Green Burial ~ The Environmentally Friendly Option

Massachusetts Health Officers Association
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Sophia Sayigh
Green Burial Massachusetts, Inc.
Brewster Cemetery Commission

Photo courtesy of Greensprings

What is Green Burial?

Green burial is interment

- without toxic chemical embalming, protecting worker health;
- without concrete, fiberglass, or plastic vaults;
- without metal or exotic wood caskets, using a biodegradable shroud or coffin instead.

Green burial

- conserves natural resources;
- reduces of carbon emissions;
- preserves and restores habitat;
- encourages locally sourced materials and family participation.

Photo courtesy of Prairie Creek

Types of Green Burial Cemeteries (per the Green Burial Council)

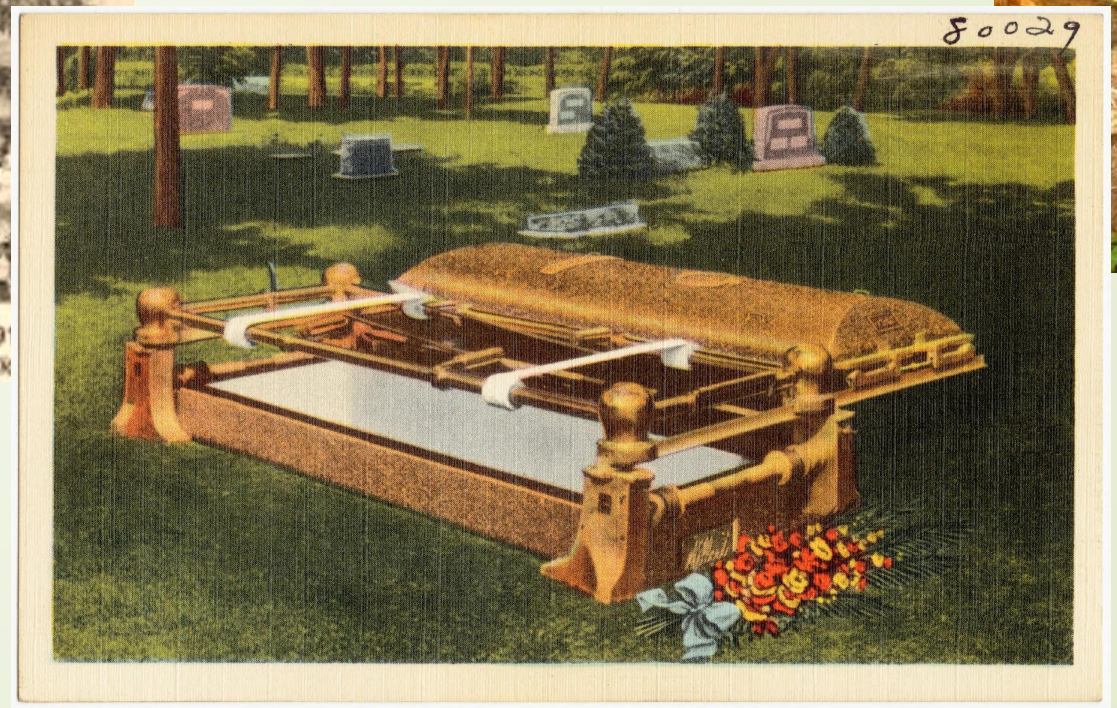
- Hybrid burial grounds
- Natural burial grounds
- Conservation burial grounds

Larkspur Conservation at Taylor Hollow, Nashville, TN

Historical Perspective

- Prior to 1860: Family, church members, midwife–all burials were green
- 1860 – 1930: Rise of storefront undertakers, funeral directors, concrete burial vaults
- : Rise of green burial movement

Casket and floral tribute inside an Orange residence, 19
Orange Community Historical Society Collecti

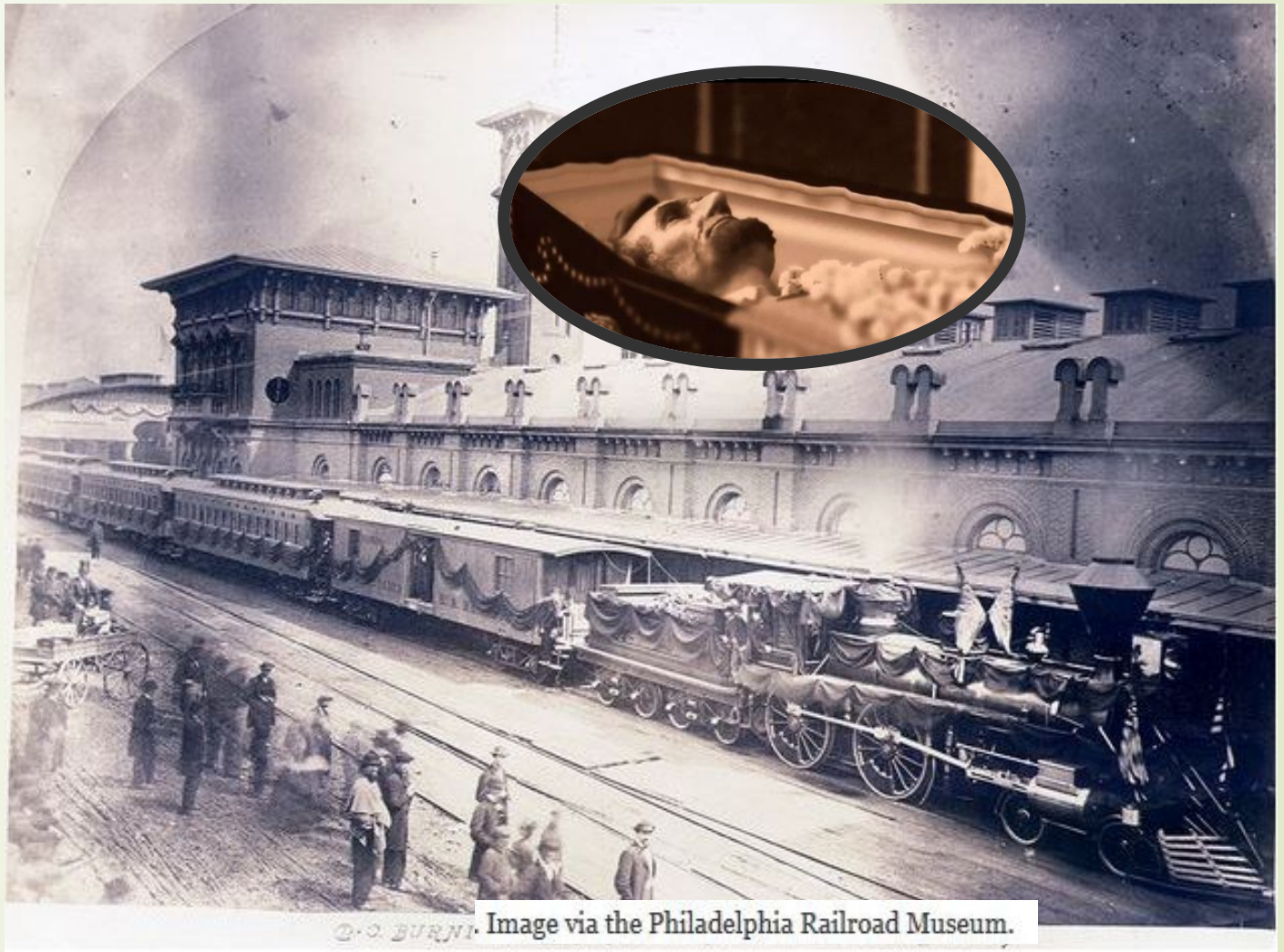


Surgeons on the Battlefield & the Birth of the Modern Funeral Industry

Lyford's Embalming Office, Gettysburg 1863

Bonney Watson Funeral Home interior, ca. 1915

Lincoln's Funeral Procession Popularized Embalming



The visibility of President Lincoln's funeral procession, from Washington, D.C., to Springfield, Illinois, helped popularize embalming techniques. Image via the Philadelphia Railroad Museum.

Embalming

- Embalming is not required by law
- Cosmetic only
- Funeral home policy for viewing
- Bodily fluids go to backyard septic system or public wastewater treatment plant and are replaced with embalming fluid, a mixture of chemical preservatives typically containing formaldehyde

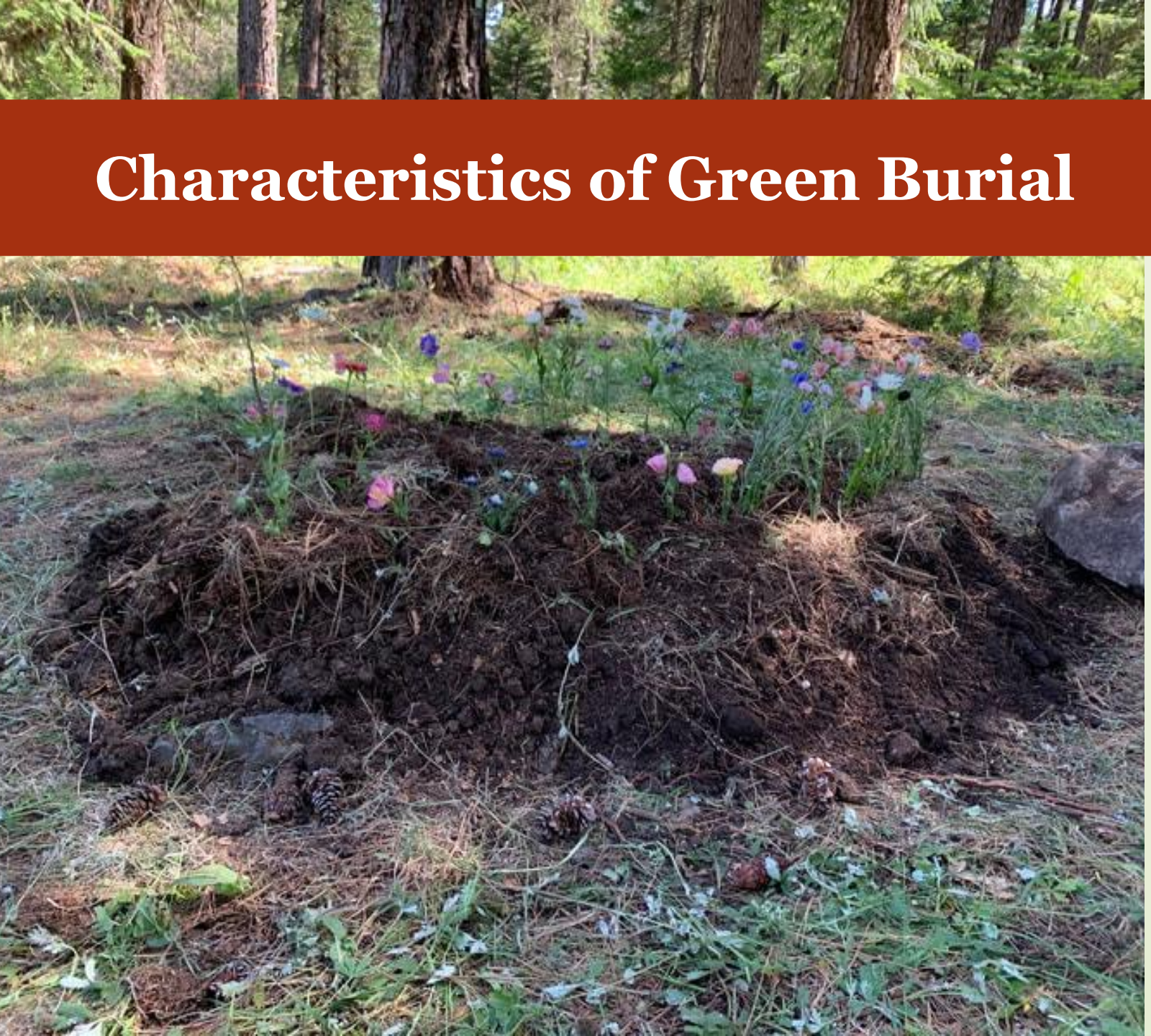
Most conventional cemeteries require concrete grave liners or burial vaults

- Prevent collapse before the grave is filled
- Maintain flat lawn

Conventional Containers

Metal and Hard Woods

Characteristics of Green Burial



- Marker: flat, local stone or natural marker or no marker
- Opening/closing may be done by hand
- Depth: 3-4 feet to bottom
- Backfill: mounded or fill added if needed as earth settles
- Density: varies from 300 – 400 per acre in a Green Burial Council certified conservation cemetery, to 800 – 1,000 per acre in a green or hybrid cemetery in a cityscape

Green Containers

Pine, wicker, cardboard or a simple shroud

Steelmantown Natural Cemetery, Steelmantown, NJ

Mourning Dove Studio, Arlington, MA

Mary Lauren Fraser, Dummerston, VT

Larkspur Conservation at Taylor Hollow, Nashville, TN

What is NOT Green Burial?

Cremation by Fire

Alkaline Hydrolysis
(aka water cremation)

Natural Organic Reduction
(NOR)
(aka human composting)

Comparing the Cemetery Settings

Conventional cemetery

Green cemetery

Greensprings Natural Cemetery Preserve

What's Going Into the Ground?

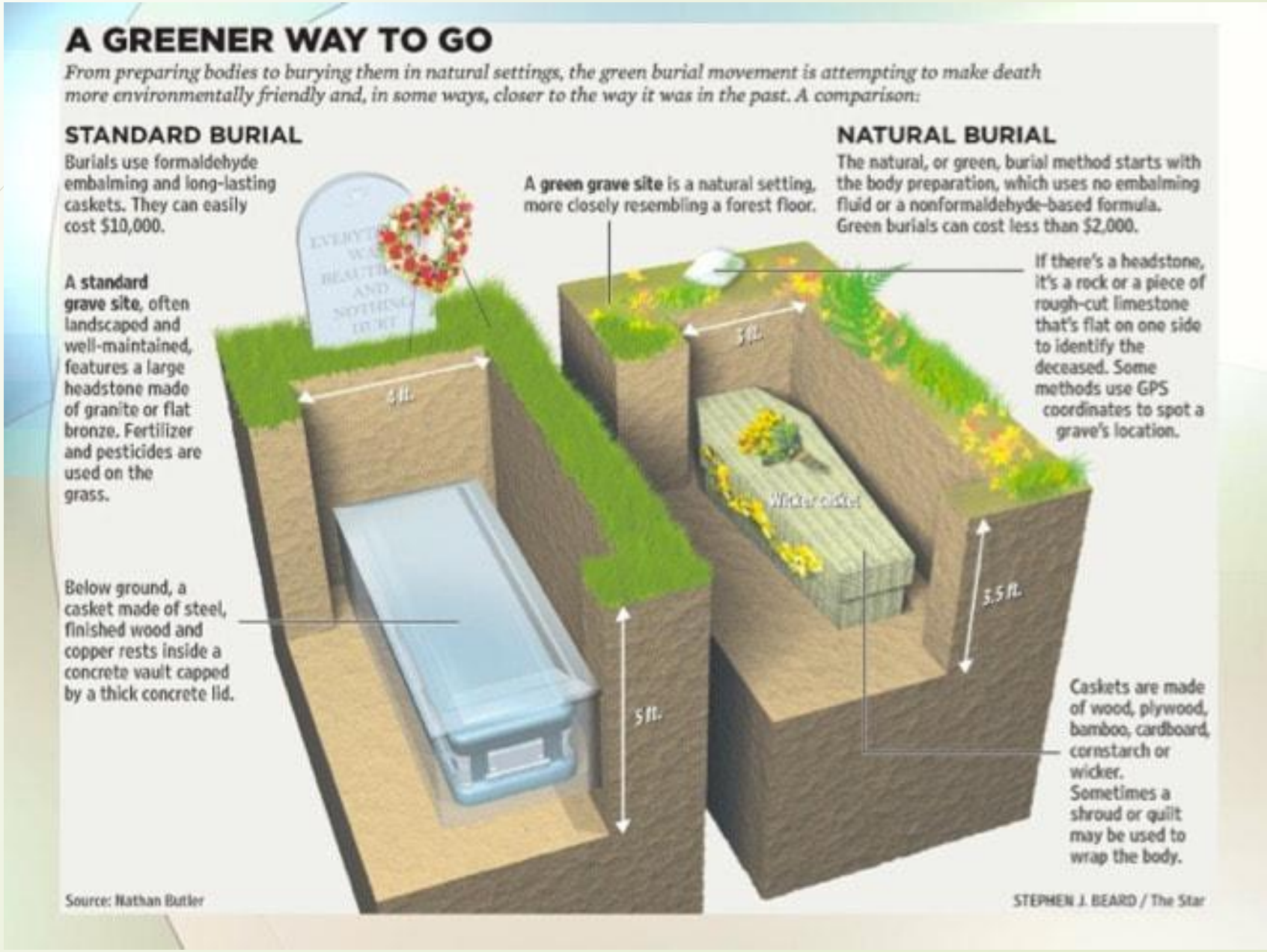
Green Burial

- Decedent
- Biodegradable coffin or shroud
- ~~Embalming chemicals~~
- ~~Concrete, fiberglass, or plastic vaults~~

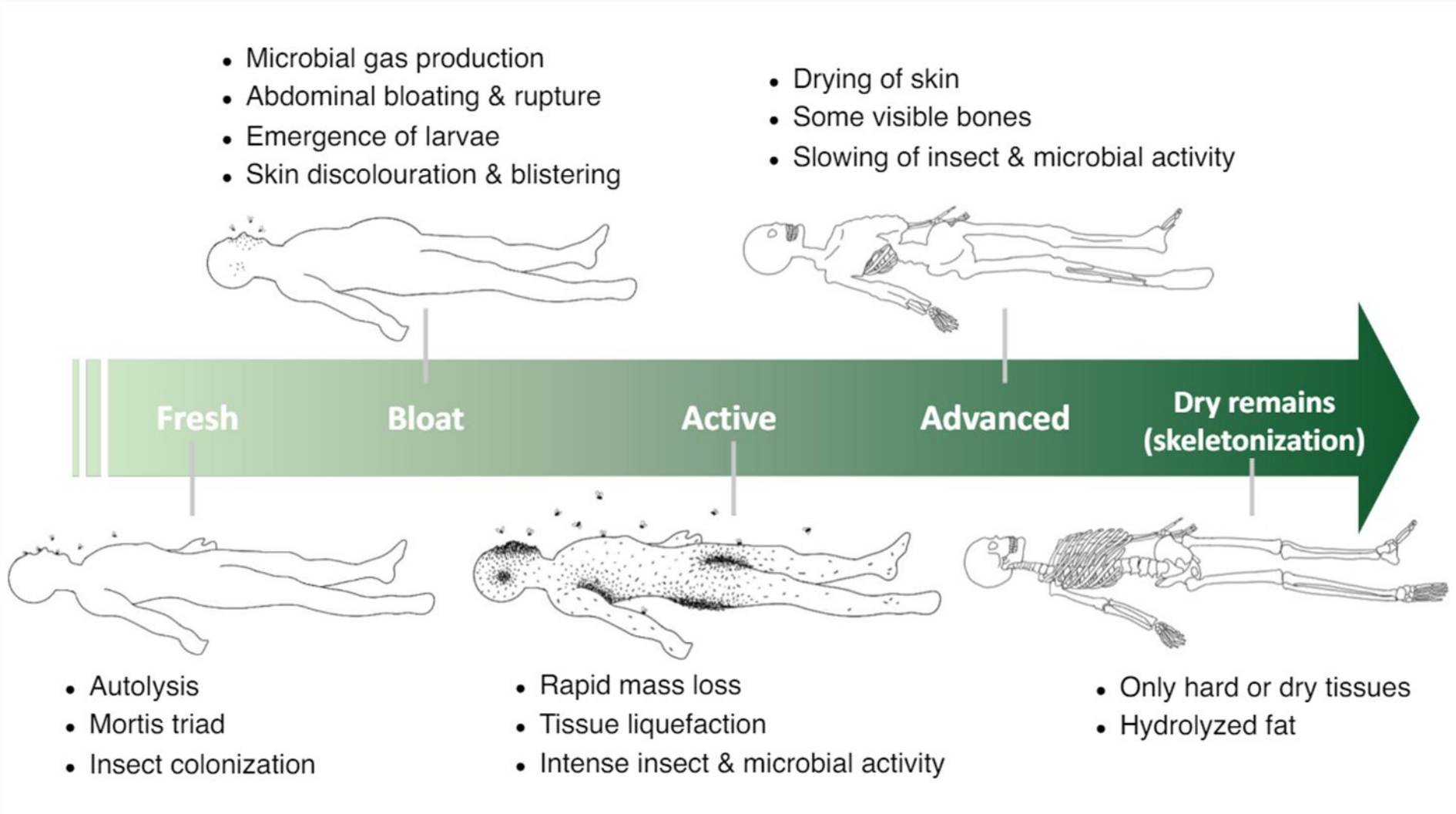
Conventional Burial

- Decedent
- Metal or hard wood casket
- Embalming chemicals
- Concrete, fiberglass, or plastic vault

A New View


A GREENER WAY TO GO
From preparing bodies to burying them in natural settings, the green burial movement is attempting to make death more environmentally friendly and, in some ways, closer to the way it was in the past. A comparison:
STANDARD BURIAL
Burials use formaldehyde embalming and long-lasting caskets. They can easily cost $10,000.
A standard grave site, often landscaped and well-maintained, features a large headstone made of granite or flat bronze. Fertilizer and pesticides are used on the grass.
Below ground, a casket made of steel, finished wood and copper rests inside a concrete vault capped by a thick concrete lid.
5 ft.
5 ft.
A green grave site is a natural setting, more closely resembling a forest floor.
NATURAL BURIAL
The natural, or green, burial method starts with the body preparation, which uses no embalming fluid or a nonformaldehyde-based formula. Green burials can cost less than $2,000.
If there's a headstone, it's a rock or a piece of rough-cut limestone that's flat on one side to identify the deceased. Some methods use GPS coordinates to spot a grave's location.
5 ft.
5.5 ft.
Caskets are made of wood, plywood, bamboo, cardboard, cornstarch or wicker. Sometimes a shroud or quilt may be used to wrap the body.
Source: Nathan Butler
STEPHEN J. BEARD / The Star

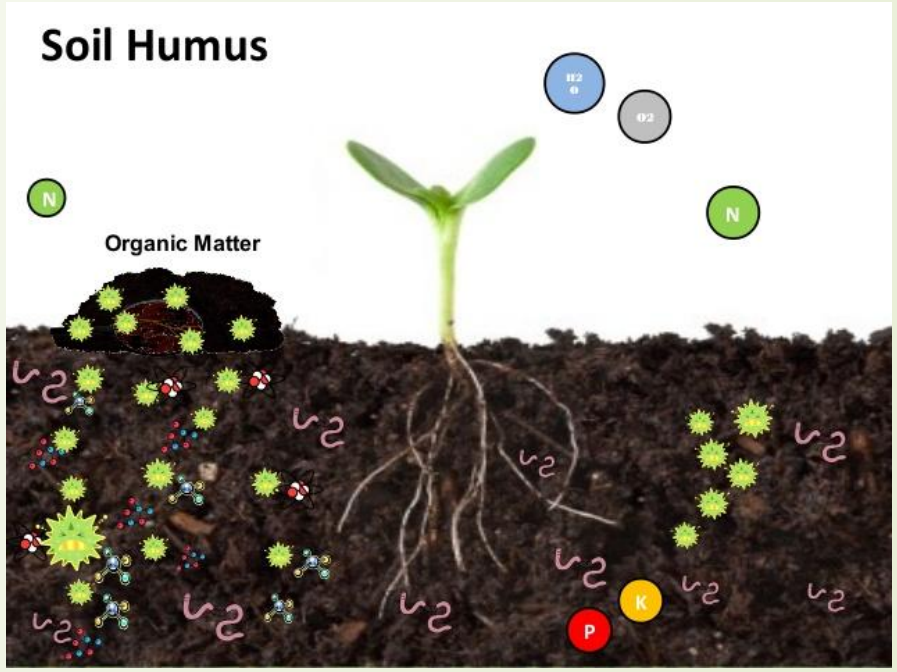
Body Decomposition



From "Does Natural Burial affect groundwater? Scientific Considerations for green burial grounds." Helen Dawson, Ph.D., , GeoSyntec Consultants and Emily Pecsi, Ph.D. Candidate Biomedical Sciences at Université du Québec à Trois-Rivières · Département d'Anatomie. Green Burial Council Conference, November 8, 2022.

Aerobic (Green) Decomposition

Decomposition of human remains is a **rapid and continuous process** since the remains are not isolated from soil bacteria and thus decompose the way all living organisms do when they die.



"Ideally, coffins and human corpses should decay rapidly and the products of decomposition become adsorbed or oxidised quickly. Access of air and moisture can facilitate this situation…"
- Ucisik, Ahmet S, Rushbrook, Philip & World Health Organization. Regional Office for Europe. (1998). The impact of cemetaries on the environment and public health: an introductory briefing

Infectious Disease

"When the body dies, the environment in which pathogens live can no longer sustain them. Micro-organisms involved in the decay process (putrefaction) are not pathogenic..." — Rev Panam Salud Publica, "Infectious disease risks from dead bodies following natural disasters."

"Once a human dies, infectious agents that would be of any concern, including those on the individual's skin or internal organs is [sic] greatly diminished…" *—Dr. Michael Osterholm, Center for Infectious Disease Research and Policy (CIDRAP) 2010*

Epidemics… have been caused by diseases such as plague, cholera, typhoid fever, tuberculosis, anthrax, small pox, [sic] and influenza. Even though these are highly contagious diseases, their causing agents do not survive long in the human body after death, making it unlikely that these epidemics can be transmitted by dead bodies – Pan American Health Organization, Risk of Dead Bodies Associated with an Epidemic

Water Supply

- Of concern:
  - Trace metals (mercury, zinc, chromium, lead); conventional burial may have metal from casket or vault
  - Gut pathogens, viruses, ammonia which is converted to nitrate when it encounters oxygen—same concerns for water quality as a septic tank
- Hydrogeologic study seeks to discover
  - how quickly and at what concentration nitrates reach groundwater,
  - Do they migrate to a stream which serves as a source for drinking water or directly to surface body water or a reservoir
  - If so, how quickly and at what concentration?
  - What concentration is a concern?

www.usgs.gov

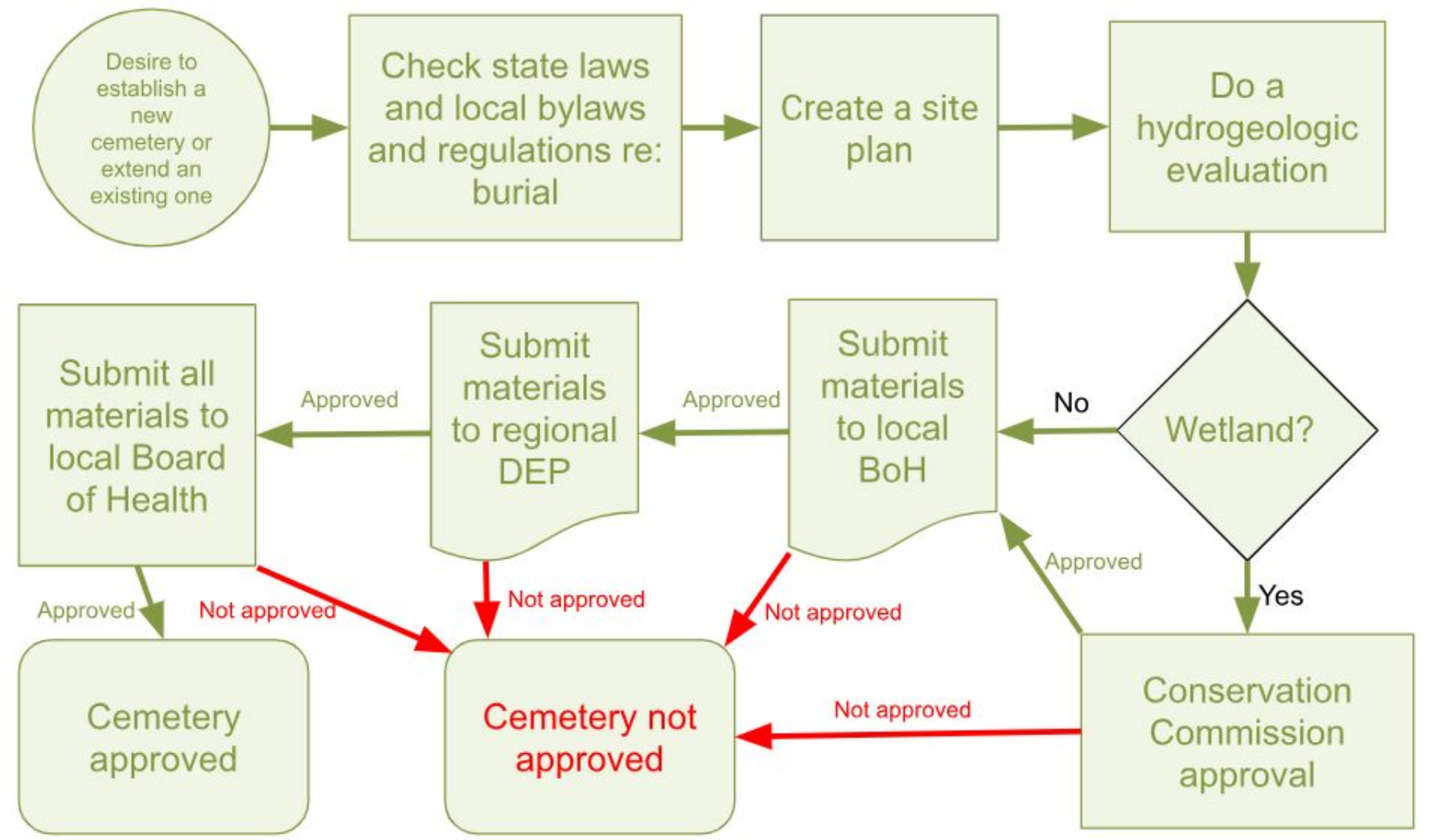
"…once properly located and with the proper setback from potable water sources, a green burial site will offer an even lower potential, both temporarily and spatially, to contaminate groundwater than a conventional cemetery."
- MassDEP Memorandum, April 28, 2015 RE: Recommended Setback Distances for Private Wells and Green Burials

Masachusetts Law re: Cemetery Approval

TITLE XVI. PUBLIC HEALTH, CHAPTER 114. CEMETERIES AND BURIALS -- USE OF CEMETERIES

- Section 34. Use of land for burial; new cemeteries or extensions; approval of board of health; description of land
- Section 35. Lands to be used for burial; approval

Suggested Steps to Approving a New Cemetery



Home Burial

Similar steps to approve a family burial ground:

- Written approval from local Board of Health
- Permission of city or town government
- Written approval of MassDEP
- Owner of the land would need to comply with requirements to establish a cemetery corporation
- Burial noted on deed property

Approval of Green Burial in an Existing Cemetery

Between death and burial, those you leave behind will need to choose:

- Funeral home
- Home funeral
- Blended funeral

Debunking common misconceptions about green burials

- “Embalming is required by law!”
- “ANIMALS DIG UP GRAVES IN GREEN CEMETERIES!”
- “Green cemeteries contaminate soil and water!”
- “GREEN BURIALS COST MORE THAN CONVENTIONAL BURIALS!”
- “Green burials can’t have markers!”

Green Burial Massachusetts, Inc.

- A statewide non-profit run by volunteers, providing education, advocacy, and technical assistance
- We are working to establish the first conservation cemetery in Massachusetts.

www.greenburialma.org

Photo con the right courtesy of Ramsey C

On Hand

- Green Burial FAQ
- Green Burial Massachusetts: About Us
- Green Burial in a Hybrid Cemetery: Information for Local Boards of Health
- In limited supply:
  - Town of Brewster Green Burial Rules
  - Town of Brewster information sheet re Green Burial

References for this presentation:

https://greenburialma.org/wp-content/uploads/2024/05/References_MHOA_20240516.pdf