


Green Burial

**Meeting of the Cemetery
Commissioners, Ayer, MA
January 10, 2023**

To consider options when setting
regulations for Woodlawn Cemetery.



Ramsey Preserve,
Westminster, South Carolina



The Greening of North American Cemeteries

A Little History: The Lawn Cemetery



- Uses pesticides, herbicides that endanger workers
- Uses fertilizers that enter the water table, endanger health
- Requires concrete vaults for ease of lawn maintenance
- Allows embalming fluids that endanger embalmers
- Is reaching capacity even in rural areas

Environmental Impact of Lawn Burial

Each year, in **22,500** cemeteries in the US, we bury:

- 4.3 million gallons of embalming fluid containing 827,060 gallons of formaldehyde
- 20 million board feet of hardwoods
- 1.6 million tons of concrete
- 17,000 tons of copper & bronze
- 64,500 tons of steel



Worker safety issues

- 8 x higher risk of leukemia for embalmers (11.24.09 Journal of National Cancer Institute)
- 3 x higher risk of ALS for embalmers (7.13.15 Journal of Neurology, Neurosurgery & Psychiatry)
- COPD, neurological disorders, cancer for maintenance workers due to herbicides, pesticides, fertilizers

Environmental Impact of Cremation

- Uses fossil fuels to maintain 1900° F 2+ hours
- Releases mercury and other elements into air and water
(Britain estimates cremation accounts for 16% of emissions)
- Produces 250+ lbs. CO₂ per cremation
- Produces byproduct emissions of nitrogen oxide, sulfur dioxide, dioxins, particulates
- Radiopharmaceutical releases endanger operators



What is Green Burial?

- **A way of caring for the dead that furthers one or more environmental aims such as:**
 - The protection of worker health
 - Conservation of natural resources
 - Reduction of carbon emissions
 - Preservation/restoration of habitat
- **Eliminates use of:**
 - Toxic chemical embalming
 - Metal or exotic wood caskets
 - Concrete, fiberglass, or plastic vaults
- **Encourages:**
 - Locally sourced biodegradable containers
 - Family participation
 - Environmentally sound management practices



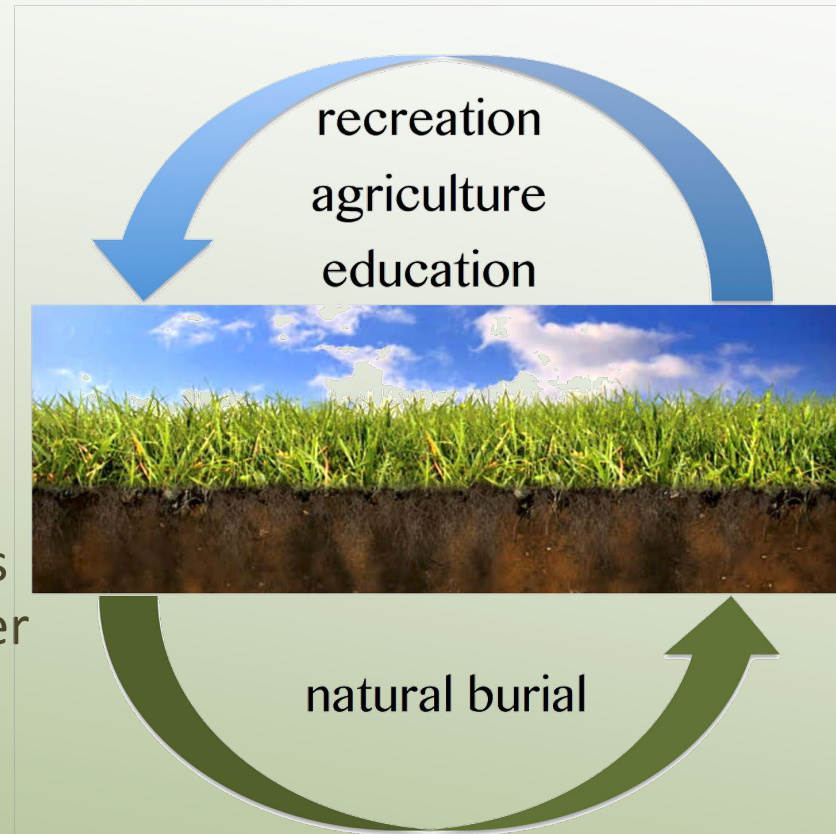
Green Cemeteries

- Do not attempt to inhibit decomposition
- Employ environmentally sustainable practices
- Encourage philosophy of stewardship
- May support land trusts, conservation lands, recreational preserves



Scientific reports

- 3 – 4-foot depth provides optimum temperature and moisture level for rapid, aerobic decomposition
- Shallow burial optimizes land otherwise unusable
- Surface humus buffers soil pH, binds metals
- Green cemeteries have not been tested for water safety; other studies identify furniture as a pollutant rather than bodies
- **No animal disturbances reported in green cemeteries**



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.

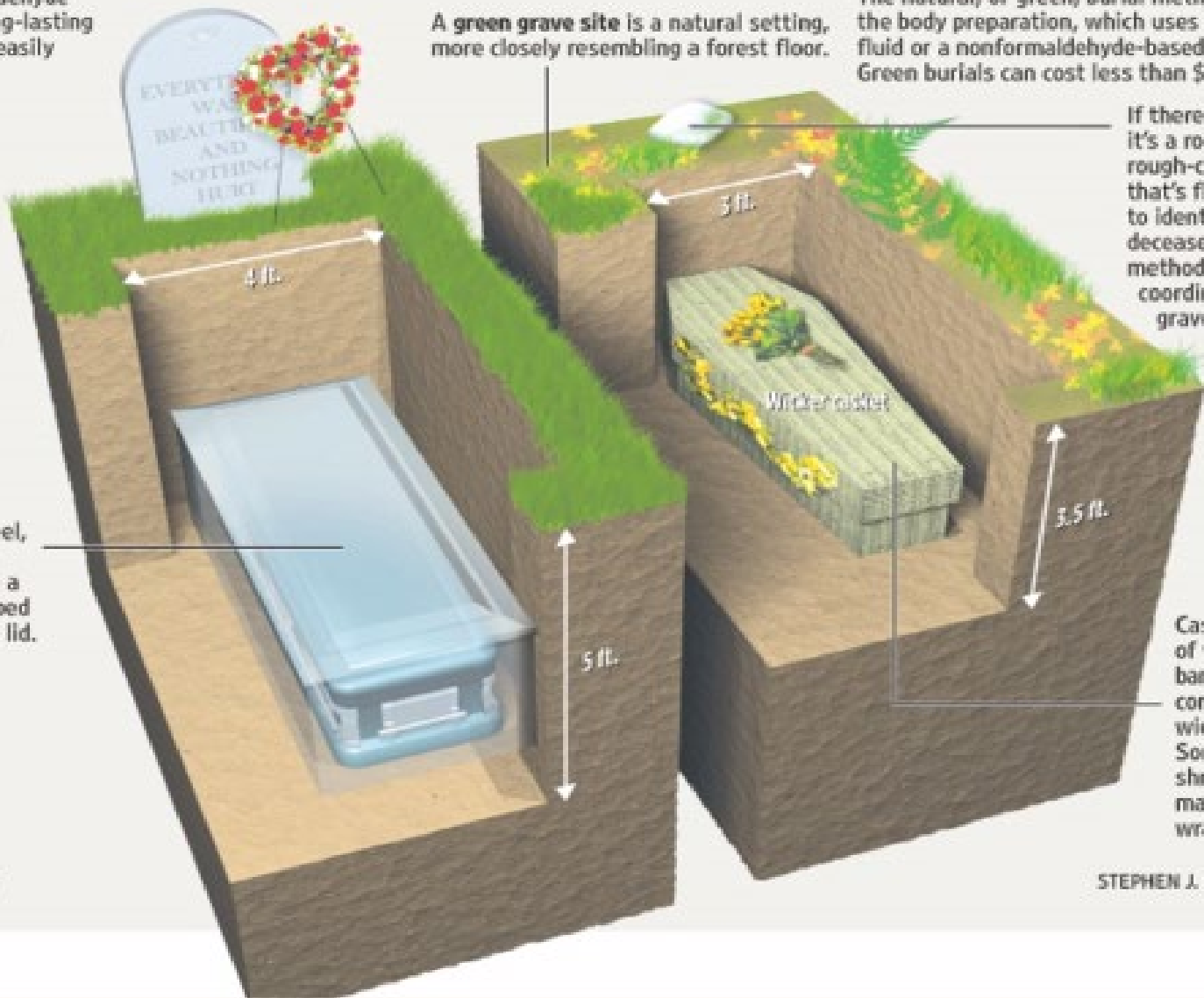
Source: Nathan Butler

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.

Caskets are made of wood, plywood, bamboo, cardboard, cornstarch or wicker. Sometimes a shroud or quilt may be used to wrap the body.



STEPHEN J. BEARD / The Star

Myth busting

Embalming

- Not legally required
- Policy for funeral home viewing
- Preserves body for up to 2 weeks
- Has no protective properties



Vaults

- Not legally required
- Policy of lawn cemeteries for maintenance reasons
- Have no protective properties



Public Safety

- “Once a human dies, infectious agents that would be of any concern, including those on the individual’s skin or internal organs, is greatly diminished...there simply is no measurable risk of that body transmitting an infectious disease agent...” — *Dr. Michael Osterholm, Center for Infectious Disease Policy and Research (CID)*
- “There is little evidence of microbiological contamination of groundwater from burial...Microorganisms involved in the decay process (putrefaction) are not pathogenic.” — *Pan American Health Organization (PAHO)*

Why Choose Green Burial?



- Sense of place
- Religious doctrine
- Individual preference
- Environmental impact
- Cost
- Authenticity
- Intrinsic value
- Invitation to participate

The Return to Ritual

- Feeds the human spirit
- Acknowledges change in the community
- Deepens connections
- Tells the personal story
- Reclaims ritual shroud practices
- Provides the opportunity for graveside service



The Growing Demand

- First US green cemetery in 1998
- More than 240 green cemeteries as of 2019

Surveys say interest is rising:

- AARP 2007 42%
- Kates-Boyleston 2008 43%
- FAMIC Harris Poll 2015 64%
- US Catholic 2011 80%
- NFDA 2018 53.8%



Types of Green Burial Cemeteries

Hybrid burial grounds

- In conventional cemetery
- No vaults
- Biodegradable containers

Natural burial grounds

- In green cemetery
- Prohibits toxic chemicals, non-organic caskets, vaults, non-native markers

Conservation burial grounds

- On easement or land trust
- Land preservation with burial fees creating revenue stream to further conservation, restoration, recreation paths



Beware Greenwashing



Solutions to Invented Problems



Beginning of Time — 1860

Bodies are cared for by families, friends, church mates, midwives in the home; bodies were buried on the farm or in churchyards

Public Hospitals — 1860 -1930

Births, deaths, surgeries, and illnesses are removed from the home to hospitals; leading cause of death changes from farm accidents to disease

Haase Vaults — 1880s - 1930s

Wilbert Haase conceives of vault marketing that offers "protection" from water, microbes, vermin; echoed by morticians to "protect and disinfect" bodies by embalming

Profession Grows — 1890 - 1920

Nearly 10,000 funeral directors practice in the US by 1890, swells to 25,000 within 30 years; declines to below 22,000 by 2014

FTC Writes Funeral Rule — 1984

The Federal Trade Commission addresses charges of price gouging and unethical behavior by imposing trade regulations on the funeral industry for the first time

Green Burial Council — 2005

Certification is offered to cemeteries burying without vaults or toxic chemicals, using biodegradable products, along with funeral directors and product manufacturers

Civil War — 1861 - 1865

Soldiers returning north for burial require preservation by field surgeons experimenting with arsenic and zinc embalming

Sanitation Reform — 1880

Miasma Theory—the belief that "bad", "night", or "polluted" air caused disease—replaced by Germ Theory of bacteria and viruses; dead bodies become "infectious"

NFDA Founded — 1882

National Funeral Directors Association is founded, promoting professionalization based on the new medical model, followed by licensure and regulation

Funeral Consumer Alliance Established — 1963

Consumer advocates found organization to protect consumer's rights to choose meaningful, dignified, affordable funerals

Ramsey Creek Opens — 1998

First natural cemetery opens in the US in South Carolina. 150 natural burial spaces available by 2016 in the US and Canada; over 300 in the United Kingdom

National Home Funeral Alliance Formed — 2010

Home funeral guides and advocates join forces to empower and educate families dedicated to caring for their own after death

We Have a Choice

Where death is



Destroys open space forever

Where life goes on



Preserves natural ecosystem while supporting recreation, research, education, agriculture, forestry