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Perceptions of Flood Risk and Resilience In Ambos Nogales

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Due to geographic and geological setting, coupled with heavy summer rains, the twin cities of Ambos Nogales, in Arizona, U.S., and Sonora, Mexico, are frequently flooded. Negative impacts from these floods include, damage to property, harm or impairment to sewage systems, sewage discharge and water contamination, erosion and mudslides, and loss of life. Flood risk in the cities of Ambos Nogales, particularly Nogales, Sonora, is amplified by rapid urbanization, settlement in the floodplain, and replacement of the natural environment with built infrastructure. In addition, variation in precipitation and a changing climate may increase flood risk to the populations of Ambos Nogales, particularly for people living in the floodplain. This research aims to understand community perceptions of flooding, preferences for watershed management in Ambos Nogales, and actions taking place to address flooding and increase socio-ecological resilience. To achieve these goals, I conducted 25 semi-structured interviews with local subject matter experts and conducted an electronic binational survey, based on the USGS “Social Values for Ecosystem Services” (SoLVES) instrument, with 122 community members living within the watershed. The results show that, experience with flooding is significantly related to level of flood concern. Ambos Nogales community members perceived greater flood-related risks from traveling across town and damage to vehicles, than from inundation or damages to their own home or neighborhood. I also found that gender is related to perceptions of personal preparedness for floods. Community members and local experts agreed that the cities of Ambos Nogales lack adequate preparation for future floods. To increase preparedness, they suggested implementing resilience strategies, including educational and awareness campaigns, green infrastructure, new stormwater infrastructure (such as drainage systems), improved early warning systems, and regulations to reduce the expansion of hard surfaces in the watershed.