User Guide: Working Wetlands Explorer

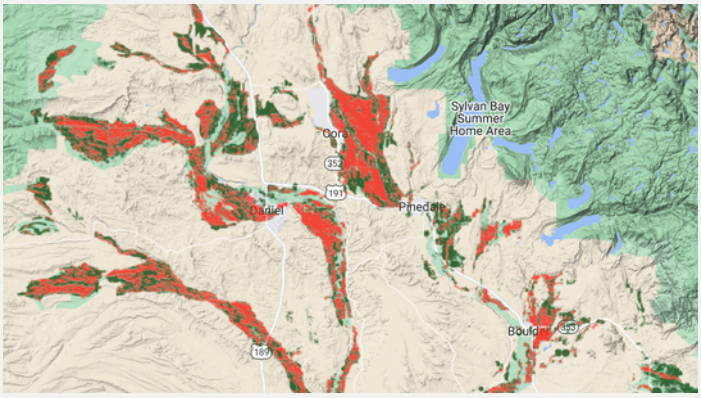
The Working Wetlands Explorer is an interactive mapping tool that shows when and where flood irrigation occurs in the West. This map can inform the spatially-targeted conservation of flood-irrigated grass hay practices that support wetland and riparian function.

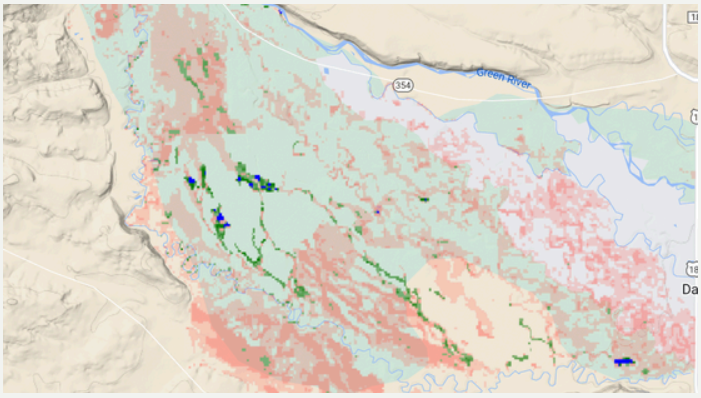
ACCESS THE APP

Recent research from the Intermountain West Joint Venture highlights the important role that flood irrigation plays in sustaining riparian systems and providing temporary wetland habitat. Flood-irrigated grass hay meadows make up only 2.5 percent of irrigated agricultural land in the West but account for 58 percent of temporary wetlands and 22.9 percent of seasonal wetlands during the peak May-June irrigation season.

Over 93 percent of water use by flood irrigation is focused in floodplains (image, left). Seasonal flooding using stream diversions and flood irrigation partly mimics hydrologic regimes in riparian ecosystems and drives wetland and riparian resilience through groundwater recharge.

Below left: Flood-irrigated grass hay agriculture is shown in red. Other irrigated lands are shown in green. This category includes other irrigation practices and urban grass turf (e.g., golf courses and athletic fields), defined using the IrrMapper Irrigated Lands dataset. Results can be filtered in the app by checking the correlated box to view each layer individually or together.





Above right: Wetland data can be filtered by month (in this case, June) and whether water is present due to flood-irrigation practices. This data is classified by hydroperiods (the length of time surface water is present), which are defined as temporary (flooded <2 months, shaded in pink), seasonal (flooded >2 and <9 months, shaded in green), or semi-permanent (flooded >9 months, shaded in blue).

Conservation Applications

Research shows flood irrigation on riparian floodplains can contribute to in-stream flows within western watersheds, especially during late summer when return flows of groundwater can help combat low flow and high temperatures. The habitat provided by flood-irrigated grass hay supports a variety of wildlife, such as fish, sage grouse, and migratory waterbirds including greater sandhill cranes. Losing flood irrigation practices could have significant consequences for wildlife, as well as viable agricultural operations in the West. Conversion of these lands to other irrigation systems (e.g., center pivot sprinklers or drip irrigation) as the region looks to increase water use sustainability in the face of climate change unintentionally risks the loss of wetland and riparian habitats.

Flood-irrigated grass hay practices sustain plant growth and water in riparian areas through late summer when the landscape is otherwise dry.

Given the increasing challenges posed by climate change and water scarcity, conservation and management must identify water management strategies that support watershed health and provide benefits to both people and wildlife. Conservation strategies include investing in resources and programs that assist landowners in maintaining agricultural flood irrigation practices that benefit wildlife habitats and water availability. These projects can include updating irrigation infrastructure, riparian restoration, and wildlife habitat improvement projects, as well as working land protection tools like conservation easements.

Modernizing flood irrigation infrastructure can keep these areas wet for habitat and for agriculture.

Associated Research & Contacts

Findings and data presented in this app can be found in the publication Beneficial inefficiencies of western ranching: Flood-irrigated hay production sustains wetland systems by mimicking historic hydrologic processes.

Wetland data can also be viewed through the Wetland Evaluation Tool (WET). WET offers higher spatial and temporal resolution surface water layers and includes user guides useful for interpreting data.

For more information about this app or supporting research please contact **Patrick Donnelly**, IWJV/USFWS Migratory Bird Program patrick_donnelly@fws.gov | 406.493.2539

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What is a working wetland? In the Intermountain West, water-driven habitat is scarce for migratory waterbirds and other animals that depend on wetlands. Much of this habitat occurs on private lands and is driven by agricultural irrigation practices. The term "working wetlands" encompasses agricultural land that provides habitat to wetland-dependent species. Flood-irrigated grass hay meadows, as illustrated in this app and associated science, are only wet for a few months of the year, but can provide a significant portion of those wetland benefits.