

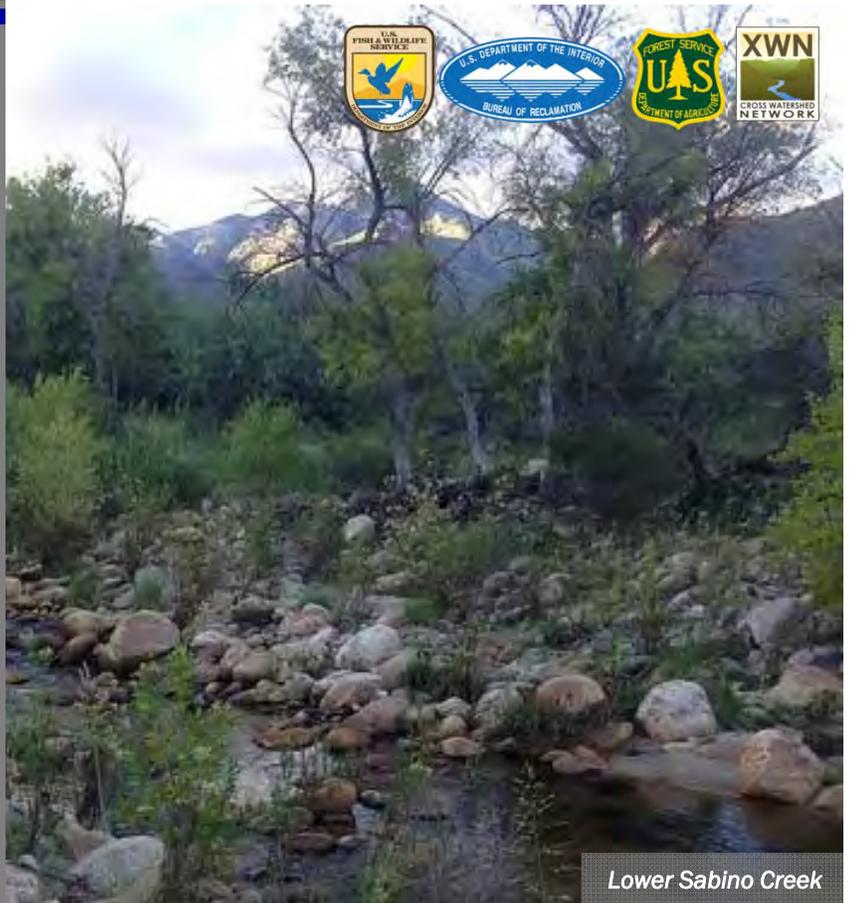
NATURAL RESOURCE VALUATION

Quantifying the Value of Ecosystem Services in Lower Sabino Creek

EARTH ECONOMICS



Sabino Creek is a perennial drainage of the Santa Catalina Mountains northeast of Tucson, Arizona. The creek and larger watershed provide water and habitat that supports rich biodiversity, aquifer recharge, and many other benefits from carbon sequestration to erosion control and moderation of flood events. Sabino Creek also provides many direct benefits to local residents, including increased property values and improved health via recreation. All of these benefits are ecosystem services, and they represent significant long-term contributions to the local economy. This is the first study to estimate the dollar value associated with these critical ecosystem services that lower Sabino Creek provides.



Lower Sabino Creek

KEY ISSUES ADDRESSED

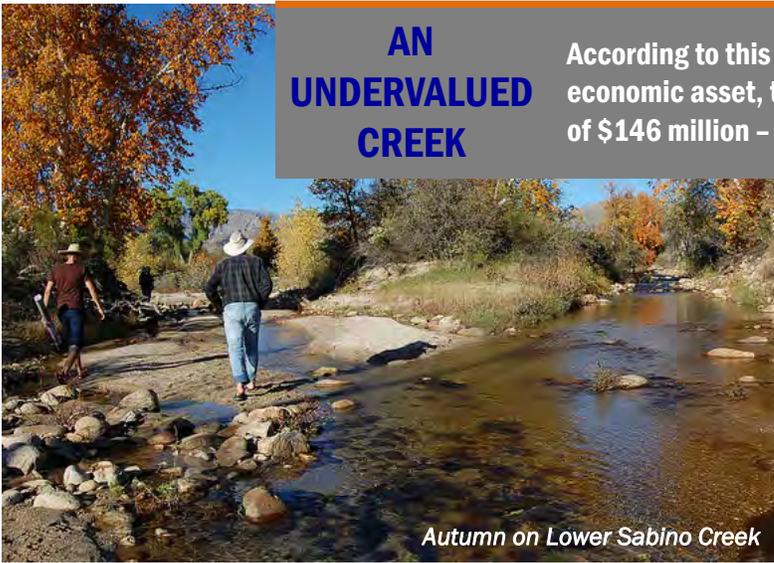
Riparian systems in western North America and the ecosystem services they provide are exceedingly threatened by population growth, development, drought, and water and resource extraction. Riparian areas such as Sabino Creek contain some of the rarest ecosystems in the region, yet they provide some of the most essential ecosystem services including water storage, aquifer recharge, and recreation. Translating ecosystem services into economic language is a strategy to integrate natural, economic, and social systems. Valuing ecosystem services in terms of dollar amounts provides a simple way to communicate tradeoffs and benefits of conserving and restoring natural systems and ensure natural capital is not undervalued in decision-making.

PROJECT GOALS

- Identify and describe the ecosystem services within the study area
- Calculate the dollar value of benefits that Sabino Creek provides to people
- Illuminate the connections between natural systems and the local economy

AN UNDervalUED Creek

According to this analysis, if Sabino Creek were treated like a traditional economic asset, the asset value of the natural systems provides a net value of \$146 million – \$230 million over a 100-year lifespan.



Autumn on Lower Sabino Creek

PROJECT HIGHLIGHTS

Valuation Method: The National Land Cover Database was used to quantify the acreage of each land cover category present in the study area. Using the benefit transfer method described below, existing values for ecosystem service/landcover combinations (e.g. water storage/wetlands) from comparable ecosystems were used for the study site. To determine the annual value of Sabino Creek, high and low service values for each land cover category were multiplied by the acreage total for that land cover.

Benefit Transfer Method: This method of determining ecosystem service valuation involves compiling information from primary, peer-reviewed studies in areas with comparable climate and land cover classifications as those within the study area.

Conceptualizing Economic Incentives for Stewardship: By quantifying the economic value of ecosystem benefits, this analysis provides a conceptual economic incentive for ecological stewardship. The valuation shows how efforts to expand the extent and health of the riparian forest or extend duration of surface flow could increase the value of ecosystem benefits provided each year by the system.

Collaborators and Funding Partners

- See online for full list of collaborators and funding partners

Case study support provided by the US Fish and Wildlife Service, US Bureau of Reclamation, US Forest Service, and Cross Watershed Network. Updated July 2018.
Photos courtesy of Watershed Management Group

LESSONS LEARNED

This analysis estimates that Sabino Creek provides \$1.4 million to \$2.1 million in ecosystem service benefits—clean water and air, urban heat island mitigation, outdoor recreation, and flood control—to the local economy each year.

Due to limited data appropriate for the study area, the values included in the analysis are highly conservative, but still demonstrate the substantial value of the Lower Sabino Creek area and the interconnection between the Creek and the region's economy. These values can immediately be integrated into a variety of policy and planning efforts to provide decision makers with the most comprehensive data available to inform the best long-term choices for the Creek and the region.

The analysis offers a range of values and their distribution for each land cover/ecosystem service combination. The final estimates are not precise. However, these ranges provide a foundation for translating natural processes into economic value for use in decision-making.

NEXT STEPS

- Use the information from this analysis to advocate for and implement restoration and stewardship practices in Lower Sabino Creek
- Assess potential value of restored riparian areas within Lower Sabino Creek and the greater Tucson Basin portion of the Santa Cruz River Watershed

PROJECT RESOURCES

For more information on this project, contact Matt Chadsey:
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For additional project resources and case studies, visit the Collaborative Conservation and Adaptation Strategy Toolbox:
WWW.DESERTLCC.ORG/RESOURCE/CCAST



Hikers on Lower Sabino Creek