CONSERVATION SCIENCE PARTNERS

EXECUTIVE SUMMARY

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For the project entitled:

National Functional Floodplains Assessment of the United States

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Executive Summary

Background: Floodplains are among the most productive and biodiverse ecosystems on the planet, providing a myriad of benefits to human societies, including flood reduction, groundwater storage, water purification, and the retention of nutrients and sediments. However, the ubiquitous practices of flood protection and flow stabilization via artificial levees and dam building, as well as agricultural land use and urbanization, continue to threaten the existence and functions that floodplains support. New, ambitious national and international conservation targets, aiming to conserve 30 percent of nature by 2030 (referred to colloquially as 30 x 30), call for strengthened protection for our nation's floodplains. It concurrently highlights the need to develop new tools to identify opportunities for future conservation and restoration efforts. American Rivers has partnered with Conservation Science Partners to create the National Functional Floodplains Assessment (NFFA) of the United States, a data-driven nationwide inventory of the current status of floodplain protection and alteration. The assessment is designed for conservation practitioners and policymakers to understand the current state of floodplain protection and identify opportunities to expand protection and scale up restoration efforts in the years to come.

Key findings: The National Functional Floodplains Assessment reveals that approximately 17% of floodplain area in the contiguous U.S. and 22% across the entire U.S. are currently intended for protection by at least one mechanism, including freshwater-specific and land-based conservation policies or management practices. The results also point to widespread alterations of floodplains that threaten the many benefits floodplains provide to biodiversity and human societies, both outside and within protected areas. More than 90% of floodplains in the contiguous U.S. and 70% across the entire U.S. are subject to some degree of compromised lateral connectivity, river flows and/or habitat alteration, with the central parts of the country generally displaying the lowest protection status and highest degree of floodplain alteration. Alteration is also prevalent within watersheds displaying a high level of protection, exemplifying opportunities to enhance protection and restore floodplains within protected areas, notably in the northeastern region of the U.S., along the Pacific coast, and within the Colorado River Basin. These results reiterate the longstanding need to elevate freshwater conservation and better prioritize floodplain restoration and protection if we are to meet the ambitious 30 x 30 conservation targets, restore the critical functions played by floodplains in flood mitigation, water purification, and climate resilience, and support habitats for both freshwater and terrestrial species.

Approach: The extent of floodplain protection was estimated by leveraging an array of datasets capturing different protection mechanisms, including river specific conservation systems (e.g., Wild and Scenic River corridors), riparian and floodplain conservation systems (e.g., Riparian National Conservation Areas, Emergency Watershed Protection – Floodplain Easements, Northwest Forest Plan Riparian Reserves), policies focusing on endangered species (Endangered Species Act Critical Habitat), and terrestrial protected areas (e.g., National Wilderness Preservation System, National Parks, Areas of Critical Environmental Concern). In parallel, a Floodplain Alteration Index (FAI) was developed to assess the degree of alteration with respect to the lateral connectivity, river flows, and habitat integrity of local floodplains. Overlapping the protection status and degree of alteration across watersheds allows for the identification of opportunities for future floodplain protection and restoration.

Total protected floodplain acres in the U.S. according to different mechanisms of protection categories*		
Category of protection	Contiguous U.S.	U.S.
River conservation	1,367,243 (0.6%)	1,631,903 (0.6%)
Riparian and floodplain conservation	4,930,319 (2.3%)	6,623,273 (2.6%)
Endangered species critical habitat	3,432,220 (1.6%)	3,432,231 (1.3%)
Terrestrial protected areas (strict)	3,218,705 (1.5%)	5,761,526 (2.2%)
Terrestrial protected areas (other)	15,303,568 (7.0%)	30,444,803 (11.9%)
Multiple land use (special management)	1,341,414 (0.6%)	2,042,909 (0.8%)
Multiple land use (other)	14,767,686 (6.8%)	16,163,907 (6.3%)
Total protection (all mechanisms)	**38,052,506 (17.4%)**	**56,619,895 (22.1%)**
Total protection (excluding multiple use lands)	**26,342,035 (12.0%)**	**43,750,346 (17.0)**
Total floodplain area analyzed	**218,628,960**	**256,762,131**

**Due to overlapping mechanisms, the sums across protection categories are greater than the total floodplain area.*

Percentage of floodplains in the U.S. according to the classes of the Floodplain Alteration Index (%)		
Class of alteration	Contiguous U.S.	U.S.
Low alteration (0 ≤ FAI < 0.25)	8.5%	27.4%
Moderate alteration (0.25 ≤ FAI < 0.5)	39.5%	31.4%
High alteration (0.5 ≤ FAI < 0.75)	34.8%	27.6%
Very high alteration (0.75 ≤ FAI)	17.1%	13.6%
Significant floodplain alteration (FAI > 0.25)	**91.5%**	**72.6%**

Functional Floodplains Explorer is available here:

https://map.floodplains.myriver.americanrivers.org/