

21 ACRES



RESTORATION

Natural spaces and areas around farmland are being degraded by human impacts, invasive species, and climate change. Restoration is the solution. Restoration ecology seeks to restore land to its natural state through native plant and animal species, aiding in carbon capture and ecosystem services that benefit agricultural lands. Here in the Pacific Northwest, many of our natural spaces rely on thriving wetlands to support the health of the environment, humans, and agriculture.

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Costs, Benefits, Solutions

[Natural Climate Solutions World Atlas](#) | Nature4Climate

This online tool developed by [Nature4Climate](#) with support from [The Nature Conservancy](#) demonstrates opportunities for countries around the world to view how

natural climate solutions (NCS) alongside emission reduction strategies, can help them reduce their net greenhouse gas emissions.

[The Economics of Restoration: Costs, benefits, scale and spatial aspects](#) | International Institute for Sustainability

Restored ecosystems provide a range of goods and services to humanity that in many cases will outweigh the costs of restoration.

[Habitat Restoration Benefits Both Wildlife and Working Lands](#) | U.S. Department of Agriculture

The success of private lands conservation was evident this year when we witnessed how it played a crucial role in the rebound of species across the country—from the Louisiana black bear to the Oregon chub, and from the New England cottontail to the fluvial Arctic grayling. Ranchers have also been able to preserve the Western way of life and improve agricultural production while safeguarding the greater sage-grouse.

[Opinion: How land — and the way we use it — is at the center of the climate crisis](#) | The Fern

Landscapes play a significant role in climate. At its most basic level, the story of climate is the story of what happens to solar energy when it meets the ground. The fate of our sun's largesse — whether it is incorporated by life-forms or becomes heat — is determined by natural processes: the carbon, water, nutrient, and energy cycles. These intertwined cycles are driven by the activities of myriad life-forms, from microbes to animals and plants.

Wetlands

[Happy World Wetland Day! How is the 21 Acres wetland weathering recent rains?](#) | 21 Acres

We're restoring 5.7 acres of wetland on the 21 Acres property. Wetlands are ecological systems that help control flooding, replenish groundwater, stabilize shorelines, aid in nutrient cycling, control sediment, purify water, foster biodiversity, are culturally and historically important, and are a vital part of climate change mitigation.

[Study Shows Coastal Wetlands Aid in Carbon Sequestration](#) | Pacific Northwest National Laboratory

Tidal marshes, seagrass beds, and tidal forests are exceptional at absorbing and storing carbon. Knowing this information is valuable, particularly in the context of sea level rise and with the associated need for Earth system modeling to predict changes at the coast.

[Coastal Wetland Protection](#) | Project Drawdown

Mangroves, salt marshes, and seagrasses sequester huge amounts of carbon in plants and soil. Protecting them inhibits degradation and safeguards their carbon sinks.

[Carbon Sequestration by Wetlands: A Critical Review of Enhancement Measures for Climate Change Mitigation](#) | Earth Systems and Environment

Wetlands are among the most important ecosystems in the response strategy to climate change, through carbon sequestration (CS). Nevertheless, their current CS potential is declining due to human disturbance, with further decrease expected under global population growth and climate change scenarios.

[Eradicating Reed Canary: Restoration Experiments on the Farm](#) | 21 Acres

As part of our agroecological approach to farming, our Restoration Specialist, Jess Chandler, has spearheaded mitigation strategies to eradicate the reed canary grass. In one particular patch, at the southern side of the farm just beyond the goat paddock, we have tried a few different methods.

[From Swamps & Bogs to Marshes & Meadows](#) | Salish Magazine

Wetlands are part of our landscape here in the lowlands near the Salish Sea. Anyone who's walked around in a park or forest has probably spotted some familiar wetland signs: a pond where tree frogs chorus in the early spring, or a patch of skunk cabbage in a shady glade. But some kinds of wetlands might not even look like "wetlands" to the

unpracticed eye, while others are rare and hard to find. All are worth a closer look and exploration.

[Wetland Basics](#) | Salish Magazine

Whether you call it a pond or a swamp, basically a wetland is a shallow lake — shallow enough that sunlight can reach the depths and make wetlands magical places in our Salish lowlands. These shallow waters are teeming with the ebb and flow of life. They draw us to their shorelines where we can pause, contemplate, and observe a diverse array of wildlife and plants.

[Blue Carbon and Wetlands](#) | Salish Magazine

“Blue carbon” is simply a term for carbon dioxide that is captured from the atmosphere by the world’s ocean and coastal ecosystems and stored in the form of biomass and sediments. The good news is that our oceans and coastal wetlands provide a natural way of reducing the impact of these gases on our climate through *sequestration* (or capturing) of this carbon.

[Investing in Blue Carbon for a Resilient Future](#) | Nature.org

The impacts of climate change are accelerating around the world, but perhaps nowhere faster than for islands and coastal areas. For these communities to survive, we must find ways to reduce the emissions driving climate change and help them adapt to the impacts they already experience.

[Conserving carbon sinks: A natural solution to climate change](#) | Nature Conservancy Canada

In the global effort to fight climate change, forests, wetlands and grasslands are more and more being recognized for their important role in absorbing greenhouse gas emissions (i.e., carbon dioxide) and storing carbon over the long term. Conserving these “carbon sinks” provides a natural climate solution by absorbing the emissions that are causing climate change.

[The Importance of Wetlands](#) | Salish Magazine

Each of these wetland types has habitat features for wildlife, based on the period of time during which a wetland is covered by water, vegetation condition, and connections to other habitats. The large deep basin wetland may provide good amphibian and/or fish breeding habitats if the water is there at the right time and the plants provide suitable niches.

[Defending Wetlands Means Defending Water](#) | FutureFood via Medium

It is estimated that coastal wetlands are five times greater carbon sinks than tropical forests, and they can trap sediments that might otherwise adversely affect seagrass beds and coral reefs. This means that wetlands are natural filters from water pollutants, implementing the importance of water safety.

[A Healthy Salish Sea Requires Healthy Wetlands](#) | Salish Magazine

While flooded forests, soggy meadows, and salt marshes may not seem important, they represent some of the state's most environmentally important and economically valuable natural resources. They guard the health of the Salish Sea and help keep watersheds, communities, and wildlife healthy and safe.

[The Trees that Sail to Sea](#) | Hakai Magazine

Driftwood makes an enormous if underappreciated contribution to the food web connecting the forests and the sea. From streams to estuaries to the deep ocean floor, driftwood shapes every environment it passes through. While there's an awareness that temperate rainforests are enriched with nitrogen from the marine environment, delivered by decomposing salmon, less well known is the fact that dead trees from those same forests travel to the sea and become a vital source of food and habitat.

Agricultural Land

[First Phase of the Pollinator Garden is Complete](#) | 21 Acres

Our pollinator garden, in partnership with Beevesting volunteers, includes native plants. Native plants are great choices for planting in the fall as they are accustomed to our

long, cool rainy season and will have the easiest time establishing themselves by the spring. They are also plants that our native pollinators have evolved to depend on and so will be invaluable resources to them throughout the year.

[Oregon Forests and Farms Can Fight Climate Change](#) | Nature.org

Farms and forests mean different things to different people, but we should all consider them important tools in the fight against climate change.

[Restoration of Degraded Agricultural Land: A Review](#) | Journal of Environment and Health Science

Restoration of agricultural land is important for sustainability of agriculture and environment. Land is under immense pressure due to ever increasing population thereby ensuing growing demand for food, fiber and shelter. Agricultural land is being deteriorated due to different anthropogenic and natural factors.

[Farming Degrades Land; Farming Can Also Bring It Back](#) | Scientific American

Agroforestry, the practice of growing trees with crops or livestock, provides one elegant solution. The benefits of agroforestry are numerous: tree roots anchor soil, preventing erosion; leaves and pruned branches from the trees become a mulch that reduces soil runoff and erosion, eventually decomposing into an organic litter layer that enriches soil. And many trees species used in agroforestry are nitrogen-fixing, replenishing this key nutrient to the soil.

Forestry

[Tree planting has potential to increase carbon sequestration capacity on Nation's forests](#) | Science Daily

USDA Forest Service scientists have published an in-depth study on the value of tree planting as a means of offsetting carbon emissions in the United States. An analysis based on publicly available data from more than 130,000 forested plots in the Forest Service's Forest Inventory & Analysis Program found that fully stocking non-stocked and

poorly stocked forests would result in an annual increase of 20 percent in the amount of carbon sequestered by forests.

Who to Follow

[Mid Sound Fisheries](#) | A nonprofit organization in the Puget Sound that works with communities to restore local stream and near-shore habitat, so salmon can thrive.

[World Wetlands Day](#) | Valuing wetlands around the world.

[Nature Conservancy](#) | Conserving the lands and waters on which all life depends.

Questions? Contact Us.

Have an idea? We want to connect with you about climate solutions. Join us on a free farm tour or email us: generalinfo@21acres.org