
USING EMERGING TECHNOLOGIES TO BOLSTER LONG-TERM MONITORING OF WETLANDS (POSTER)

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Freshwater wetlands support a disproportionately high diversity of species relative to other ecosystems and they are particularly vulnerable to climate change. Across Grand Teton and Yellowstone National Parks, wetlands represent just 3% of the landscape, yet 70% of Wyoming bird species and all native amphibians in the region use wetlands for some stage of their life. The Greater Yellowstone Inventory and Monitoring Network has monitored amphibians in wetlands since 2006 and found that over 40% of the region's isolated wetlands are dry in years with above average temperatures and reduced precipitation. Adding novel technologies to these monitoring efforts will increase our understanding of species diversity in wetlands susceptible to drying. We outfitted three wetland sites in Grand Teton National Park with acoustic (i.e., audible and ultrasonic) monitoring technology and wildlife camera traps in summer 2016. We collected data over a four-week period to test the efficacy of automated technology for wetland monitoring. Based on preliminary results from the ultrasonic monitoring and wildlife cameras, we detected four times more species with these tools, when compared to visual surveys of amphibians alone. Additionally, automated methods allowed us to detect species over a longer time window than feasible with visual surveys. We will continue our work in 2017, using environmental DNA, acoustic monitoring, and wildlife camera traps to capture information about a broader diversity of taxa using wetlands, to expand and enrich current monitoring efforts.