

## **The 2022 Yellowstone Flood in the Park and Gateway Communities: An Overview of the Impacts, Recovery, and Resilience**

Themes:

1. Resource Data and Assessments
2. Human Dimensions - Impacts of Changing Visitation and Human Use

### **Background/Questions**

In June 2022, a 500-year flood event impacted Yellowstone National Park (YNP) and gateway communities across Southwestern Montana. The flood led to the closure of YNP, followed by partial entry, eventually 90% of the park being accessible within weeks following the event – nonetheless, economic impacts were severe in the region and road damages resulted in permanent changes to northern entrances to the park. By the end of the 2022 season, the National Park Service (NPS) had re-opened the northern entrances, and in 2023 visitation rebounded, although reconstruction efforts were still underway. Two years following the event, a review of the event, the impacts, the road to recovery, and takeaway messages, including perspectives on resilience, is warranted. I discuss the context of infrastructure impacts and operations for YNP and the region that provides insights into future management and prioritization of National Park resilience and recovery following natural disasters.

### **Methods**

Through pictorial storytelling and unconventional data sources (websites), I provide an overview of the unfolding details of the event and shortly thereafter, based on my own direct observations and news sources during and after the flood event, as well as a chronology of the YNP recovery efforts. I provide some insights into infrastructural vulnerabilities and responses to a natural disaster, but also the role of human-built infrastructures to wildlife ecological needs. A geospatial overview of the degree of infrastructural impacts and recovery in YNP and the region will be provided, by collectively visualizing road damages and closures, recreational infrastructure damages (e.g. buildings, trails), and electricity outages. YNP infrastructure assessment comparisons both directly after and 1-year following the event provide an assessment of recovery.

### **Results/Conclusions**

The flood provided an unfortunate but unique opportunity to assess infrastructure vulnerability and resilience, as well as the importance of YNP to the regional economy. Infrastructure losses were widespread throughout the region, although most significant impacts occurred within YNP. Road reconstruction was prioritized, and NPS rapidly mobilized to re-open the entrances and repair other infrastructures (e.g. cabins). Most trails receiving damages were accessible; however, damages were still apparent. The research provides insights into the critical role of national parks to regional communities, but also the importance of resilient human-natural infrastructures within and outside national parks.