which mushrooms are in season and where mushroom buyers are stationed. This is an economic system as the global demand for wild mushrooms, mainly dictated by acclaimed restaurants and traditions in Japan and Europe, encourages pickers and buyers to seek out the best products from often-remote forests. The work is hard and the harvest is not always successful, yet pickers and buyers are often content in the knowledge that they have a position that allows for an immersion in nature coupled with economic incentives.

Amateur foragers (or mushroom enthusiasts) tend to form distinct communities whereby mushroom centric stories are used as common ground. Amateur foragers are fascinated with wild mushrooms for diverse reasons, from edibility, to classification, to simply the wonder of finding something in the woods. These amateurs are often coupled in their communities with mycologists who study the mushroom scientifically; it is a relationship of mutual acceptance as the scientists often need the foragers to find mushrooms and the foragers often need the scientists to classify them.

Canadian, British and American media have covered professional foragers, mycologists and amateur mushroom enthusiasts in an attempt to explain their fascination with mushrooms. Media coverage tends to focus on the edibility of mushrooms, the relationships between restaurants and foragers, and the idea of mushrooms as a sustainable food source. However, mushroom coverage is not always so positive, as stories on how poisonous mushrooms can kill you and how foraging may not be a sustainable practice have found their way into the mainstream media.

Table of Contents

Abstract.....	ii
Table of Contents.....	iii
Acknowledgements.....	iv
Mushroom Markets and the Global Mushroom Hunt.....	1
Regulations on Mushrooms and Questions of Sustainability.....	6
Mushroom Communities?.....	7
Poisonings, Dangers, and Media Coverage.....	9
Bibliography.....	13
Appendix “Mushrooming (With the Folks who Love Them)” Documentary Script.....	16

Acknowledgements

I could not possibly thank my classmate Dan Hallen enough for the work he put into making this piece with me. All of the footage shot for this film was done with Dan for our Advanced Television class for a short piece we titled *Foray* (2010). We spent countless hours in the forest and later in the editing room together going to ridiculous lengths trying to learn how to mushroom forage. I would also like to extend a big thanks to my Advanced T.V. professors David Paperny and Dan McKinney for their advice and great sense of humour in regard to our storytelling. Also a huge thanks to my thesis adviser Peter Klein for helping me bring all the footage together in a cohesive manner and for working so diligently with me in developing the script. As well, thanks to Dr. Michael Hathaway for advising me with all his knowledge on the matsutake mushroom and the global mushroom economy for the literature review.

This project was made possible due to a generous grant from the Canadian Social Sciences and Humanities Research Council, for that I extend my utmost gratitude. I also would like to thank my lovely girlfriend Lauren and my parents for all of their support in my academic endeavors. A final thank you must be directed at everyone who appeared in this film, especially Tyler Gray--who showed us a great mushroom hunting spot and who was most generous with his time--and, of course, the good folks at the Vancouver Mycological Society and Mikuni Wild Harvest.

MUSHROOM MARKETS AND THE GLOBAL MUSHROOM HUNT

Migrant workers in North America, peasant villagers in China and rural farmers in Europe all contribute to the global mushroom trade (Arora 2000, 2008). The finest restaurants in the world rely on pickers to supply their plates with wild mushrooms like morels in the spring, chanterelles and porcinis (also known as boletes) throughout summer, and matsutake, lobster and a host of others in the fall.

There is not an exact number to put on the global trade in wild mushrooms as mushroom prices can change drastically from season to season depending on supply and demand. Boa (2004), in a study done for the Food and Agricultural Organization of the United Nations, finds “the most significant gaps in information and knowledge concern social and economic aspects of use” (59). Tedder and Mitchell (2003) state “while much data is held by various buyers, pickers and informal researchers, this data generally not made available to research organizations and especially government researchers.” However a general knowledge of the global mushroom trade, especially from the Pacific Northwest, China and Japan continues to grow.

There are figures on individual species such as the chanterelle and the matsutake, although these continue to vary from year to year often shifting rapidly. Watling (1997), as cited in Ehlers and Hobby (2010), estimates the global trade in chanterelle mushrooms at “US\$1.67 billion, based on world production ranging from 150 000 to 200 000 metric tonnes per year.” In regard to the matsutake mushroom Boa (2004), states that Japan imported \$169, \$137 and \$161 million (US dollars) worth of the product from 1995 to 1997 respectively. The Pacific Northwest alone “supplies around 15% to 20% of the annual Japanese consumption of around 5,000 tonnes of pine mushrooms” (Wills and Lipsey 1999). However, Southwest China is now gaining a much larger share of this matsutake trade with Japan, making the Pacific North West less in comparison.

These delectable wild foods cannot be cultivated; they must be discovered in their preferred habitats through great diligence, skill and luck. Wills and Lipsey (1999) cite that, “no one to date has been able to culture pine mushrooms artificially to achieve levels of commercial production” (v) while cultivation of other wild species has also had limited results. As well, mushroom scientists also are not too keen to come out with their findings, even if they are capable of growing a species. “Some key scientists working towards the cultivation of these potentially lucrative crops are tied by confidentiality agreements and are not permitted to publish or patent their research findings for fear that vital intellectual property will be lost” (Hall, Yun, and Amicucci, 2003, 433-434). Thus, the wild mushroom industry continues to be dictated by an elusive product whose harvests differ substantially from year to year. And, in truth, once domesticated these would no longer be “wild mushrooms.”

Despite their somewhat evasive nature, people will continue to pursue these delicacies. There remains a desire for these wild edibles by chefs and food connoisseurs for consumption and by countries like Japan, who have traditionally seen mushrooms like the matsutake as a symbol of fertility and good fortune, not just as a seasonal delicacy (Hosford, Pilz, Molina, Amaranthus, 1997, 5; Arora 2008, 288).

David Arora, cult figure in the mushroom world and author of *Mushrooms Demystified* (1979)—a book often cited as the “mushroom bible” (Sherman 2006)—is both a mycologist and an examiner of the global mushroom trade. Arora’s recent work has been on how the foraging of edible mushrooms can assist (or help create) an ecologically sustainable alternative to traditional farming. For Arora, the collecting of mushrooms by certain villages has served as a means to alleviate poverty (2000, 2008). “Impoverished farmers in Bulgaria, for instance, have bought new tractors with money gained from selling boletes to Italy, and villagers in Zimbabwe pay school tuition fees for their children by selling mushrooms from their native miombo woodlands, including chanterelles that they can ship out of season to Europe” (Arora 2000). The local villagers, who live in areas abundant with economically desirable edible mushrooms, are connected in this global mushroom trade like other producers of edible goods. Yet, instead of serving a large body of agribusiness or a particular company, these foragers can be seen as self-employed while hunting these wild products.

Arora's study on the Shangri-la matsutake harvest in the Yunnan Province of China concludes that the local picking of mushrooms, and their subsequent selling in the Japanese market, is a story of sustainable economic success for its Tibetan residences (2008). Studying villagers who picked matsutake in the summers between 1993 and 1998, Arora found that every foraging family he interviewed was able to build new elaborate houses due to their selling of matsutake. Where there was once only an impoverished people who were surrounded by steep forest, there was now a proud community who had advanced their economic situation by reaping the benefits of a local wild product that was in high demand in Japan. As Arora states, "substantial wealth was transferred, in a very short time, from urban Japan to these remote Tibetan villages, enabling them to prosper as never before, and to do so without destroying their forests" (2008, 288). For Arora, this was not the result of government programs or forest management plans from environmental non-government organizations (NGOs), but because of "villagers and their creative management efforts," where "Tibetan and Chinese private sectors" functioned with "a handful of enterprising Japanese businessmen" (288).

In North America there is a substantial network of traveling foragers who go from foraging site, to foraging site, depending on the season. Tedder and Mitchell (2003) find that “the vast majority of people employed in the edible wild mushroom industry are the pickers” and that “this is also the industry level where we have the least detailed and perhaps reliable information.” Buyers for wild food companies migrate with these pickers and set up service stations to weigh and buy mushrooms that have come straight out of the bush (Wolf 2006). In certain instances there can be hundreds of pickers for only one buyer. The main picking corridor stretches from Alaska and southern Yukon, down to Colorado and Northern California, with some of the most fertile mushroom areas being between Oregon and British Columbia. Mushrooms are also picked in Ontario and the Midwestern United States where chanterelles and morels are common. However, most of these mushrooms are foraged for personal consumption while the mushroom corridor of the Pacific Northwest is heavily involved in the global mushroom trade.

During the summer, morel picking in the Yukon can be lucrative if conditions—like a forest recovering from wild fires—are right. Even so, there is never a guarantee that the mushroom harvest will be a success or that pickers and buyers will even show up to harvest the morels. “Most morels in the Yukon are gathered by itinerant pickers, which means that buyers must rely upon the unplanned, unpredictable convergence of many small, independent groups” (Wolf 2006). If the conditions are right though, and word gets out to the network of pickers and suppliers, then there can be literally tons of mushrooms picked, purchased and shipped during the short season. During a good morel harvest in the Yukon, “pickers sell their mushrooms every day, for cash. The cash comes from a handful of mushroom companies near Vancouver and elsewhere on the West Coast, whose owners front tens of thousands of dollars to field buyers” (Wolf 2006). These Yukon morels are rarely shipped fresh; more often they are dried and sent to Paris, where they get distributed, depending on their size and shape, to other European countries (Wolf 2006).

In the Cascade Forest District of British Columbia, chanterelles, morels and matsutake (also called pine mushrooms) are the most economically significant mushrooms (Keefer, Ehlers, Macpherson 2008). Among these, the matsutake remains the most sought after mushroom due to the high price it can demand in Japan. “Matsutake are graded from one to six—one for the young and pristine, whose hoods have yet to open; six for the worm-eaten and overmature” (Bilger 2007). Number ones are the most prized of the matsutakes and their price progressively grows the further they get from their source. Straight out of the forest a picker may be able to sell number one grade matsutakes for cash as high as \$40 to \$60 dollars a pound, while number sixes may only fetch a dollar a pound; once shipped to Japan these perfect matsutakes can sell for three times the amount they would in North America (Bilger 2007).

In 2006, most of the 45,000 kilos of British Columbia pine mushrooms were exported to Japan, although local foodies and chefs still buy choice amounts (Pollan 2006). Japan imports an abundance of matsutakes from across the globe because their own harvest has dwindled. Japan has lost ninety per cent of its matsutake crop due to its forests actually being too well maintained (Bilger 2007). “Korea, where forests were clear-cut in the nineteen-fifties, is now the world's largest exporter of matsutake” (Bilger 2007). While Japan remains the main importer of matsutakes in the world, it does not mean that matsutake business will continue to grow. “There has been a recent softening of demand for matsutake in Japan—perhaps reflecting an unwillingness on the part of newer generations of Japanese to pay such a high price for matsutake—and a concomitant downward trend in prices paid to the matsutake pickers in many countries” (Arora 2008, 288).

On the Pacific coast of North America mushroom hunters can often cut out the middle man and deliver their finds directly to a restaurant. Berkeley California's legendary Chez Panisse restaurant buys mushrooms directly from their picker, often with no questions asked: "By the time the mushrooms get to Chez Panisse's back door, their origins are a moot point. The chefs don't ask, and the hunters don't tell" (Sherman 2006). This has been the practice at this restaurant for decades and reveals how restaurants in cities of culinary distinction on the West Coast, like San Francisco, Portland, Seattle and Vancouver, are able to have direct relationships with their pickers. Some pickers will supply the same restaurant for years, decades even, as is the case with Geronimo "Jefe" Bernard, a forager interviewed in a piece for the *San Francisco Chronicle* (Sherman 2006). Since 1984, at the age of twelve, Bernard has sold wild mushrooms to Chez Panisse—a practice he learned from his dad (Sherman 2006).

REGULATIONS ON MUSHROOMS AND QUESTIONS OF SUSTAINABILITY

Much has been made about the sustainability of wild mushroom harvesting. While mycologists like Paul Stamets and David Arora both assert that foraging can be a sustainable practice, as the mushroom is merely the fruiting body of the underlying mycelium, there are concerns over the damage that can be done to the forest habitat. Mushroom foraging in England has become so popular that The Royal Society for the Protection of Birds, The National Trust, and the Forestry Commission have all cited the commercial collecting of mushrooms as a problem due to trampling of habitat and the notion that mushrooms are a food source and host for various animals and invertebrates (Jowit 2010). Fines are becoming commonplace as more and more foragers take to the woods for commercial gain (Jowit 2010).

The Cascade Mountain range, which runs from British Columbia to northern California, is a ripe habitat for wild mushrooms and is thus exploited by wild mushroom pickers and buyers. In a study on mushroom regulation in the Sisters Ranger District of Oregon, McLain (2008) reveals how high prices for mushrooms stimulated the rapid expansion of commercial foraging in the 1980s (344). At Sisters in Oregon, McLain asserts that regulations now exist which put pickers and mushrooms under state management, monitor both pickers and buyers, and construct a “wild mushroom panopticon” (346). This authoritative form of state control has risen with little input from the transient commercial pickers (352).

According to McLain, the regulation on mushroom pickers threatens their social structure.

Pickers at Sisters place a high value on their ability to lead lives where work, play, and family life are intermingled rather than separated from each other in time and space. Disciplinary power, on the other hand, works by assigning people and their activities to narrow categories (e.g., "industrial users"), fixing people in time and place, and separating work places from living spaces (352).

In this sense, mushroom pickers come to these camps and form a community of shared interest—they are viewed as having their own unique culture that focuses on independence. This idea, of pickers identifying themselves as a distinct culture, prevails in the world of the average mushroom enthusiast but is not as applicable to professional mushroom foragers.

MUSHROOM COMMUNITIES?

Gary Alan Fine has studied how mushroom enthusiasts form communities in their respective areas and how they view themselves as different from non-mushroom enthusiasts (1987, 1998). For Fine, amateur mushroom collectors create a unique social world where personal stories—presented either as a treasure hunt (or fish story), or as a comedic interaction with people ignorant to mushrooms—are used to form a nexus whereby mushroom enthusiasts can form a community (1987, 224-225). Fine cites how most metropolitan areas in North America have groups of amateur mushroom enthusiasts who come together in mycological clubs to “provide for support and a sense of community for mushroomers who have various mushroom-related interests, including the scientific examination of mushrooms, techniques of cooking, finding mushrooms for collections, and photography” (225). The Vancouver Mycological Society of British Columbia is indeed one of these groups and was a fertile source for interviews and information that was utilized in our documentary.

According to Bilger (2007), transient mushroom pickers in the Pacific Northwest are less likely to view themselves as a unique community. Despite frequently co-inhabiting large forest-based camps from which to foray, professional pickers tend not to be tight-knit communities. Various ethnic backgrounds, customs and linguistic divisions tend to fragment picking groups despite there being cultural commonalities like a mutual philosophical motivation. In a piece for *The New Yorker*, Bilger (2007) finds that despite having to work together to get wild mushrooms from the forest to the market, groups of pickers and the buyers they deal with don't truly form a community as economics tends to trump an idea of unity.

Focusing on mushroom foraging camps in Oregon, Bilger finds mushroom stations to be more of an economic necessity as opposed to a community:

The camp is roughly divided into ethnic groups—Hmong, Mien, Cambodian, Laotian, Mexican, and Caucasian—who maintain an uneasy peace, threaded with resentment. The pickers, who are mostly Asian, mistrust the buyers, who are often white. The buyers mistrust the forest rangers, the rangers the pickers, the Asians the Hispanics, and the whites the Asians (2007).

While mistrust amongst the different ethnic groups is rampant, a mini-society is still formed in the foraging camps due to necessity. A plentiful mushroom season can make a camp swell to upwards of one thousand people; with those numbers things can get dicey as drugs, prostitution and robbery are not unheard of in the camps (Bilger 2007). Gary Wolf's (2006) assessment of a Yukon mushroom camp paints a different picture--that of teamwork by necessity in order to get the most mushrooms to market.

POISONINGS, DANGERS, AND MEDIA COVERAGE

Mycologists and mushroom enthusiasts alike often bemoan the lack of respect and admiration that mushrooms receive from the North American public. Paul Stamets, a highly regarded mycologist who believes that mushrooms can play a critical role in environmental mediation, laments that “the prejudice against mushrooms is a form of biological racism—mushrooms are just not taken seriously” (Stamets 1999). Stamets has shown that mushroom spores from species like the oyster mushroom are capable of safely breaking down hydrocarbons in land contaminated by heavy oils and can act as a filter, where it can digest harmful constituents in farmyard manure, protecting watersheds (Stamets 1999). While Stamets’ scientific studies of mushrooms may one day be implemented on a large scale (he does have several patents pending in the U.S.), mainstream media tends not to focus on the industrial applications of mushrooms. Instead, the main mushroom stories you find describe mushrooms in two ways: they are a gourmet ingredient used in restaurants, or they are a poisonous thing that can kill you if you eat one. Of course, both these points are constantly made when the media addresses mushrooms.

Recently the *Vancouver Sun* ran an article titled, “‘World’s Deadliest Mushroom’ here to stay, expert warns,” in which Paul Kroeger, the vice-president of the Vancouver Mycological Society, discusses how the death cap mushroom has been inadvertently brought to Vancouver by the planting of non-native trees (Pynn 2010). *Amanita phalloides*, or the death cap mushroom, is responsible for the poisoning of 42 people in the U.S. last year (three of whom died) and is the source of almost 90 per cent of mushroom poisonings in Europe (Pynn 2010). Most people who eat a death cap don’t know until it’s too late; they taste delicious and “the victim may feel fine for up to a day” after eating until they “begin to vomit and suffer diarrhea and stomach cramps, before appearing to recover—by which point [their] liver is beyond repair” (Bilger 2007). Here the idea of mushrooms and danger is at the forefront of the story.

In Britain, a prominent case of mushroom poisoning recently caught the press’ eye. In 2008 Nicholas Evans, the author of *The Horse Whisperer*, poisoned himself, his wife and his brother and sister in law after he wrongfully fed them *Cortinarius speciosissimus*, the deadly webcap (Daoust 2010). “Two years on, the Evanses and their brother-in-law have almost no kidney function. Every other day, they spend hours plugged into dialysis machines, having been on the waiting list for a transplant since early 2009” (Daoust 2010). Evans had mistaken the mushrooms for a bolete. Phil Daoust, a writer for the *Guardian* partially blames Evans for the current bad press wild mushrooms are getting in Britain. While he emphasizes that some mushrooms can kill you—or “just make you wish you were dead”—Daoust stresses that wild mushrooming can be a perfectly safe and rewarding practice, as long as you know what you are doing.

Despite the fact that there are several deadly poisonous mushrooms that can be mistaken for edible ones, there aren't stringent laws regulating the purchase and use of them in restaurant kitchens. Sherman (2006) relates the dialogue from one forager who first sold to Chez Panisse at young age and their chefs as such: "Are they poisonous?" "No, they're chanterelles." "Are you sure?" "Yeah." At this point the chefs traded the mushrooms for cash. While this story indicates the incredible lack of knowledge of the buyer, (and may be an embellishment on the part of the journalist) it is revealing in how business is often done between foragers and chefs. The wild mushroom trade between restaurants and foragers is one of trust. The onus is on both parties to be sure of the identification and edibility. Mistakes do happen though, as in 2008, two chefs at a restaurant in Portland, Maine were poisoned after purchasing mushrooms from foragers at their door (Rose 2008). Fortunately, the mushrooms were not served to any customers and the chefs recovered (Rose 2008).

The environment in which mushrooms grow also affects their edibility. Mushrooms absorb matter from their environment and can often act as a toxic sponge. Edible mushrooms are known to “accumulate and concentrate toxic metals” which can be “a pertinent health concern for those who eat chanterelles from polluted areas” (Pilz, Norvell, Danell, Molina, 2003, 23, Stamets 2004, 79). The 1986 Chernobyl nuclear disaster has actually tainted many species of edible mushroom in Eastern Europe as nuclear fall-out has been found in several species of edible mushroom (Pilz, Norvell, Danell, Molina, 2003, 23). Paul Stamets has cited that a visitor to Ternobyl, a city about 60 miles from Chernobyl, returned to the U.S. with a jar of pickled mushrooms from the area that were so radioactive they set off Geiger counter alarms at customs (Stamets 2004, 79). Issues like pollution could end up playing a role in how edible mushrooms are viewed as mushroom environments around the world continue to degrade due to human activity. However, wild mushrooms are usually “organic” in that pesticides and herbicides are rarely applied to them.

Bibliography

- Arora, David. "The Houses That Matsutake Built." *Economic Botany*. 62(3), 2008; pp. 278-290.
"The Global Mushroom Trade." *Whole Earth*. Spring 2000.
Mushrooms Demystified. Berkeley: Ten Speed Press, 1986.
- Bancroft, Murray. "Magic Mushrooms." *Vancouver Magazine*. June 2007.
- Beato, Greg. "How to reap without sowing." *The Globe and Mail*. July 2, 2010.
- Beetz, Alice; Greer, Lane. "Mushroom Cultivation and Marketing." ATTRA, Sept. 1999. <attra.org/attra-pub/mushroom.html>
- Bilger, Burkhard. "The Mushroom Hunters: An Edible Gold Rush." *The New Yorker*. August 20, 2007. p. 62.
- Boa, Eric. "Wild edible fungi: A global overview of their use and importance to people." *Non-Wood Forest Products*. Food and Agricultural Organization of the United Nations: Rome, 2004.
- Brown, Ian. "Mushroom-gathering isn't just a walk in the woods." *The Globe and Mail*. July 30, 2010.

- Daoust, Phil. "How to pick wild mushrooms." *The Guardian*. September 16, 2010.
- Ehlers, T. and T. Hobby. "The chanterelle mushroom harvest on northern Vancouver Island, British Columbia: Factors relating to successful commercial development." *BC Journal of Ecosystems and Management*, 2010; 11(1&2): 72–83. <<http://jem.forrex.org/index.php/jem/article/view/55/25>>
- Fine, Gary Alan. "Community and Boundary: Personal Experience Stories of Mushroom Collectors." *Journal of Folklore Research*. Vol. 24, No. 3. 1987. pp. 223-240. *Morel Tales: The Culture of Mushrooming*. Cambridge: Harvard University Press, 1998.
- Flood, Alison. "Horse Whisperer author poisoned by mushrooms." *The Guardian*. September 2, 2008.
- Hall, R., Yun, Wang, and Amicucci, Antonella. "Cultivation of edible ectomycorrhizal Mushrooms." *Trends in Biotechnology*. Vol. 21, Issue 10, October 2003; pp. 433-438.
- Hosford, David; David Pilz; Randy Molina; Michael Amaranthus. "Ecology and Management of the Commercially Harvested American Matsutake Mushroom." *United States Department of Agriculture*. November 1997.
- Jowit, Juliette. "Wild mushroom foraging is damaging forests, warn nature groups." *The Guardian*. October 24, 2010.
- Keefer, Michael E; Tyson Ehlers; Nancy Macpherson. "A Regional Profile of Commercial Harvesting of Non-Timber Forest Products in the Cascade Forest District, British Columbia." *The Centre for Non-Timber Resources*. Victoria, BC: Royal Roads University, February 2008.
- McLain, Rebecca J. "Constructing a Wild Mushroom Panopticon: The Extension of Nation-State Control over the Forest Understory in Oregon, USA." *Economic Botany*, 62(3), 2008; pp. 343-355.
- Pilz, David; Lorelie Norvell; Eric Danell; Randy Molina. "Ecology and Management of Commercially Harvested Chanterelle Mushrooms." *United States Department of Agriculture*. Pacific Northwest Research Station, March 2003.
- Pollan, Christopher. "A yen for pine mushrooms." *The Georgia Straight*. September 28, 2006.
- Pynn, Larry. 'World's deadliest mushroom' here to stay in Vancouver, expert warns. *Vancouver Sun*. November 22, 2010.

- Rose, Chris. "Warning About Wild Mushrooms." *WCSH6.com*. August 28, 2009.
<www.wcsh6.com/news/local/story.aspx?storyid=92057&catid=2>
- Sherman, Leonie. "The Mushroom Hunters." *San Francisco Chronicle*. April 30, 2006.
- Stamets, Paul. "The Role of Mushrooms in Nature." *The Overstory Book: Cultivating Connections with Trees*. Ed. Elevitch, Craig R. Hawaii: Permanent Agriculture Resources, 2004.
Earth's Natural Internet. *Whole Earth*. Fall 99, Issue 98, 1999.
- Tedder, Sinclair and Mitchell, Darcy. "The Commercial Harvest of Edible Wild Mushrooms in British Columbia, Canada." Paper as submitted to the *XII World Forestry Congress, Quebec City, 2003*. <<http://www.fao.org/DOCREP/ARTICLE/WFC/XII/0379-B1.HTM>>
- Watling, R. "The business of fructification." *Nature*. (385) 1997; pp. 299–300.
- Wills, Russel M. and Richard G. Lipsey. *An economic strategy to develop non-timber forest products and services in British Columbia*. Victoria, B.C.: Forest Renewal BC, 1999; Project no. PA97538-ORE.
<http://www.sfp.forprod.vt.edu/pubs/ntfp_bc.pdf>
- Wolf, Gary. "Magic Mushrooms." *The New York Times*. May 7, 2006

Appendix

MUSHROOMING (WITH THE PEOPLE WHO LOVE THEM)

a film about foraging

Documentary Script

[shot following Tyler and Mike walking down a logging road on the sunshine coast]

Voice Over: This is Tyler Gray. He is about to take us mushroom foraging for the elusive matsutake mushroom

[Tyler Gray just outside a steep bit of wood. the dialogue explains the rest of the scene as he unearths this mushroom which we had no idea was there]

TYLER GRAY: Right here, under this patch of moss is a mushroom, it's not the mushroom we are looking for but it's actually an excellent sign because when this Russula mushroom is growing--this is a doppelganger, it kind of looks a bit like a matsutake, but it's in fact not--when these are growing it's an excellent sign that matsutake are growing as well...

INTERVIEWER BEHIND CAMERA: How did you spot that guy?

TYLER: (Laughing) Well, that's what it's all about.

[matsutake foraging b roll with music]

VO: Matsutake--or pine mushrooms--are some of the most expensive mushrooms in the world. Top grade matsutakes can fetch 20-60 dollars a pound in North America while in Japan, where the mushroom has taken on a near mythical status, they can be found at market for three times that amount.

[medium close up: Tyler on hands and knees looking up a wooded slope. Shots of him unearthing matsutake mushrooms]

TYLER: Whenever I'm down here and finding a patch I'm constantly looking up to see a crack in the soil or a little piece of white...and indeed I see one. I'm going to bet that it's a nice big number one over here. And it's three number ones. That's great. This is a good patch. This always produces, this bank.

[close up: Tyler unearths four #1 grade matsutakes then meticulously covers back the ground from where they came]

VO: Tyler Gray spent five years in the bush as a professional mushroom forager. His mom had taught him how to spot wild edible mushrooms when he was a young boy.

TYLER: Then as I'm picking I'm trying to see if there is anymore around.

[Close up of hand to a medium Shot: Tyler pulls out a big chanterelle mushroom]

VO: Tyler has been foraging in this very spot since he was a child. He nimbly goes through the forest finding mushrooms our untrained eyes simply would not see.

TYLER: Typically where you find one or two mushrooms there are going to be more hanging out, so you really have to be taking your time when you are scanning the forest canopy. Because sometimes they are really hard to see--which makes it thrilling and exciting.

[Tyler walking through the woods]

VO: Indeed, for some people mushroom hunting is “thrilling and exciting,” But it can also be lucrative. Tyler has turned his boyhood hobby into a thriving career that takes him across the continent.

[wide: Tyler and Mike walking over a log. shots of the full bucket of mushrooms Tyler has foraged from the woods]

TYLER GRAY: Professionally we traveled all across the United States. We'd be in Colorado, or Oregon, or Washington and you'd have to spend days trekking around the woods trying to find a lot of places where these products grow. They are very particular about some of their growing habits. Yeah, you can forage professionally in one town but you have to be able to go from Alaska to Northern California if you want to professionally do it and make a career of it. And you have to know the different terrains and the different environments in which these products grow.

[various shots of the Mikuni Wild Harvest warehouse in Richmond]

VO: In 2004, he took this experience and started Mikuni Wild Harvest with a few partners. They would soon be pushing wild mushrooms on the domestic market.

[Tyler interview in the warehouse]

TYLER: We realized back then that we had something that was unique and special. Wild foods in North America were really under the radar. 90% of the product that was being foraged commercially across North America--be it Canada or United States--was being exported to Asia and Europe.

VO: Tyler and his partners knew that top chefs across the continent were always looking for these wild foraged mushrooms. So this is who they pursued.

TYLER: I would be just be hitting the phones all day and calling the Thomas Kellers and the Charlie Trotters and the Daniel Bouluds and the Mario Batalis to get into these restaurants. And back then our company was pretty unique, pretty niche, There weren't a lot of people doing what we do....

[medium: Tyler negotiating on the phone while looking over some rather large mushrooms that should have been smaller. S/o: Tyler: "**You start talking about number ones with yellowing foam, well that's really pushing it.**" Then back to Tyler interview]

... I remember calling the Inn in Little Washington, which is this famous restaurant in Washington, Virginia. I called them for a year twice a week and I was very polite, but I had a lot of energy and I was really excited about this project we had just launched and I'd try to get them to try our products. And they were like; "no we are good right now but try us later." So I kept calling. A year and a half later, literally, they call me up and they are like, "we are going to give you a shot. Our mushroom purveyor dropped the ball and now it's up to you." So we got in there and have been selling to them ever since.

[B-roll: Tyler walking into cooler]

VO: Mikuni Wild Harvest is now has over 2500 customers across North America. A lot of this has to do with their unique products.

[Tyler in walk-in cooler]

Tyler: This is a shelf mushroom. It has a bold chicken breast flavour. [Then with a matsutake] matsutake, this is like the true Japanese grade of matsutake. you can tell, because well, they look a little bit phallic and that's what true Japanese grade number ones resemble. They are very aromatic...

VO: Indeed, Tyler has come to recognize exactly what chefs want.

[Tyler stand-up interview]

TYLER GRAY: The top dogs out there, the Kellers and the Atkinsons and the Trotters and the Batalis, they want to be the first guy you call when you get a shipment of porcini in, because they want the small buchoun, they want the perfect 10% of the mushrooms out there. You get a load of 200 lbs of product and 10% of it is perfect. Because it's a wild product you can't control it. So those guys always want you to be the first guy you call so they can get the perfect stuff. But yeah, it's a small world, it's small up at the top.

VO: If you are eating a wild mushroom at any highly regarded restaurant in North America, the chances are very good that someone from Mikuni Wild Harvest had a hand in it getting there.

TYLER GRAY: How it works is the number ones are fully closed. So you have these mushrooms, which are both number ones although they are bigger, there's no veil that is dis-attached from the stem--there's actually no veil at all, it's just a complete button. And this is what all the chefs are looking for.

[fade out/in: Tyler now standing with a perfect number one in hand]

...at this point in time the mushroom is at its peak in flavour and aroma. So that is why they are so valuable to them. And, I think for centre-plate restaurants, these restaurants are composing dishes that they want to re-create night after night after night and look exactly the same. So to be able to know that the matsutake is going to be three inches by an inch and a half, for the number one medium grade, that doesn't need to change-- because I know I can get the number one medium grade Japanese matsutake and I know that is what they are going to look like. So they order them and they've got a place, a spot on the dish for that matsutake and its this artistry. Of course, it's coupled with this amazing craft, but yeah I think they love the fact that they can rely on such a defined and unique shape.

[Tyler then smells the mushroom and leaves the shot]

[People walking about tables filled with mushrooms, montage: various People looking at large funky mushrooms, a Latin Family handling a mushroom while their young son takes a picture, an older woman in a VMS shirt with a book in front of her and several types of mushrooms she is identifying (you can hear her say we should quit playing games and start playing mushrooms to which she laughs).]

VO: But let's be honest. People aren't only into wild mushrooms because they are delicious. Indeed, when most people hear the word mushroom they automatically think "magic mushrooms."

[still of magic mushrooms. medium close up of Paul Kroeger, the vice president of the VMS who looks like a wizard. music.]

PAUL KROEGER: I'd heard about magic mushrooms when I was in high school so I took a book out of the library and looked through it and then I went out in the woods looking for mushrooms. There were mushrooms everywhere that year--it was a great year--and I thought that was the neatest thing in the world. To find all of these colourful mushrooms growing everywhere. And I was sucked in from that point on.

[screen stills: various shots of magic mushrooms]

VO: Some people do get into mushroom foraging specifically to find the mind-altering Psilocybin mushrooms. While Paul Kroeger does give presentations on Hallucinogenic mushrooms, it is not his main pursuit.

Paul: No, I'm more interested in classification; the edible aspect of it isn't high priority of all. I'm involved mostly now with research. So I'm interested in issues around the ecology and biodiversity of mushrooms.

VO: Paul has become a renowned mushroom expert in the Vancouver region who makes his living as a Mycological consultant. His latest work was composing this reference guide on poisonous mushrooms in Haida Gwaii.

[screen shot: first Paul's book cover on poisonous mushrooms in Haida Gwaii then, mystical looking picture of Paul holding up a death cap mushroom from the Vancouver Sun, November 22, 2010.]

VO: But Paul isn't the only one who can tell you about poisonous mushrooms. There is in fact an entire generation of young mushroom enthusiasts in Vancouver whose knowledge belies their age.

[shot of Kevin Bi and another boy sitting at a table (which is full of poisonous mushrooms) talking to people]

KEVIN BI: ...These two boxes are full of well-known edibles and poisonous mushroom look-a-likes that you should know.

Generally for Lapiota you want to eat one that is bigger than your fist.

Generally those are safe because there are a few small but deadly species of Lapiota; for example Lapiota castanea.

INTERVIEWER BEHIND CAMERA: So they look similar?

KEVIN BI: Yes, it's hard to tell one from the other, except just being able to tell what is what. By looking at it many times is just the way to know.

[holding up a warning sign]

There is always the warning like this. And that's a good warning to watch out for this deadly beauty, it's called Amanita phalloides.

INTERVIEWER BEHIND CAMERA: Isn't that kind of dramatic, that eating wild mushrooms can kill you?

KEVIN BI: No, personally I'm not shocked by that fact. I'm just like yeah, thank you for letting me know.

[screen shot: news headlines on mushroom poisonings]

VO: But, mushroom poisonings do occur with some regularity as amateur pickers have been known to mistake poisonous mushrooms for their edible look-a-likes.

Tyler: I describe foraging a lot of the times as driving a car. If I had a son that wanted to drive a car I'm not going to through him the keys I'm going to teach him how to do it. I'm not just going to give him the keys and say, "here you go, take it for a rip, figure it out." Foraging requires knowledge and with that knowledge it's something that you can do safely and responsibly.

[shot of people looking at mushrooms. shot of Dan then Tommy]

VO: Learning from an expert is indeed sound advice. When my fellow filmmaker Dan Hallen and I first started shooting this documentary we ran into Tommy Robinson, a cook in Vancouver who recently became a fungi enthusiast.

[medium close up: Tommy in a back lane]

TOMMY ROBINSON: So I have a tattoo of about 35 mushrooms on my leg.

INTERVIEWER BEHIND CAMERA: Okay...Why?

TOMMY: Just, I love mushrooms. I'm a cook and mushrooms to me like, resemble family. For me, when you go mushroom picking you hardly ever find mushrooms by themselves, most of the time you find mushrooms in clusters, or groups, almost like a family right? And I love food and mushrooms are one of my favourite things to eat--so I might as well get that on my leg.

[close up: Tommy's leg tattoo]

These are *Amanitas*. Morels, black trumpets which are purple (I just wanted the colour), hedgehogs...there is a little mushroom gnome. This is the mushroom where you dry it properly it gives you a magic mushroom. Chanterelles, enoki mushrooms...

[montage: waterfall, Tommy and Mike walking in woods, close up: Tommy sniffing a mushroom]

VO: Tommy took us foraging in Squamish without a pre-selected spot in mind. While it was a fun at the time, in retrospect it was a somewhat harrowing experience. Tommy suggested we test the mushrooms for poison by tasting them...

[close up: Tommy in forest cutting a mushroom and putting it to his tongue]

TOMMY: It's a little tingle. This one's not even that bad.

DAN: This is a bad idea. Give me a little bit.

TOMMY: I'll give you like that. That won't kill you at all." (Dan laughs)

DAN: Doesn't taste peppery at all to me.

TOMMY: Is there a little stinging or a little nothing?

DAN: Nothing

TOMMY: Put it on your tongue again-- Nothing?

VO: The mushrooms in question turned out to be an angel wings, which were quite delicious. But, that whole practice of licking a mushroom in the woods to test its edibility is completely wrong. Tommy had picked up this bad advice from a friend who had previously taken him foraging. It just goes to show you that there are countless mushroom myths that need to be debunked.

[various foraging b-roll]

[montage foraging footage of Mike and Dan]

VO: After being guided on a couple mushroom forays throughout the month, Dan and I decided we ready to find and eat our own wild mushrooms.

MIKE FROM BEHIND CAMERA: There's a ton of edible mushrooms up there but how you getting them, who knows.

[a stick comes into shot and knocks down a mushroom]

DAN: Oh, I think there is something in my eye. As one might expect, I got something in my eye. This is like mushroom Jackass. Can you take a look?

VO: We had some success in finding what we were quite sure to be edible oyster mushrooms.

[Dan cutting oyster mushrooms off a log]

VO: We had consulted our mushroom guides and we found no poisonous look-a-likes.

[shot of the mushrooms we had gathered from the woods on our own]

[kitchen b roll of Mike cooking]

VO: After 20 minutes of cleaning mushrooms and 5 minutes of cooking later, we were ready to take a calculated gamble and eat our wild mushrooms.

DAN: So my final question is, who's going to eat it first?

MIKE: I guess I'll do it, I'll do it. Sure...Oh boy...

DAN: You nervous?

MIKE: No but look, it's still pretty dirty. The pork's looking like it's cooked quite nicely, though.

VO: The mushrooms might not have been as cleaned and sanitized as the ones from a supermarket, but we were more than satisfied with the end result.

Dan: Hmmm, it's quite good.

[foraging footage of Dan and Mike with music by Washboard Hank]

Credits: Directed by Mike Green. Produced, Written, Shot and Edited by Mike Green and Dan Hallen. Special thanks to Tyler Gray and the folks at Mikuni Wild Harvest, Tommy Robinson, The Vancouver Mycological Society, Paul Kroeger and Kevin Bi. The UBC School of Journalism, Peter Klein, David Paperny and Dan McKinney. Featuring music by Washboard Hank "Learning How to Do"