



JOY B. ZEDLER

1943, UNITED STATES

HERSTORY

Pioneer in wetlands restoration and specialist in invasive species and adaptive management.

Professor Emerita of botany at the University of Wisconsin-Madison, Director of Research for the UW Arboretum and founder of the San Diego University's Pacific Estuarine Research Laboratory.

Editor of the *Restoration Ecology* and *Ecosystem Health and Sustainability* journals, member of the Wisconsin's Nature Conservancy and former member of the California's Independent Science Board.

She remains active in advocating wetland conservation and writes science-based books for school children.

Joy has received several awards, including the Aldo Leopold Professor, the Augustana University Award and the mention "noteworthy ecological sciences educator" by Marquis Who's Who. Also, the "Zedler Marsh", in Los Cerritos Wetlands, is named in her honor!

WETLANDS

Wetland: Shallow-water ecosystems, including marshes, bogs, vernal pool-sand seagrass beds.

Marsh: Wetlands dominated by emergent, herbaceous vascular plants, where the vegetation is primarily non-woody.



Wetland functions (valuable processes)

- Productivity
- Biodiversity support
- Nutrient cycling
- Floodwater storage

Wetland services (processes with societal value)

- Resource supply (peat)
- Water purification
- Flood abatement
- Carbon storage

Adapted from: Joy B. Zedler. (2000).
Trends in Ecology & Evolution.

AGRICULTURE & WETLANDS

Wetlands draining agriculture catchments **lose the ecosystem services:**

Capacity of food abatement

- Increased the amount of storm runoff
- Elevated peak flows in streams
- Exacerbated stream channel erosion

Capacity to improved water quality

- Decrease run-off
- Increased the delivery of nutrients
- Carried toxic materials downstream

Biodiversity

- Fragmented blocks of habitat for vegetation
- Reduced or eradicated sensitive species
- Establishment or expansion of invasive species
- Homogenized micro-topography



Adapted from: Joy B. Zedler. (2003).
Frontiers in Ecology and the Environment

RESTORATION OF WETLANDS

Restoration: Recovery of wetlands that have been degraded or destroyed. It includes the return to pre-disturbance conditions and efforts to restore regional biodiversity or function. Yet, not all damages to wetlands are reversible!

Mitigation: Compensation (through restoration or construction) for wetlands being lost to development.

Mitigation Policy: Requirement for developers to avoid/minimize damage before being given permission (compensation for unavoidable damage).

An adaptive, **science-based process** would increase the effectiveness of funds spent on restoration.

Scientists can help planning restoration by adapting existing landscape-design models to agricultural landscapes, proposing alternative strategies, and evaluating their effectiveness.



Joy B. Zedler. (2000). Trends in Ecology & Evolution
Joy B. Zedler. (2003). Frontiers in Ecology and the Environment

RELEVANT CONTRIBUTIONS

Hurlbert, S. H., **Zedler, J. B.**, Fairbanks, D. (1972). Ecosystem alteration by mosquitofish (*Gambusia affinis*) predation. *Science*, 175, 639-641.

Zedler, J. B. (1980). Algal mat productivity: comparisons in a salt marsh. *Estuaries*, 3, 122-131.

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Zedler, J. B. (2001). *Handbook for Restoring Tidal Wetlands*. CRC Press LLC. New York.

Zedler, J. B., Kercher, S. (2004). Causes and consequences of invasive plants in wetlands: opportunities, opportunists, and outcomes. *Critical Reviews in Plant Sciences*, 23, 431-452.

Zedler, J. B., Kercher, S. (2005). Wetland resources: status, trends, ecosystem services, and restorability. *Annual Review of Environmental and Resources*, 30, 39-74.

LOOKING
FOR MORE?

You can find more information about her story and research at:

<https://scholar.google.com/citations?user=ChtFYsIAAAAJ&hl=es>

https://en.wikipedia.org/wiki/Joy_Zedler