



FOCUS QUESTIONS

- What are the main contributors to and consequences of habitat loss?
- How can individual “acts of restorative kindness” (restoring nature) create lasting ecological change?
- What is a microhabitat and how are they important in restoring biodiversity to a larger landscape?
- What strategies can the younger generation use to help plants and animals recover from the current biodiversity crisis?

OVERVIEW

“If you want to help nature, start with your own patch of it—start at home.” -Mary Reynolds

In **Gardener to Guardian**, we meet professional garden-designer-turned-nature-activist, Mary Reynolds. In the film, Reynolds argues that the traditional gardens we build and maintain on our properties — not to be confused with our vegetable gardens — could do more for restoring and conserving biodiversity if we simply “stop being so tidy” and embrace the importance of native flora. Mary teaches us how to take our own land, no matter how small, and create an ARK: *Act of Restorative Kindness*. We learn that Mary’s movement is taking hold both locally and globally from a small patch of land run by students at a school to large landowners restoring agricultural land back to natural habitat.

KEY CONCEPTS

- **Habitat loss:** Roughly half of the Earth’s habitable land has been converted from natural habitat to agriculture. This land conversion has contributed in large part to the loss of the Earth’s biodiversity.
- **Biodiversity:** The International Union for the Conservation of Nature lists more than 44,000 species threatened with extinction and agriculture is the major threat for more than half of these species. Allowing patches of land to be returned to a more natural state can help mitigate the biodiversity threats.
- **Restoration ecology:** Centuries of unsustainable human activities have degraded the Earth’s terrestrial, freshwater, and marine ecosystems. Restoration ecology is focused on reversing this degradation by restoring natural habitats and processes.
- **Conservation biology:** The practice of conservation biology recognizes the intrinsic value of the Earth’s natural diversity of organisms. Conservation biology works to understand how the natural world operates, how humans affect nature, and how we can use collective scientific and cultural knowledge to conserve Earth’s biological diversity.
- **Rewilding:** A primary goal of some ecological restoration projects is to go beyond conventional restoration, where some level of management is required to maintain ecosystem processes, and emphasize the importance of truly wild ecosystems by embracing their unpredictable and dynamic abiotic (e.g. droughts and floods) and biotic (e.g. food webs and population cycles) natural processes.

BACKGROUND

Mary Reynolds is the author of two popular books on gardening, [The Garden Awakening](#) (2016) and [We Are the ARK](#) (2022). In [The Garden Awakening](#) Reynolds provides gardeners with a guide for how to transform their garden spaces so that they are more positive, natural, and sustainable areas that can benefit both nature and humans. However, since writing [The Garden Awakening](#) Reynolds began to notice some lost opportunities when she returned to the places she helped design to incorporate nature and natural processes. The gardens had been too heavily maintained, especially in public spaces, primarily because those in charge of taking care of the spaces had no personal connection to them. In [We Are the ARK](#) Reynolds has taken a different approach. She now argues that we need to start with our own patches of land and “set them free.” In other words, we need to actually work, as much as possible, to restore them back to their original state.



We need to start one “patch” at a time on the land right outside our own front or back doors. Reynolds’s approach combines the overarching philosophies of the scientific fields of restoration ecology and conservation biology by recognizing the intrinsic value of Earth’s natural diversity of organisms and processes and reversing the degradation of Earth’s ecosystems brought on by human activities. Reynold’s reach is both local and global and she is inspiring individuals and communities to move away from the pristine appearance that traditional gardens demand and toward a more wild but natural state and appearance that provides a place for local biodiversity and processes to thrive.

BIODIVERSITY THREATS

The major threats to the Earth’s biodiversity can be grouped into seven categories that spell the easily recalled acronym H.I.P.P.O.: **H**abitat destruction and fragmentation, **I**ntroduced species, **P**ollution, **P**opulation growth, and **O**verharvesting. Many species are threatened by a combination of these factors, but habitat loss is the greatest threat to biodiversity. In **Gardener to Guardian**, we learn that the global habitat loss created by centuries of deforestation for agriculture can be mitigated in part with a simple and straightforward solution: restoring nature patch by patch. And by doing this, we can deliberately improve our relationship with the Earth.

DISCUSSION QUESTIONS

- [Before showing the film] Have students describe in writing or drawings the patches of soil, plants, and animals that surround their living spaces and school and that they notice as they move around their neighborhoods. Have students discuss their spaces and the maintenance required to maintain them.
- Why and how might simply turning over the soil in a patch increase the plant and animal diversity in that area?
- What are the possible social challenges to creating an ARK (acts of restorative kindness) on personal property or in a community space and how might those challenges be overcome?
- Discuss the possibility of creating an ARK somewhere on your school grounds.



CURRICULUM CONNECTIONS

NGSS

HS-LS2 Ecosystems: Interactions, Energy, and Dynamics

- LS2.A: Interdependent Relationships in Ecosystems
- LS2.B: Cycles of Matter and Energy Transfer in Ecosystems
- LS2.C: Ecosystem Dynamics, Functioning, and Resilience
- LS2.D: Social Interactions and Group Behavior
- LS4.D: Biodiversity and Humans

HS-LS4 Biological Evolution: Unity and Diversity

- LS4.C: Adaptation

ETS1.B: Developing Possible Solutions

AP Biology (2021)

Enduring Understandings

- Energetics (ENE)
 - ENE-4: Communities and ecosystems change on the basis of interactions among populations and disruptions to the environment.
- Systems Interactions (SYI)
 - SYI-1: Living systems are organized in a hierarchy of structural levels that interact.
 - SYI-2: Competition and cooperation are important aspects of biological systems.
 - SYI-3: Naturally occurring diversity among and between components within biological systems affects interactions with the environment.

IB Biology (First Exam May 2025)

A. Unity and Diversity: Common ancestry has given living organisms many shared features while evolution has resulted in the rich biodiversity of life on Earth.

- A3.1 Diversity of organisms
- A4.2 Conservation of biodiversity

B. Form and Function: Adaptations are forms that correspond to function. These adaptations persist from generation to generation because they increase the chances of survival.

- B4.1 Adaptation to environment
- B4.2 Ecological niches

C. Interaction and Interdependence: Systems are based on interactions, interdependence and integration of components. Systems result in emergence of new properties at each level of biological organization.

- C4.1 Populations and communities
- C4.2 Transfers of energy and matter

D. Continuity and Change: Living things have mechanisms for maintaining equilibrium and for bringing about transformation. Environmental change is a driver of evolution by natural selection.

- D3.3 Homeostasis
- D4.2 Stability and change
- D4.3 Climate change

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CREDITS

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