WHERE THE WILD FOODS ARE: EVERYWHERE!

Philip B. Stark
University of California, Berkeley
www.stat.berkeley.edu/~stark
@philipbstark | forage.berkeley.edu

WHAT IS A WEED?

- A plant growing where it isn't wanted
- A plant whose virtues are not yet known
- A plant that
  - likes disturbed soil
  - self-propagates without deliberate inputs
  - "resists the hoe" (& possibly is invasive)
- Often, delicious, nutritious, resilient food

REAPING WITHOUT SOWING

- No planting
- No watering
- No fertilizers or pesticides
- No “food miles”
- No shopping
- Food security
- Seasonal
- Local “terroir”
- Highly nutritious
- Delicious

California

Belgium

Copenhagen

SHATNER'S BASSOON
WOLF WITH SPECIAL GUESTS
NUN TEKNO CREW
16. JULI 2016:
PSYCH FEST
NØGENHAT
MOUNTAIN
SOFT MOON
SUZUKI'S NETWORK
PAPIR
MANY MORE
WWW.LØPPEN.DK

India

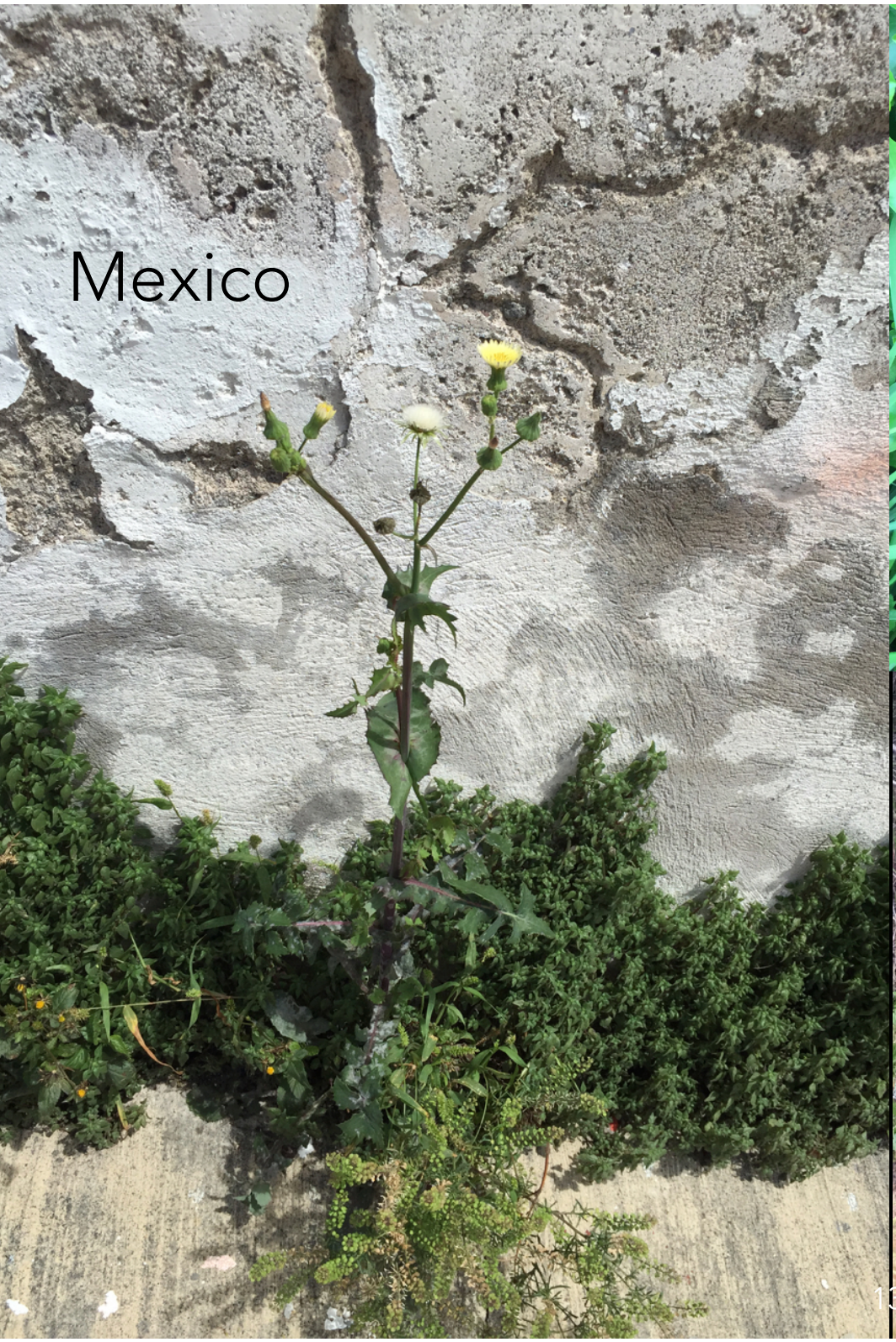
Tel Aviv, Israel

グリーンバンク

Tokyo, Japan
自転車
放置禁止
中央区
松栄運輸

Malta

Luxembourg


Mexico

Lisbon, Portugal

Skåne, Sweden

Lausanne, Switzerland

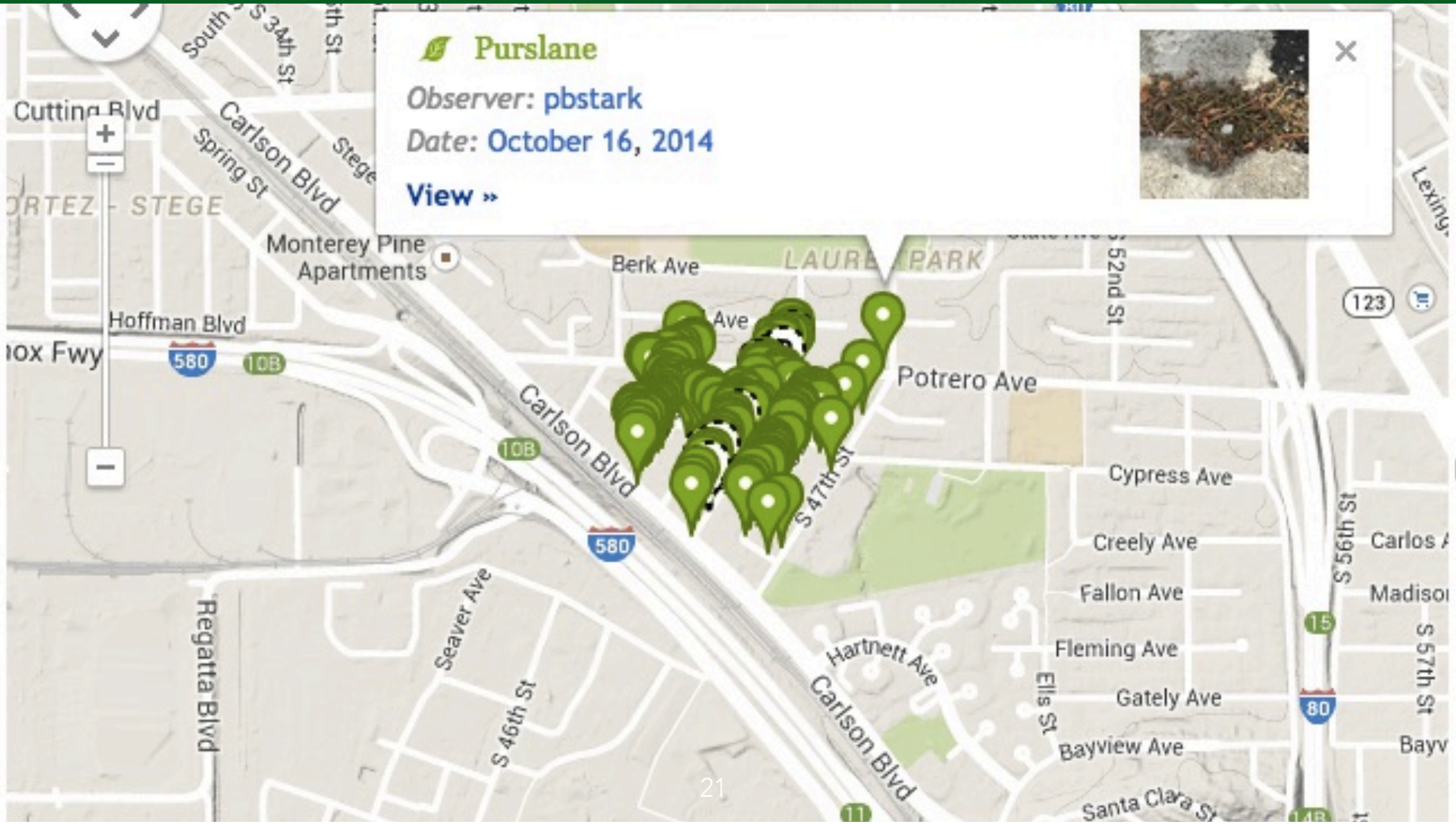
Hubei, China

Rome

Hong Kong

Vancouver, BC

WIDE AVAILABILITY IN URBAN FOOD DESERTS



WIDE AVAILABILITY ON FARMS: HARVESTING BETWEEN THE ROWS

California

Japan

Mexico

Sweden

Singing Frogs Farm

Sebastopol, California

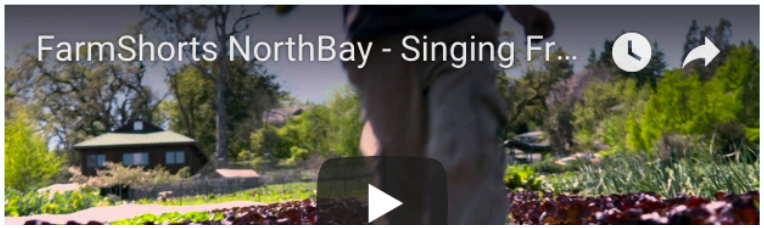
Recipient of Five Ecological Awards

2016 Excellence in Local Food Production
2016 International Green Institute Hall of Fame Award
2015 Pure Farms, Pure Water Award
2013 Leadership in Sustainability Award
2010 National Pollinator Conservation Award

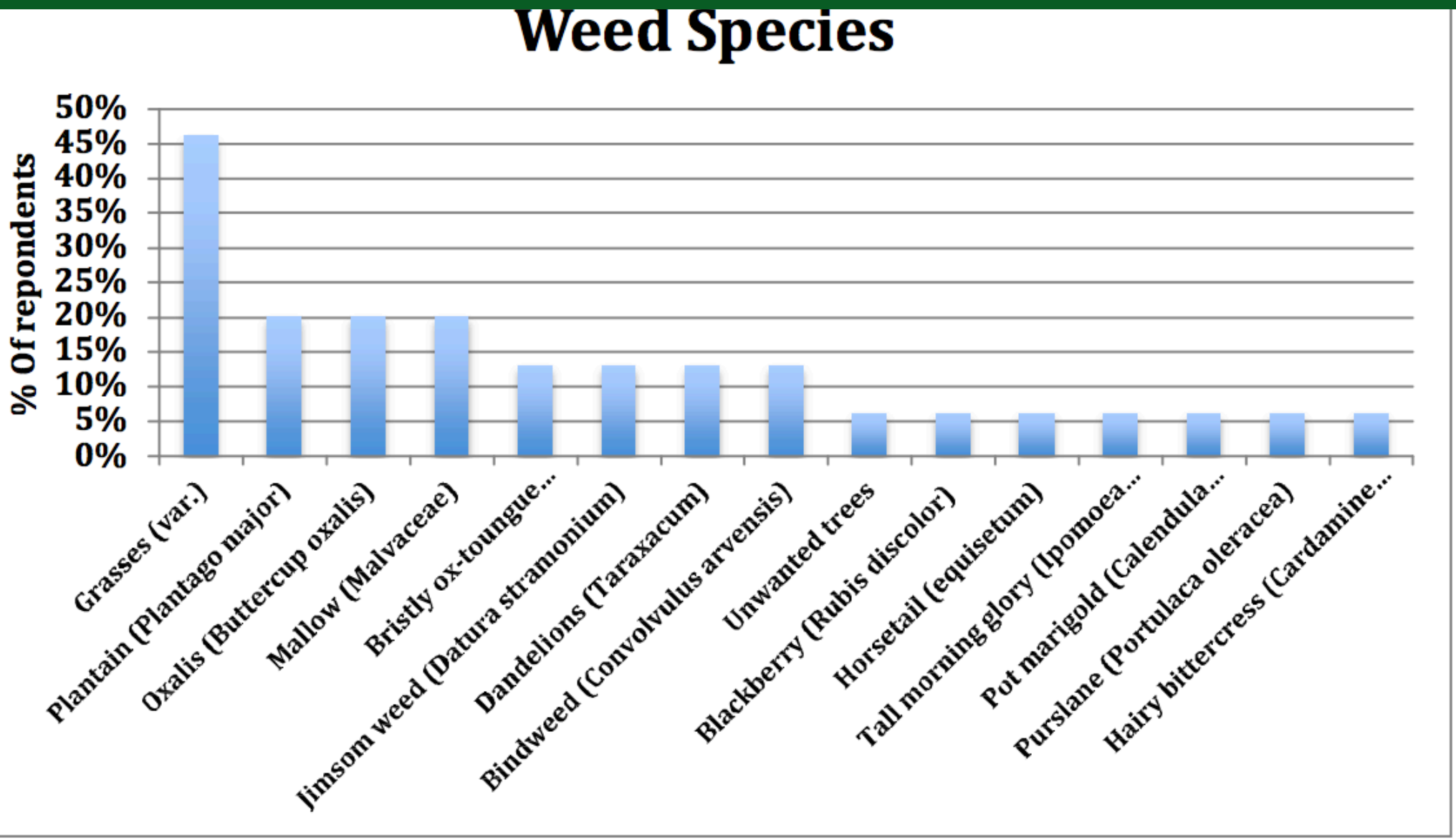
Singing Frogs Farm is...

- Innovative
- Non-Mechanized
- Local & Family Run
- No-Till
- Intensive
- Nutrient Dense Food
- Year Round
- High Organic Matter
- Excellent Soil Biology
- Ecologically Beneficial
- Regenerative
- Pollinator Friendly
- Carbon Positive
- Outreach & Education

"Paul and Elizabeth definitely practice the triple bottom line. They are integrating productivity, economic return, ecological stewardship, and investment in their



Many plants farmers consider pests are edible: Altieri, Pallud, Arnold, Glettner, & Matzen, 2014



Altieri, Pallud, Arnold, Glettner, & Matzen, 2014

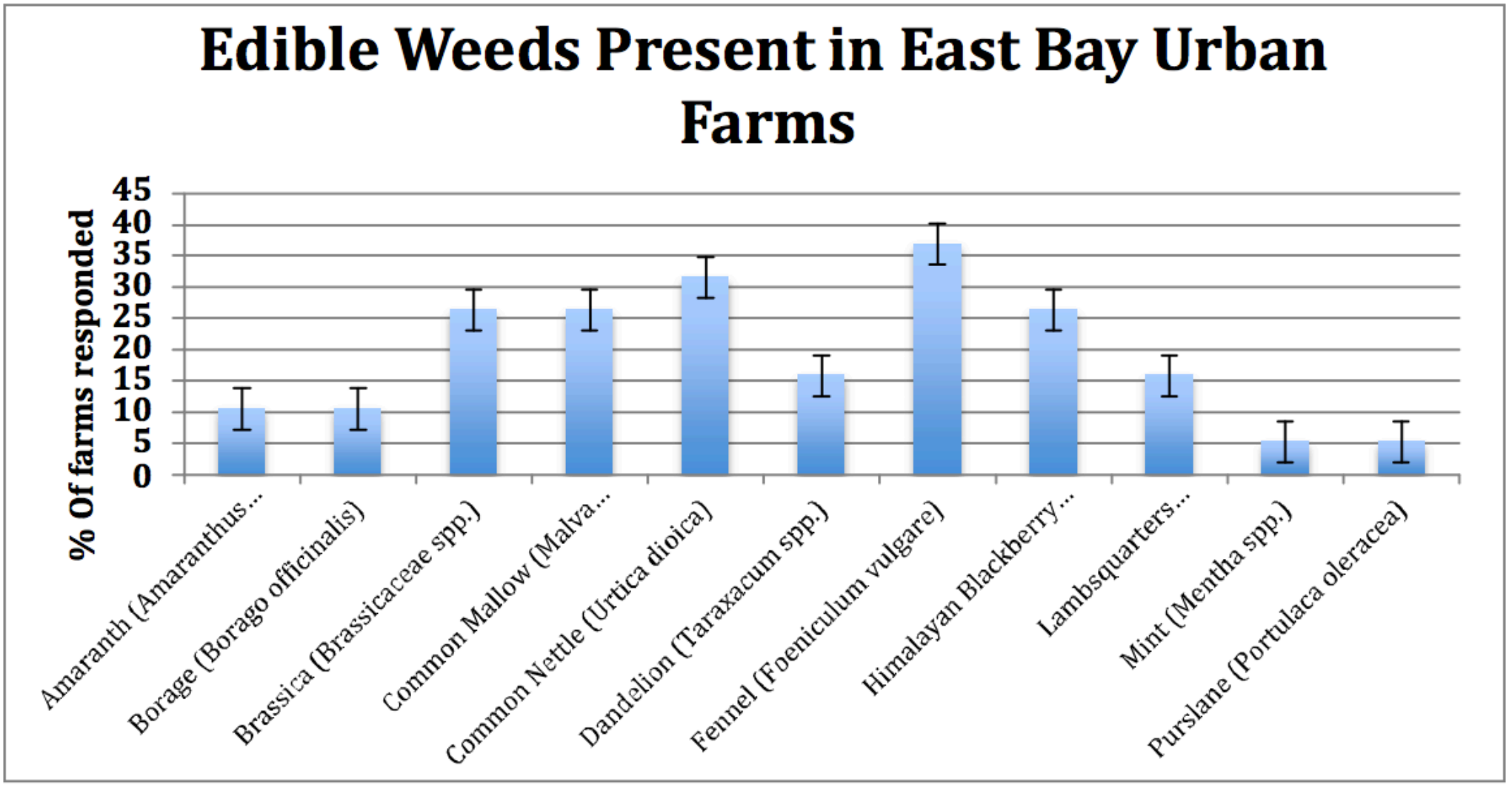


Fig 1.5 Edible weeds present in East Bay urban farms

BENEFITS TO FARMS AND FARMERS

no till

edible cover crops

mature early

continue late

soil health

diversified farming

attract pollinators

resilient to drought, climate change

increased revenue

BARRIERS TO CONSUMPTION

- Not recognized as “food”
- Social stigma
- Unfamiliar flavors, textures, “mouth feel”
- No recognized market for producers
- No supply chain

ENLISTING THE "FOOD CLERGY"

WILD AND FERAL FOOD WEEK

HACKING PUBLIC SENTIMENT: CREATING DEMAND AND A SUPPLY CHAIN

- Work with chefs to create excitement, raise awareness, & show these are culinary ingredients, not starvation food. Provides chefs "new-old" ingredients to increase variety of flavors & textures, & promote "conservation cuisine."

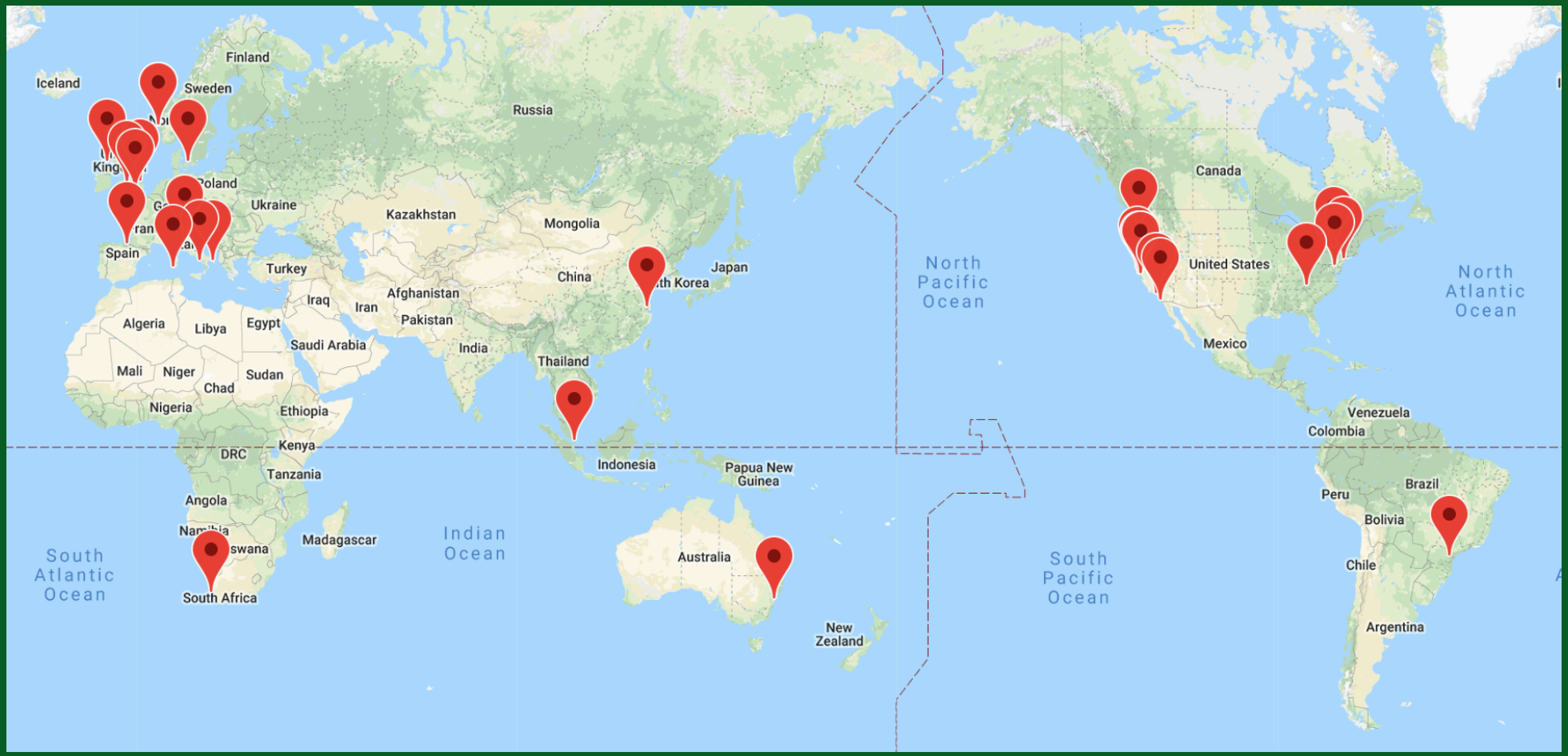
- Work with growers & foragers to create a supply chain, farm to fork, demonstrating to farmers that there is demand for what grows between the rows

- Promote visible events to "legitimize" these traditional but marginalized foods

RE-WILDING CUISINE
"PANDIGENOUS" FOOD

THANK YOU!

4TH EVENT IN 2018



- 35 Restaurants, Chefs, Foragers, Distilleries, Public Institutions…,
  US (California, New York, North Carolina, Oregon), China, Italy, Spain, Australia, Singapore, Norway, Brazil, Scotland, England, Ireland, South Africa, …

WORKING WITH THE COMMUNITY

WARNING
PRIVATE PROPERTY
NO TRESPASSING
NO LOITERING

ACCIDENTAL CROPS

- Community gardens & farms, commercial farms, school gardens, windowboxes, sidewalks
- Eat the whole farm / Eat between the rows
- Even if you don’t have a vegetable garden, you have a vegetable garden!

IS IT SAFE?

- BOSF tests
- What about dog pee?

Food Safety News
Breaking news for everyone's consumption

Initial Research Finds Foraged Urban Fruits in Boston Area Safe to Eat

BY **NEWS DESK** | NOVEMBER 12, 2015

Early results from research done at Wellesley College in Massachusetts revealed that fruits and herbs foraged in the Boston area were safe to eat and actually had relatively low levels of lead and arsenic.

Leading the research was Dr. Dan Brabander, a Wellesley geoscience professor, after he was approached by members of the Boston League of Urban Canners. One of the group's members had reportedly tested high for blood lead levels, and the concern was that eating certain foods found in the urban landscape might be the cause.

Urban foragers pick up windfall fruit and other foods in yards, along highways, in parks and sometimes around office buildings. They also work in abandoned orchards and other places where nobody is harvesting the fruit, vegetables, or other crops so that the food items don't go to waste.

The Boston canner's group brought 166 samples of dehydrated cherries, peaches, apples and other fruits and herbs to Brabander's lab for testing for contaminants, including heavy metals, and for nutritional content.

IS IT HEALTHFUL?

- Many are more nutritious than domesticated crops: breeding for mild flavor reduces nutrition
- Evidence that diet more diverse in plants reduces chronic illnesses
- Fresher than commercial produce
- Ecological benefits including reducing herbicides, adding pollinator habitat, carbon sequestration
- Good physical activity (bending, squatting, walking)

DANDELION

(foraged)

Nutrition Facts	
Serving Size 1 cup (70g) **Servings Per Container**	
Calories	25
Total Fat	0 g
Sodium	35 mg
Potassium	310 mg
Total Carbohydrate	4 g
Dietary Fiber	4 g
Sugar	0 g
Protein	2 g
Calcium 6%	**Iron** 10%

**Comparison of total polyphenols awaiting lab results*

(Source: SCSglobalServices.com)

DANDELION

(conventional)

Nutrition Facts	
Serving Size 1 cup (70g) **Servings Per Container**	
Calories	32
Total Fat	0 g
Sodium	54 mg
Potassium	279 mg
Total Carbohydrate	6 g
Dietary Fiber	2 g
Sugar	0 g
Protein	2 g
Calcium 3%	**Iron** 4%

(Source: USDA)

MALLOW

(foraged)

Nutrition Facts	
Serving Size 1/2 cup (68g) Servings Per Container	
Calories	35
Total Fat	0 g
Sodium	30 mg
Potassium	240 mg
Total Carbohydrate	5 g
Dietary Fiber	5 g
Sugar	0 g
Protein	3 g
Calcium 20%	Iron 15%

*Comparison of total polyphenols awaiting lab results

SPINACH

(conventional)

Nutrition Facts	
Serving Size 1 cup (30g) Servings Per Container	
Calories	7
Total Fat	0 g
Sodium	24 mg
Potassium	167 mg
Total Carbohydrate	1 g
Dietary Fiber	1 g
Sugar	0 g
Protein	1 g
Calcium 3%	Iron 4%

OXALIS

(foraged)

Nutrition Facts	
Serving Size 1/2 cup (84g) Servings Per Container	
Calories	25
Total Fat	0 g
Sodium	25 mg
Potassium	110 mg
Total Carbohydrate	4 g
Dietary Fiber	3 g
Sugar	0 g
Protein	1 g
Calcium 4%	Iron 8%

**Comparison of total polyphenols awaiting lab results*

(Source: SGSglobalServices.com)

SPINACH

(conventional)

Nutrition Facts	
Serving Size 1 cup (30g) Servings Per Container	
Calories	7
Total Fat	0 g
Sodium	24 mg
Potassium	167 mg
Total Carbohydrate	1 g
Dietary Fiber	1 g
Sugar	0 g
Protein	1 g
Calcium 3%	Iron 4%

(Source: USDA)

NASTURTIUM

(foraged)

Nutrition Facts	
Serving Size 1/2 cup (72g) **Servings Per Container**	
Calories	35
Total Fat	0 g
Sodium	30 mg
Potassium	210 mg
Total Carbohydrate	5 g
Dietary Fiber	2 g
Sugar	0 g
Protein	2 g
Calcium 10%	**Vitamin A** 120%

**Comparison of total polyphenols awaiting lab results*

(Source: SCSglobalServices.com)

SPINACH

(conventional)

Nutrition Facts	
Serving Size 1 cup (30g) **Servings Per Container**	
Calories	7
Total Fat	0 g
Sodium	24 mg
Potassium	167 mg
Total Carbohydrate	1 g
Dietary Fiber	1 g
Sugar	0 g
Protein	1 g
Calcium 3%	**Vitamin A** 56%

(Source: USDA)

INVASIVORY: EAT THE ALIENS

How can killing food, putting pesticides in the environment, exposing workers to pesticides, and selectively breeding superweeds, be the right answer?

"If you can't beat 'em, eat 'em."

—Tom Carlson

THE DAILY CALIFORNIAN
Tuesday, August 15, 2017

OP-EDS

MONDAY, MAY 8, 2017

Banning UC Berkeley's use of herbicides from courts to campus is a must

BY MACKENZIE FELDMAN | SPECIAL TO THE DAILY CAL

LAST UPDATED MAY 8, 2017

Tweet 14 Comment

A few weeks ago, right before my teammates and I were about to step on the sand courts to start morning practice, our coach told us to make sure we put footwear on if we step outside the courts because the groundskeepers had just sprayed an herbicide everywhere. Everyone absentmindedly nodded, and we began practice like it was just another day. Nobody seemed bothered by this announcement at all, except for me and one other concerned teammate. I could not get it out of my head that an herbicide was applied a few minutes before we arrived and we were surrounded by it. What herbicide was sprayed? What unknown effects could this have on my body? In class I learn all about toxic herbicides such as glyphosate, the main ingredient in Monsanto's popular weed-killer Roundup and many other commercial weed-killers. Just a few weeks ago, the California Office of Environmental Health Hazard Assessment, or OEHHA, determined that glyphosate would be added to the list of chemicals known to the state to cause cancer as part of Proposition 65. Additionally, glyphosate has also been identified as a contributor, even at low doses, to autism, Alzheimer's disease, depression, ADHD and many other illnesses. I had to find out what was sprayed and make sure it would never happen again.

Working w/ UC admin on a demonstration/educational edible weed garden

No “hatfull” rules in the US

Berkeley Municipal Code

12.44.020 Cutting, trimming or removal--Permit and inspection required.

It is unlawful for any person to cut, trim, remove, mutilate, injure or in any way impair the growth of any tree, shrub or plant being or growing in or on any street, parking strip, public square, park or playground in the City, or to cause or permit the same to be done.

POLICY BRIEF • JULY 2017

Urban Foraging in Municipal Parks and Public Schools

Opportunities for Policymakers

By Sabine Dabady and Philip B. Stark

Dandelions that spring up from yards, sidewalks, schoolyards, municipal parks, and open corner lots are commonly viewed as resilient weeds. To an urban forager, they are a prime example of edible, fresh, nutritious, free foods. US Forest Service research has found that harvesting wild foods in public spaces, specifically plants and fungi, already contributes (and could contribute more) to the nutritional needs of city residents.[A,1] By supplying accessible, nutritious food, foraging could provide a supplementary food source within the urban and peri-urban landscape as part of a multi-pronged strategy to help address socioeconomic inequities in access to nutritious foods.

The success of foraging in the urban ecosystems of California depends on enabling city dwellers to safely and freely harvest plants in their local environment. Currently, urban foraging is often prohibited. In some places, it is unsafe due to soil contaminants, including metals and pesticides. Focusing policies on foraging on land that is under active public management, such as city parks and public schools, offers an immediate opportunity to increase access to wild and feral foods,[B] to ensure the safety of harvested food, and to educate the public and land managers alike. Foraging is already practiced in both urban and rural settings, and is increasingly the focus of attention within urban green space planning.[2] Urban foraging is now at the periphery of the food system, much like farmers markets and community gardens once were. However,

English plantain (*Plantago lanceolata*) gathered while collecting samples for heavy metal testing in West Oakland.

with state support for institutions that make it safe and accessible in municipal parks and public schools, partnered with citizen education, foraging has the potential to become much more widely accepted and valued.

Urban Foraging as a legitimate practice on public lands

Policy recommendations include:

1. Increase Access to Public Lands for Foraging
2. Ensure Food Safety
3. Provide Participatory Nutrition and Culinary Education
4. Promote Integrated Pest Management
5. Facilitate Testing of Contaminated Soil

A. Foraging is already common and popular in many parts of America: the same Forest Service research in the northeastern US found that about 18 percent of residents foraged at least occasionally, making it a more popular activity than golf, football, or baseball.
B. In this brief, “wild foods” refer to those never domesticated; “feral foods” were once domesticated but have now propagated without help.

Berkeley UNIVERSITY OF CALIFORNIA
BOSF BERKELEY OPEN SOURCE FOOD

The Berkeley Food Institute (BFI) at University of California, Berkeley seeks to transform food systems to expand access to healthy, affordable food and promote sustainable and equitable food production. We empower new leaders with the capacity to cultivate diverse, just, resilient, and healthy food systems.

Berkeley Food Institute
23 Giannini Hall #3100, Berkeley, CA 94720 (510) 643-8821 food.berkeley.edu foodinstitute@berkeley.edu

THANK YOU!

For more, please see http://forage.berkeley.edu

Much of the work described is joint with Profs. Tom Carlson, Kristen Rasmussen, & Daphne Miller