



Carnegie Mellon University

Shinrin-Yoku in Southwestern PA: Get out and reset your brain

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Why reset your brain?

One way: go out and take a walk

- What is *shinrin-yoku*?
- Benefits of taking a walk:
research results
- Some resources



Jennings Prairie, June 2018

What is *shinrin-yoku*?

- Japanese term, sometimes translated as “forest bathing”
- Forest “immersion” is probably a better translation
- The term *shinrin-yoku* was introduced by the Japanese Forest Agency in 1982 (Tsunetsugu et al., 2010)
- Now becoming popular in the USA

‘Forest bathing’ is latest fitness trend to hit U.S. – ‘Where yoga was 30 years ago’
(Washington Post, May 17, 2016)
- Its own website: www.shinrin-yoku.org

Engaging all your senses (?) while taking a walk outside

Taste:
not generally recommended

Except (maybe): Garlic mustard
(invasive alien, imported from
Europe as medicinal herb;
first recorded on Long Island
in 1868) (USDA)



Engaging all your senses while taking a walk outside

Smell: ample opportunity



Paw-paw flowers



Japanese honeysuckle

(Schenley Park, May-June 2018)

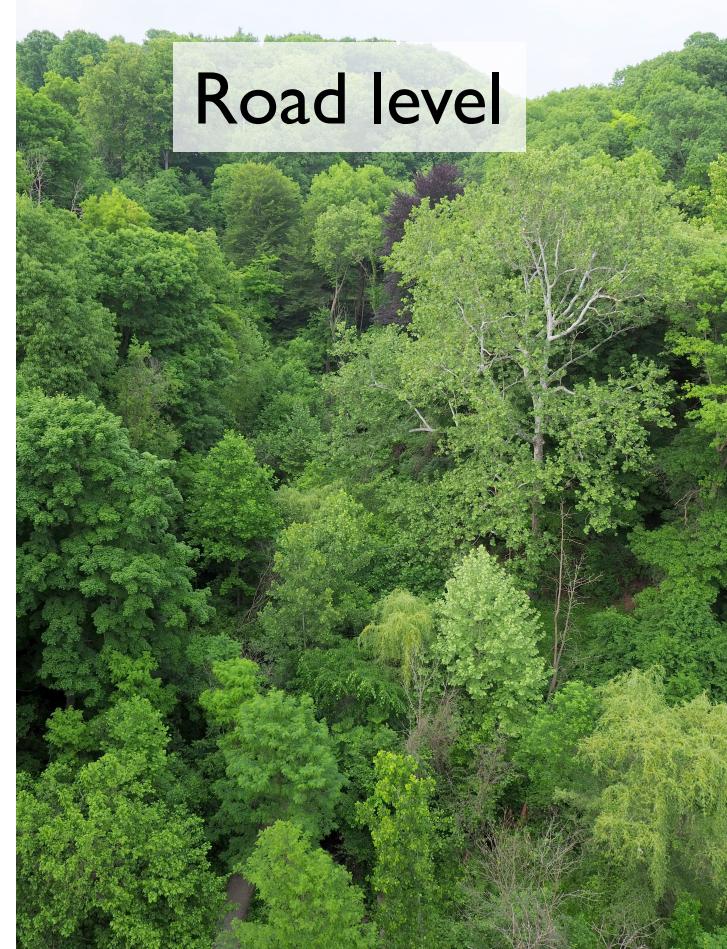
Engaging all your senses while taking a walk outside

Sound:

Pittsburgh's topography helps

Schenley Park,
from Panther Hollow Bridge

Park trails
below road level
& screened by vegetation



Engaging all your senses while taking a walk outside

Touch / temperature



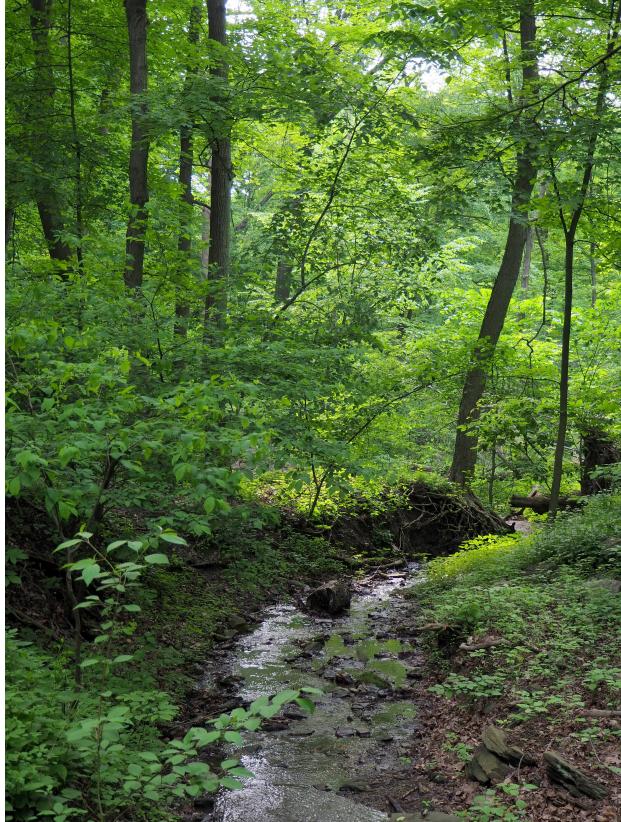
Shale layers, Schenley Park



Moraine State Park, Dec. 2017

Engaging all your senses while taking a walk outside

Vision: Interest at many length scales



American cancer-root



(Schenley Park, May 2018)

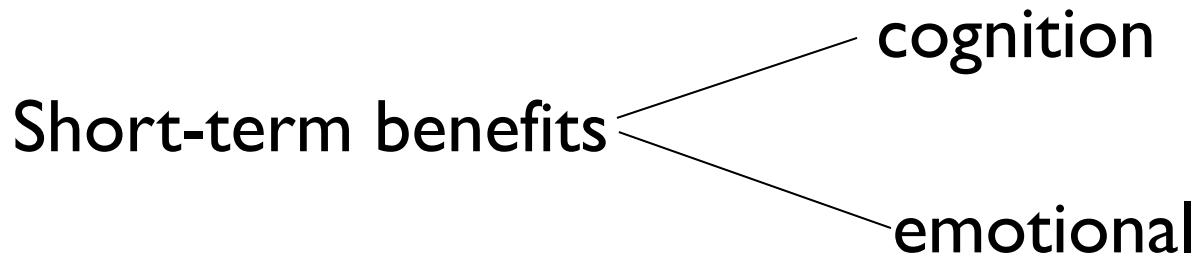
Engaging all your senses while taking a walk outside

PIC'T. BY ANDREW NISWELL CARICATURE

THE INTERSECTION
OF TECHNOLOGY
AND DARWINISM



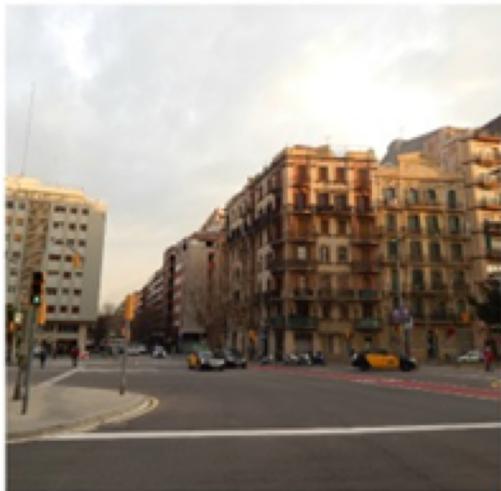
Benefits of taking a walk: research results



Possible longer-term benefits: health (immune system)

Research methodology

I) Expose subjects to different environments



urban



green



blue

(Triguero-Mas *et al.*, 2017)

Research methodology (continued)

2) Measure changes in:

- Mood (questionnaire)
- Stress (cortisol concentration in saliva)
- Cognition (backwards digit-span task)

Benefits of taking a walk: research results

“...even short-term visits to nature areas have positive effects on perceived stress relief compared to [a] built-up environment...” (Tyrväinen *et al.*, 2014)

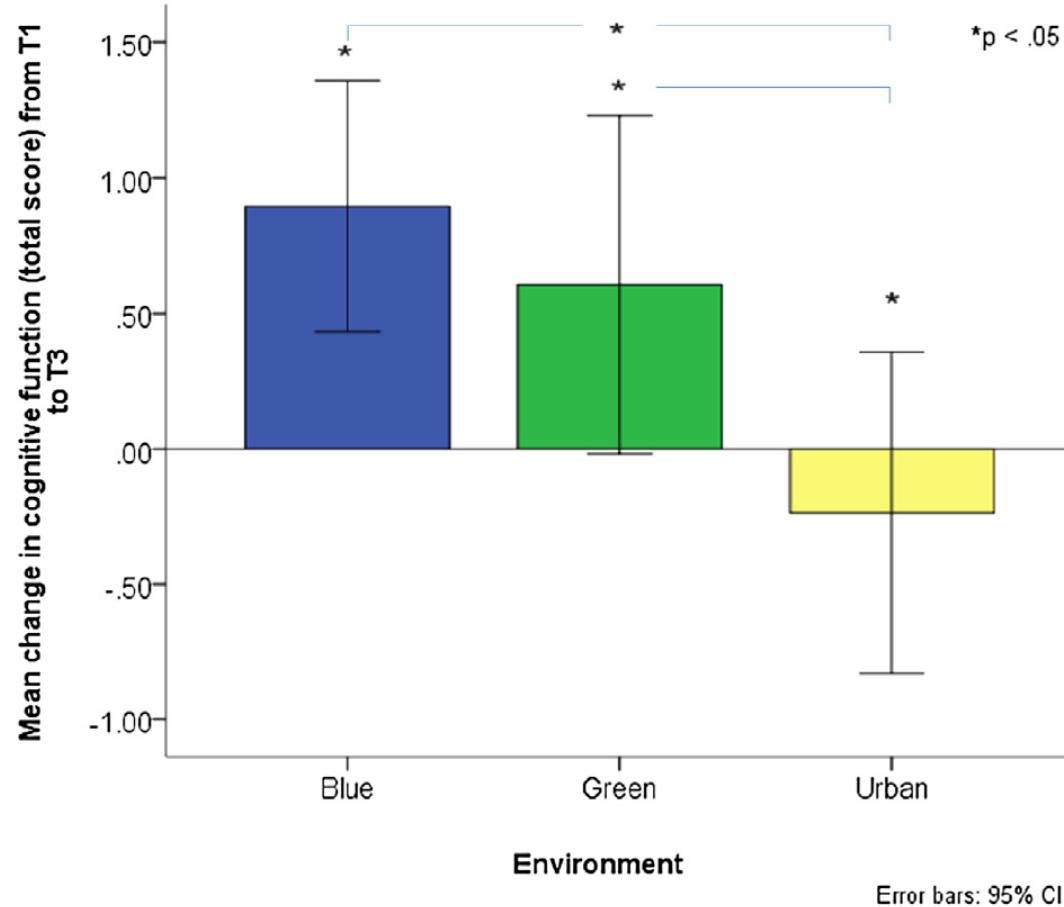


Benefits of taking a walk: research results

“Stress reduction (mood and cortisol changes) in all environments points to the **salutogenic effect of walking**, but **natural environments conferred additional cognitive benefits** lasting at least 30 min after leaving the environment.” (Gidlow et al., 2016)

(Walking in a pleasant urban environment is also beneficial)

Cognitive effect



(Gidlow et al., 2016)

What is “salutogenic”?

salutogenic

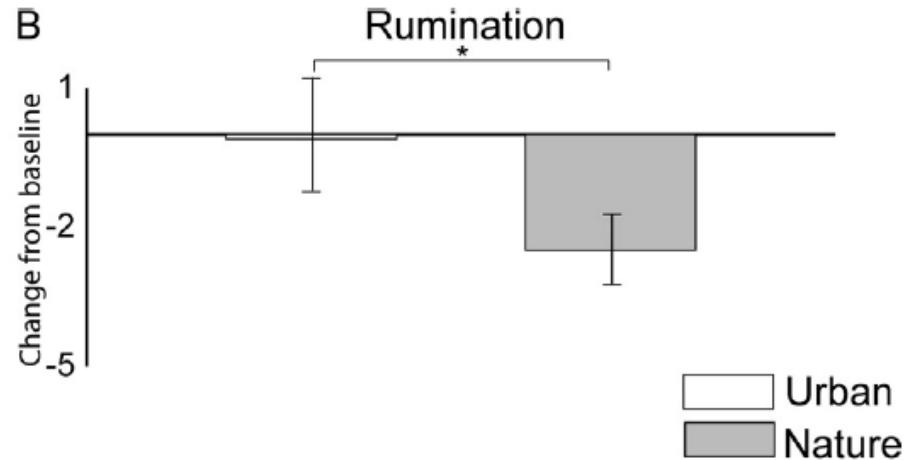
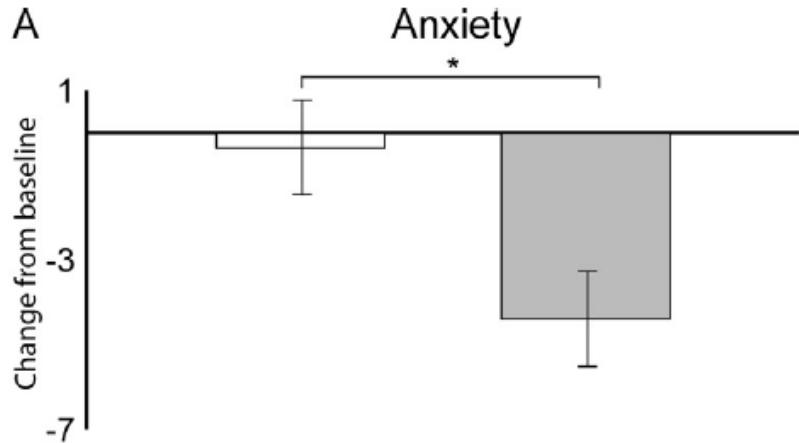
The word you've entered isn't in the Unabridged Dictionary. Click on a spelling suggestion below or try again using the search bar above.

(Merriam-Webster Dictionary)

“Salutogenesis” is the origin of health
(Lindström & Eriksson, 2005)

Benefits of taking a walk: research results

“Compared to the urban walk, the **nature walk** resulted in affective benefits (**decreased anxiety, rumination**, and negative affect, and preservation of positive affect) as well as cognitive benefits (**increased working memory** performance).”
(Bratman et al., 2015)



Affective impact of nature and urban experience:
Difference from before the walk to afterwards
(Bratman et al., 2015)

Immunological view
Evolutionarily determined need for diverse microbial input to immune system
Increase microbial load & biodiversity in home
Exchange of microbiota
Exchange of microbiota
Vitamin D and NO improve immunoregulation
More Treg, immunoregulation

Low CRP, low inflammation
Lower cytokine response to stress, more stress resilience

GREEN SPACE EFFECT
Walk in green space
Dogs
Social interaction
Team sport
Sunlight
Exercise

Clinical outcomes
Less deaths, less CVD
Less depression

Psychological view
Evolutionarily determined psychological need (habitat selection ?)
Psychologically rewarding companion
Build social capital
“Hunter-gatherer” activity
Combat Seasonal Affective Disorder
Health benefits, weight loss

The positive effect is clear (Nieuwenhuijsen et al., 2017), but more research is needed... (Rook, 2013)

Some resources:

- Scientific literature
- Website

www.shinrin-yoku.org – approach with a critical mind

From that website:

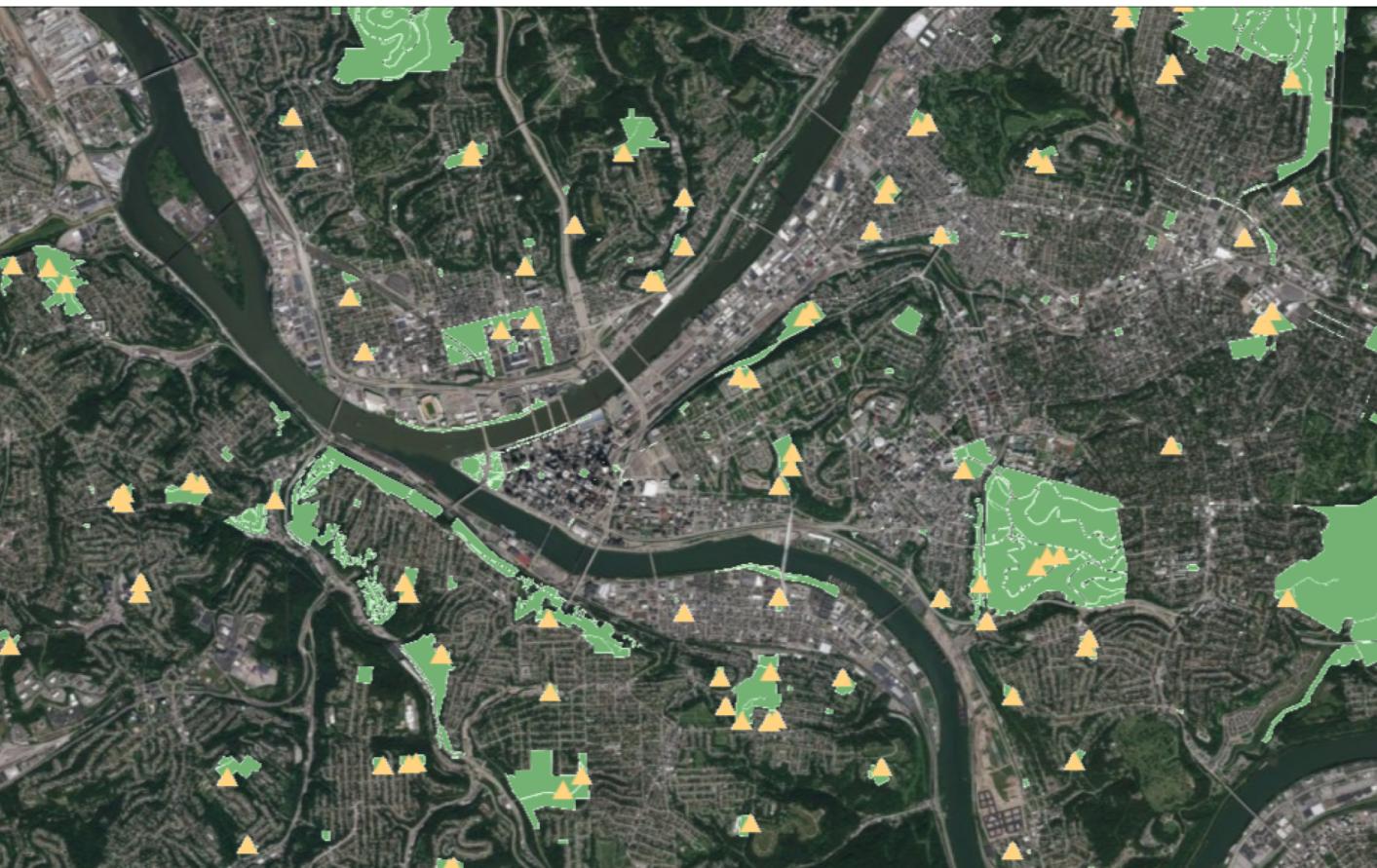
Just as impressive are the results that we are experiencing as we make this part of our regular practice:

- Deeper and clearer intuition
- Increased flow of energy (**thermodynamics?**)
- Increased capacity to communicate with the land and its species

Resources: Pittsburgh & immediate vicinity



Resources: Pittsburgh & immediate vicinity



June 18, 2018

Parks & ballfields
<http://gis.pittsburghpa.gov/pghmap/>

1:72,224
0 0.47 0.95 1.5 1.9 mi
0 0.75 1.5 3 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Resources:

Phipps Conservatory



Resources: Identifying what you see

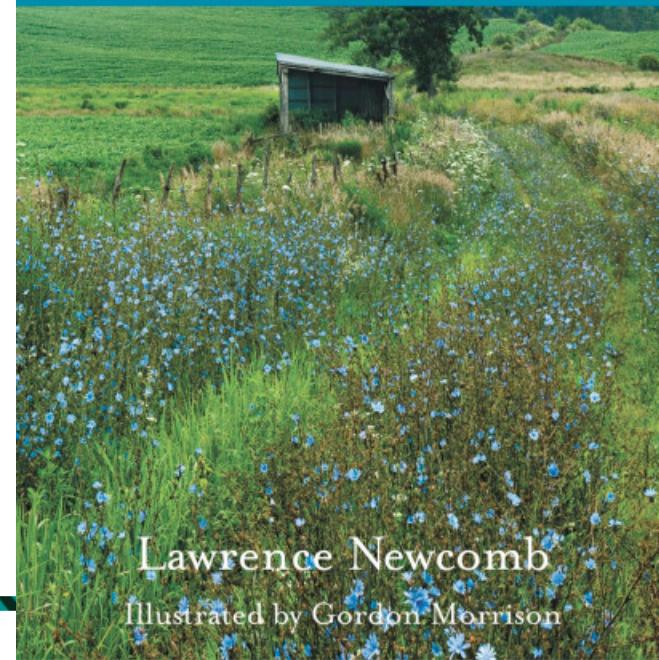
Newcomb's Wildflower Guide

Principle: combination of ...
flower symmetry
+ *leaf arrangement*
+ *shape of leaf edge*
...serves to identify most flowers

NEWCOMB'S

Wildflower Guide

The classic field guide for quick identification of
wildflowers, flowering shrubs, and vines



Lawrence Newcomb

Illustrated by Gordon Morrison



FLOWER TYPE	Irregular Flowers	1	
	2 Regular Parts	2	
	3 Regular Parts	3	
	4 Regular Parts	4	
	5 Regular Parts	5	
	6 Regular Parts	6	
	7 or More Regular Parts	7	
	Parts Indistinguishable	8	
PLANT TYPE	Wildflowers	No Apparent Leaves	1
		Basal Leaves Only	2
		Alternate Leaves	3
		Opposite or Whorled Leaves	4
	Shrubs	5	
LEAF TYPE	Vines	6	
	No Apparent Leaves	1	
	Leaves Entire	2	
	Leaves Toothed or Lobed	3	
	Leaves Divided	4	

*FLOWERS WITH 5 REGULAR PARTS (Cont.)**Wildflowers with Alternate Leaves (cont.)*

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Leaves divided (*cont.*)Flowers very small (under $\frac{1}{4}$ " wide or long) (*cont.*)Flowers in umbels or flat clusters (*cont.*)White, pink or greenish flowers (*cont.*)

Leaves once-pinnate 222

Leaves 2 to 3-times-divided, but not
finely divided 222

Yellow or purple flowers 226

Flowers $\frac{1}{4}$ " or more wide or long

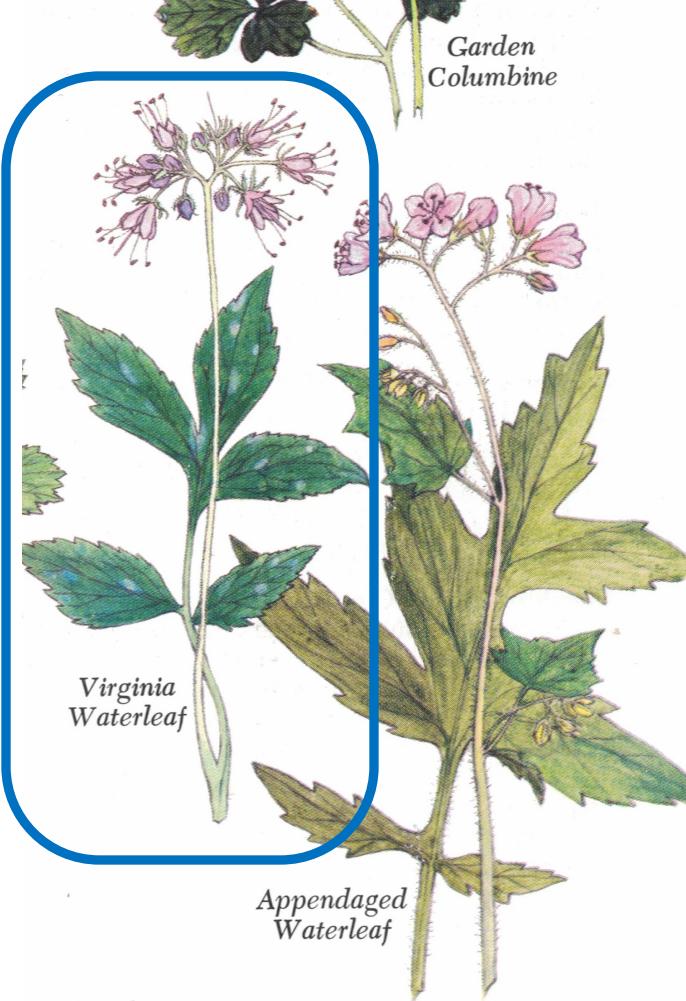
Flowers not yellow

Bell-shaped or nodding flowers 228

Flowers not bell-shaped or nodding

Stem leaves with 3 or more entire,
toothed or shallowly lobed leaflets 230Stem leaves or leaflets deeply lobed
or divided 234

Garden
Columbine



Waterleafs (*Hydrophyllum*) Small ($\frac{1}{3}$ " long), white, lavender, blue or violet flowers in close clusters; leaflets toothed; in rich woods spring and early summer. The larger leaves are divided into 5-7 pinnate segments. Broad-leaved Waterleaf (p. 208) has broad leaves with 5-7 lobes. 1-2' high. Waterleaf Family.

Virginia Waterleaf (*H. virginianum*) Stem leaves pinnately 5-lobed; stamens long-protruding; stem smoothish. Leaves usually mottled as though water-stained. Flowers white to lavender. Stems rather weak. Que. and w. N. Eng. to Man. south.

Large-leaved Waterleaf (*H. macrophyllum*) † Similar to the Virginia Waterleaf, but the stem is hairy. Leaves with 7-9 lobes. W. Va. to Ill. south.

Appendaged Waterleaf (*H. appendiculatum*) Stem leaves palmately 5-7-lobed, like those of a maple leaf; stamens slightly protruding. Flowers lavender, borne above the leaves. Broad-leaved Waterleaf (p. 208) has similar stem leaves. Stem hairy. S. Ont. and w. Pa. to Minn. south.

Seek App

Backyard Wilderness presents:

Seek by iNaturalist

Download on the App Store

Species you're most likely to see near: Cupertino

- Western Blue-Eyed Grass
- Western Fence Lizard
- Scarlet Pimpernel
- Pacific Hound's Tongue

It's a Match!
You saw a California Poppy!

Your Photo: California Poppy

Target Species: California Poppy

Found It!

www.inaturalist.org/pages/seek_app

Conclusion:

Go out and take a walk; it will make you smarter & happier



May-apple in May
(Duff Park)



May-apple in June
(Jennings Prairie)

References

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USDA National Invasive Species Information Center: Garlic Mustard
<https://www.invasivespeciesinfo.gov/plants/garlicmustard.shtml>