

Getting ~~Dirty~~ Soiled is Good at Any Age

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SOIL IS NOT DIRT !

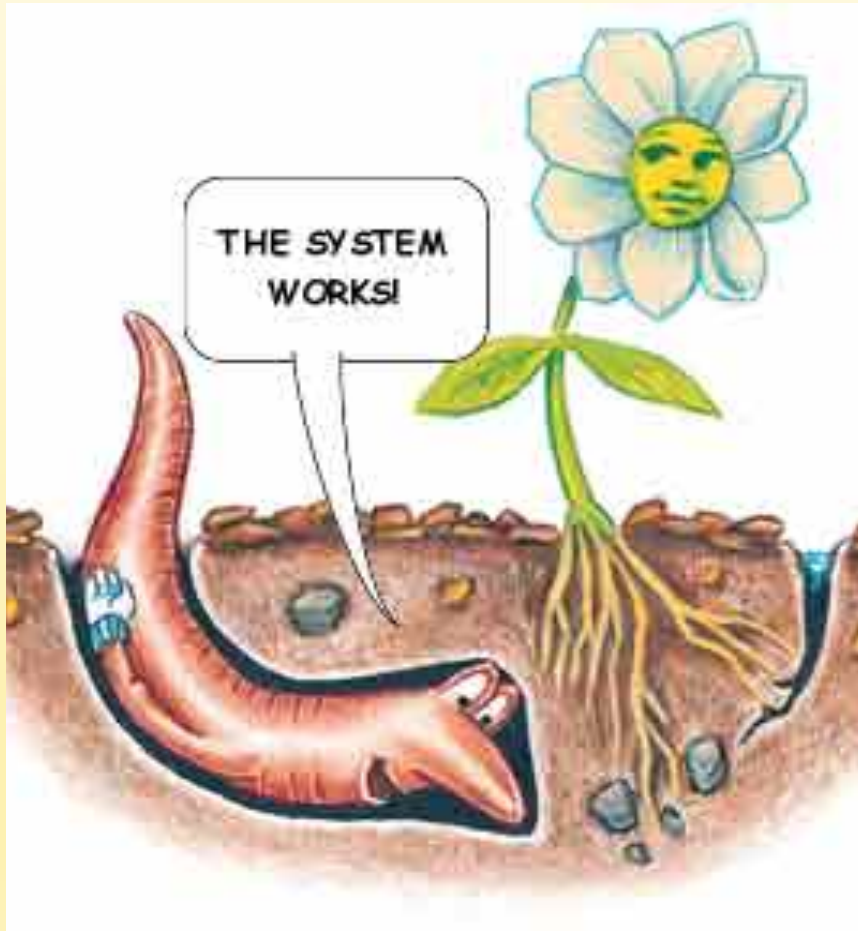
**This
IS
dirt!**



Yuck!!



SOIL is a “dynamic” ECOSYSTEM



Soil *IS* the most complex biomaterial on the planet.

(Young & Crawford, 2004)

We know more about the movement of celestial bodies than about the soil underfoot.

(Leonardo Da Vinci, circa 1500's)

“Living” Soil

25% of global biodiversity resides in soil



In one square meter of living soil:

- 1 vertebrate
- 100 snails/slugs
- 3K earthworms
- 5K insects/spiders
- 10K rotifers
- 50K springtails
- 100K mites
- 5 million nematodes
- 10 billion protozoa
- 100 billion fungi
- 10 trillion bacteria

(Lindbo et al, 2012)

Soil Sustains Life!



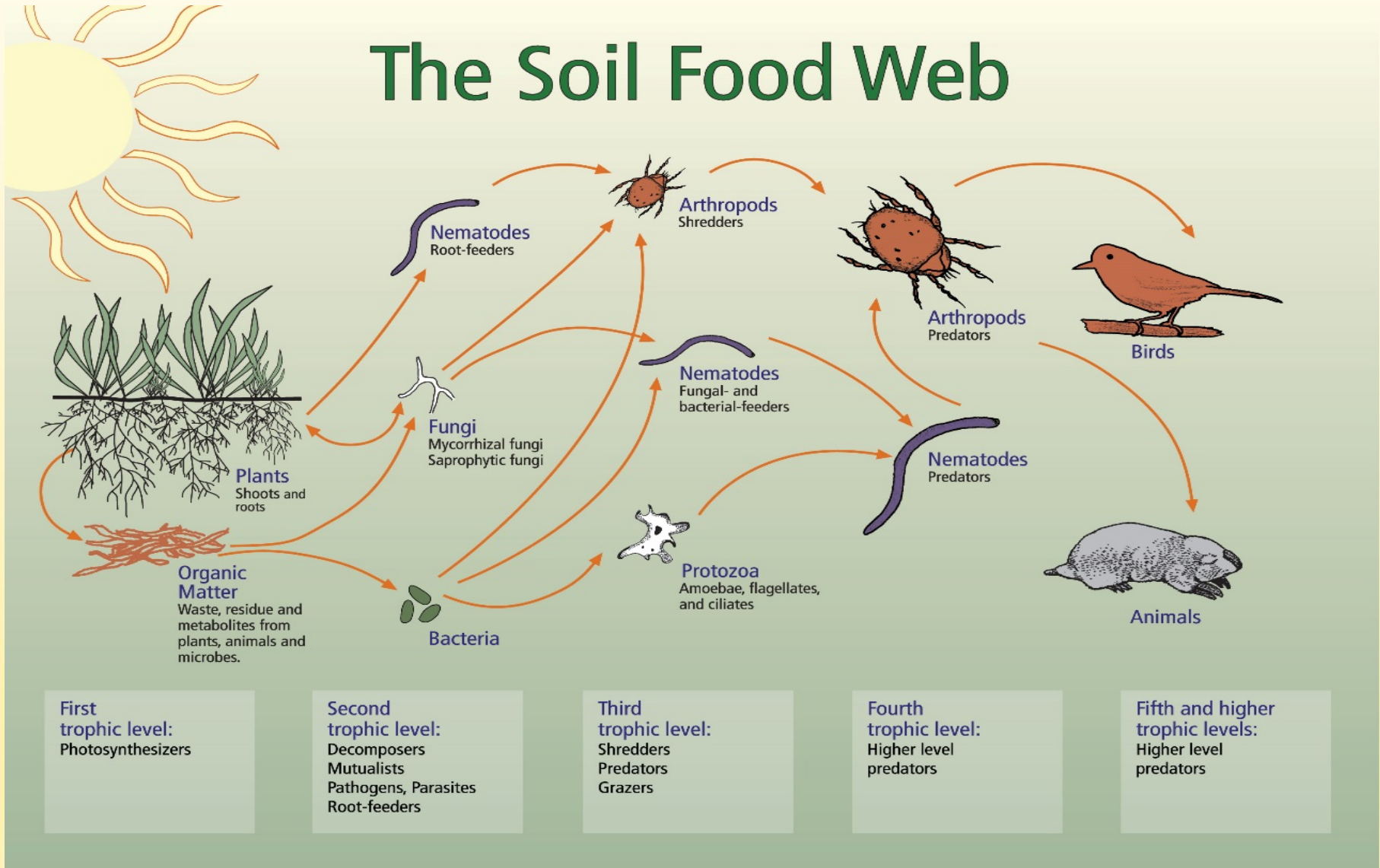
“Soil isn’t a granular medium suffused with chemicals, it is alive, and must be alive to function.”

(Jones, 2005)

The Soil Food Web

Source - NRCS

The Soil Food Web

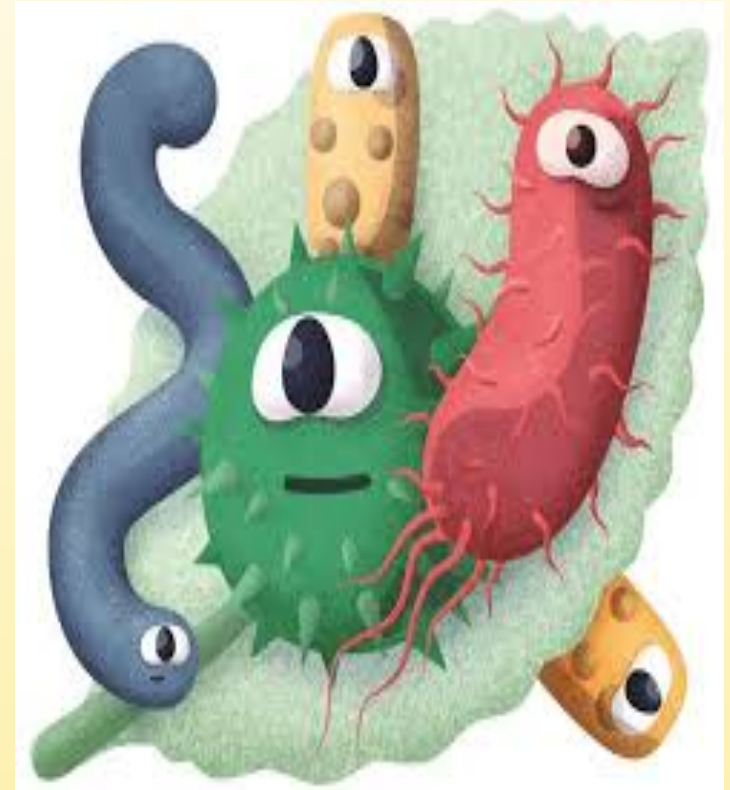


~~Dirt~~ Soil is Good for Us (Seriously!)

- Breathing in
- Playing in
- Gardening in, and
- Ingesting

40 trillion bacterial cells
30 trillion human cells

Our exposure to microbes is inevitable. So, let's focus on the benefits.



Microbes are our constant companions. We have more microbes on and in us, than we have human cells by 1.3:1.
(Gilbert & Knight, 2017)

Microbes RULE!



They influence our...

- Immune system/inflammation
- Sense of smell
- Digestion/nutrition
- Brain function/mood
- Response to stress/PTSD
- Attractiveness to others

(Gilbert & Knight, 2017)

Get That Soil High Feeling



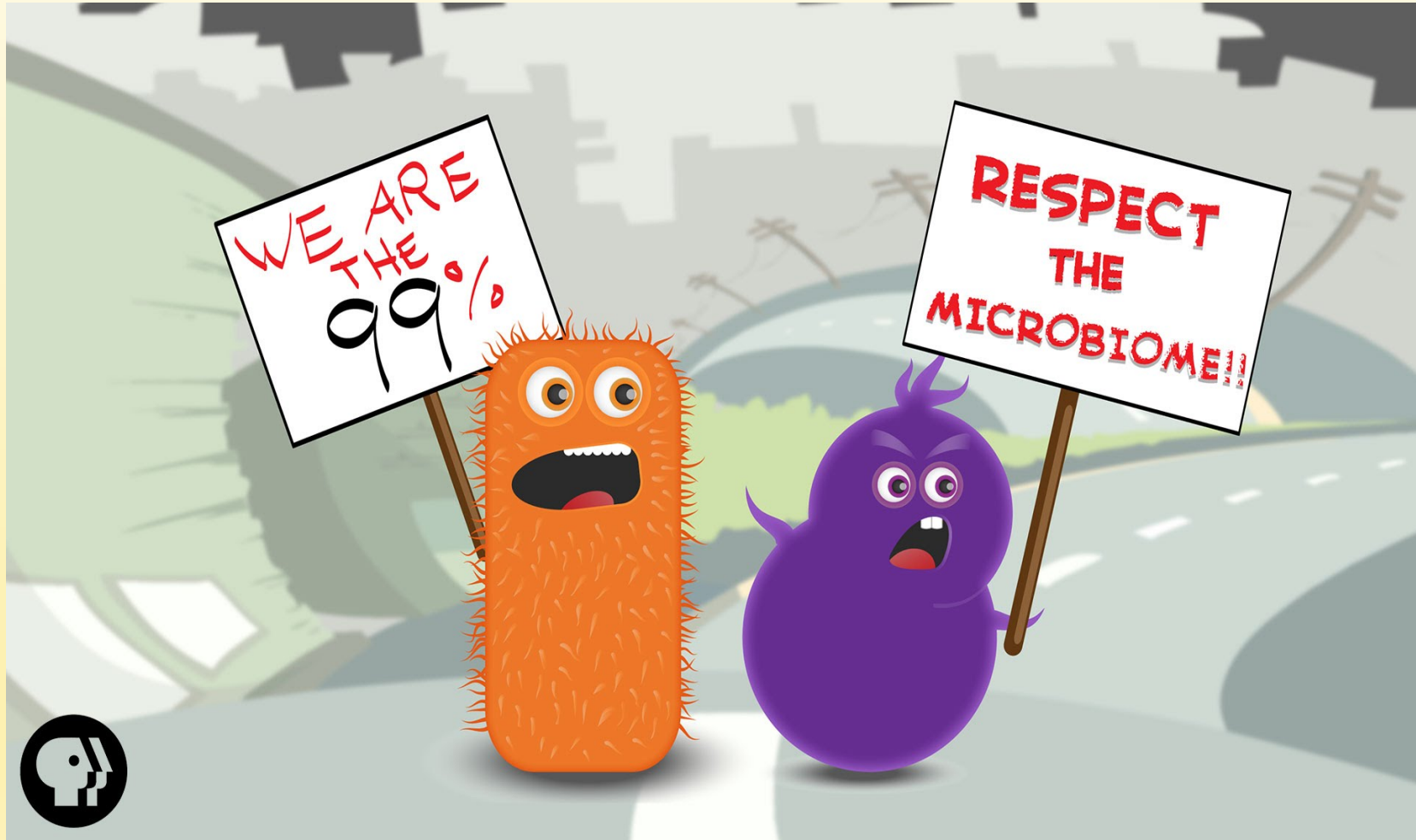
Mycobacterium vaccae

Activates serotonin release to

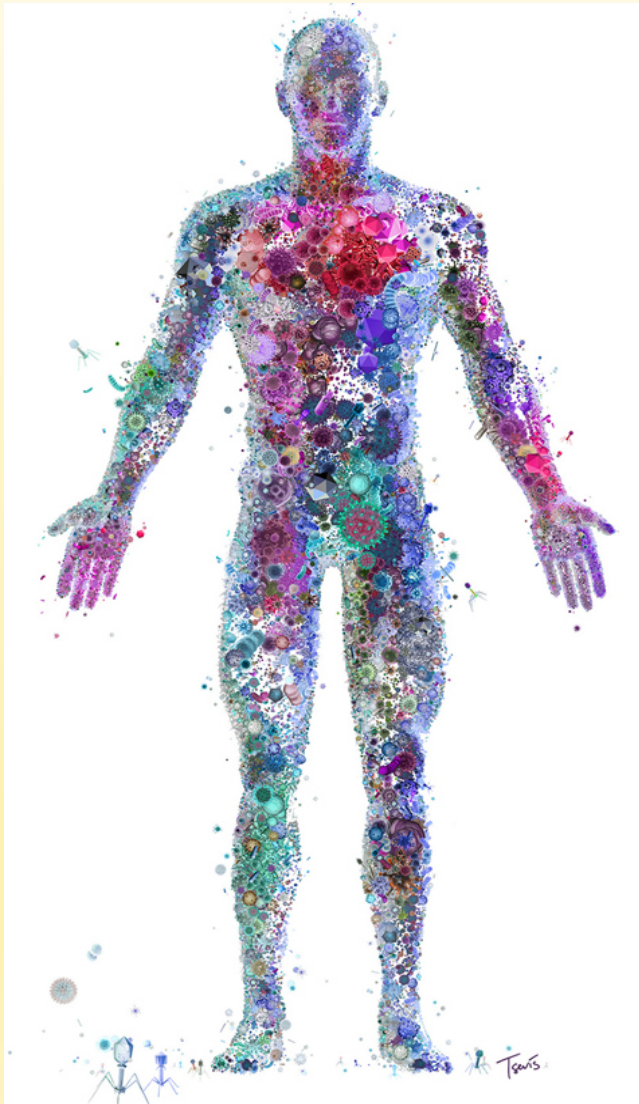
- ✓ boost immune response
- ✓ improve cognitive functioning
- ✓ reduces stress
- ✓ increases happiness
- ✓ promotes vitality

(Gilbert & Knight, 2017)

You **ARE** Your Microbiome



Cleanliness May Be Closer to Godliness, but You'll Die Sooner!



We are 'superorganisms' that have **coevolved** with soil microbes

Our health and longevity depends on living in **symbiosis** with the soil microbiome

- Don't overuse antibiotics
- Don't use antibacterial products
- Don't consume processed foods
- Nix your use of chemicals

Promote Your Microbiome



Our gardens are microbial
'probiotic' superstores
passing out genes

- ✓ Eat organic
- ✓ Grow organic
- ✓ Eat fermented foods

**Compost! Compost!
Compost!**

Be Happy, Eat Some Soil

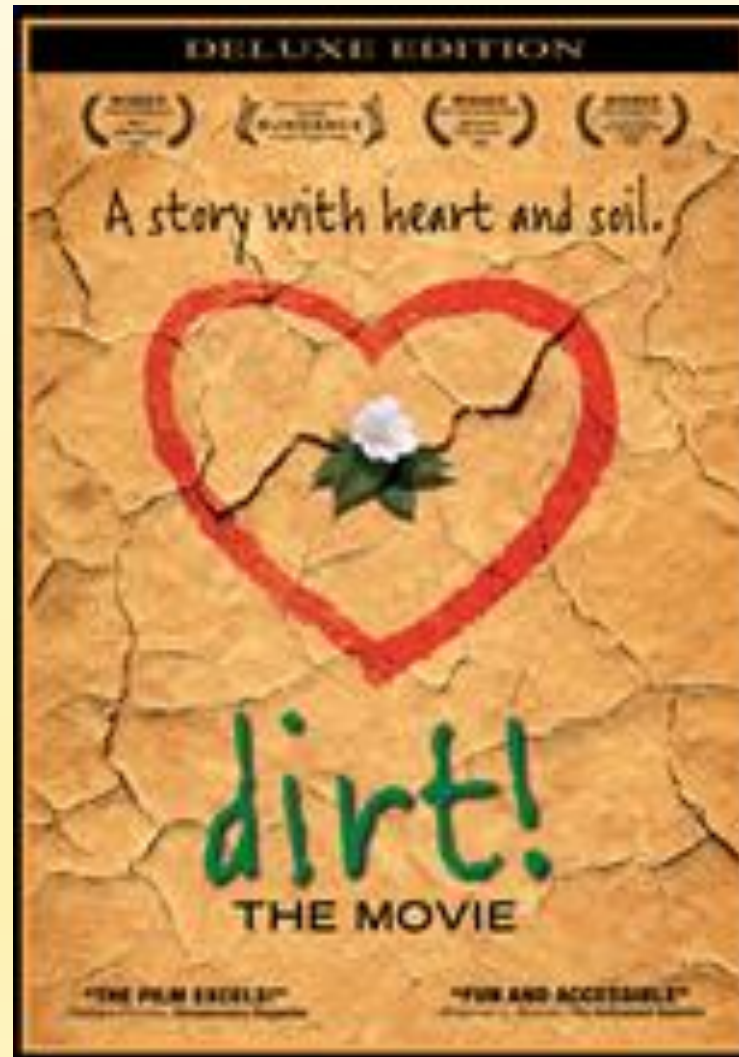
A sprinkle a day, keeps illness
away...



Soil Makes You Look Good Too!



A story with heart and soil.



NERD UP!

Resources for
learning more
about soils.

NERD UP READING

Teaming with microbes: the organic gardener's guide to the soil food web. Revised edition. 2010. Jeff Lowenfels & Wayne Lewis

Dirt is good. 2017. Jack Gilbert & Rob Knight.

I contain multitudes: the microbes within us and a grander view of life. 2016. Ed Yong.

Dirt: the ecstatic skin of the earth. 1995. William Bryant Logan.

The hidden half of nature: the microbial roots of life and health. 2016. David R. Montgomery & Anne Bikle´.

Growing a revolution: bringing our soil back to life. 2017. David R. Montgomery.

Kiss the ground. 2017. Josh Tickell.

Talking Dirt. 2010. Annie Spiegelman.

The soil will save us. 2014. Kristin Ohlson.

Fungi: a very short introduction. 2016. Nicholas P. Money.

Know soil, know life. 2012. David A. Lindbo, et al.

Grass, soil, hope: a journey through carbon country. 2014. Courtney White.

NERD UP READING

Soils and societies: perspectives from environmental history. 2006. J.R. McNeill & Verena Winiwarter.

Out of the earth: civilization and the life of the soil. 1991. Daniel Hillel.

Soil in the environment: crucible of terrestrial life. 2008. Daniel Hillel.

Dirt: the erosion of civilizations. 2007. David R. Montgomery.

The earth moved: on the remarkable achievements of earthworms. 2004. Amy Stewart.

Introduction to California soils and plants. 2006. Arthur R. Kruckeberg.

Introduction to earth, soil, and land in California. 2010. David Carle.

NERD UP LINKS

Composting for the Home Gardener, UC Cooperative Extension.

<http://sacmg.ucanr.edu/files/163139.pdf>

Making Compost at Home

<https://www.recyclesmart.org/composting>

Worm Composting at Home

<https://www.recyclesmart.org/WormComposting>

CompostSMART Training

<https://www.recyclesmart.org/CompostSmart>

Composting Methods and Bins

<http://www.tilthalliance.org/learn/resources-1/compost/methodsandbins>

Building a Home Worm Bin

http://www.tilthalliance.org/learn/resources-1/compost/otsbinplans/at_download/file

Build an Outdoor 3-Bin Composter

http://www.tilthalliance.org/learn/3-bin-wood-and-wire-compost-build-plan/at_download/file

Stay tuned for more about composting at home in an upcoming UCBRC learning series presentation.

Thank You!

