

The Economic Contributions of Recreational Visitation at Buenos Aires National Wildlife Refuge

May 2019
Division of Economics
U.S. Fish & Wildlife Service

This paper establishes the economic contribution baseline for recreational visitation at Buenos Aires National Wildlife Refuge (Refuge). The paper addresses the levels of Refuge recreational activities and the economic effects of Refuge recreational activities. The analysis is followed by a glossary of terms. For more information regarding the methodology, please refer to “Banking on Nature – The Economic Contributions to Local Communities of National Wildlife Refuge Visitation” at <https://www.fws.gov/economics/divisionpublications/divisionpublications.asp>.

From an economic perspective, Buenos Aires National Wildlife Refuge provides a variety of environmental and natural resource goods and services used by people either directly or indirectly. The use of these goods and services may result in economic effects to both local and state economies. The various services the Refuge provides can be grouped into five broad categories: (1) maintenance and conservation of environmental resources, services and ecological processes; (2) protection of natural resources such as fish, wildlife, and plants; (3) protection of cultural and historical sites and objects; (4) provision of educational and research opportunities; and (5) outdoor and wildlife-related recreation. A comprehensive economic profile of the Refuge would address all applicable economic effects associated with the use of refuge-produced goods and services. However, some of the major contributions of the Refuge to the natural environment, such as watershed protection, maintenance and stabilization of ecological processes, and the enhancement of biodiversity are beyond the scope of this paper. Therefore, this paper focuses on economic effects associated with recreational visitation. As a result, benefits represent conservative estimates and do not represent the Refuge’s total social impacts.

Refuge Description

Located on the U.S.-Mexico border in southern Arizona, Buenos Aires National Wildlife Refuge contains 118,000 acres in a mix of habitat types, featuring a diverse array of wildlife. Elevations range from 3,200 feet in the grasslands to 4,800 feet in Brown Canyon in the Baboquivari Mountains. Most of the Refuge is semi-desert grassland, which supports reintroduction of pronghorns and the endangered masked bobwhite quail. The masked bobwhite was driven to extinction in the U.S., but their rediscovery in Mexico led to captive breeding and release at Buenos Aires NWR. Through prescribed fire and other techniques, habitat restoration efforts focus on controlling mesquite invasion and promoting growth of native grasses and forbs.

The mix of grassland, riparian, and mountain stream habitats attracts many subtropical bird species. Nearly 340 species of birds have been recorded, drawing birders from all over the United States. Riparian areas on the east flank of the Refuge attract subtropical specialties such as gray hawks and black-bellied whistling ducks. Grassland birds include red-tailed hawks, harriers, several kinds of flycatchers and many grassland sparrows.

Grassland mammals include mule deer, pronghorns, javelina, coyotes, and jackrabbits. The grasslands and the rugged mountains nearby have yielded reports and photographs of the occasional jaguar wandering north from Mexico. The variety of wildlife and rarities such as the jaguar attest to the importance of protecting this area for natural values.

The visitor center offers literature, exhibits, and a video about the Refuge. From the headquarters, visitors can take the Pronghorn Drive auto tour loop, which meanders 10 miles through rolling grassland. More than 250 miles of dirt roads beckon the visitor to walk, drive, hunt, bicycle, or horseback ride.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 55,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 52,000 visits with residents comprising 63 percent of Refuge visitation. Other recreation activities include camping and horseback riding.

Table 1. Buenos Aires NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	9,503	6,335	15,838
Auto Tour	6,147	4,098	10,245
Boat Trail/Launch	-	-	-
Bicycle	9	3	12
Photography	1,137	758	1,895
Interpretation	3,469	867	4,336
Other Recreation	10,200	6,800	17,000
Visitor Center	1,430	954	2,384
Hunting:			
Big Game	2,656	664	3,320
Small Game	119	21	140
Migratory Birds	135	15	150
Fishing:	-	-	-
Total Visitation	34,805	20,515	55,320

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is Pima County, Arizona. It is assumed that visitor expenditures occur primarily within this county. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$1.3 million with non-residents accounting for \$767,000 or 61 percent of total expenditures. Expenditures on non-consumptive activities accounted for 80 percent of all expenditures.

Spending in the local area generates and supports economic activity within Pima County (Table 3). The contribution of recreational spending in local communities was associated with about 15 jobs, \$523,000 in employment income, \$131,000 in total tax revenue, and \$1.8 million in economic output.

Table 2. Buenos Aires NWR: Visitor Recreation Expenditures (2017 \$,000)

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$360.9	\$641.5	\$1,002.4
Hunting	\$122.2	\$127.2	\$249.4
Fishing	-	-	-
Total Expenditures	\$483.1	\$768.7	\$1,251.8

Table 3. Buenos Aires NWR: Local Economic Contributions Associated with Recreation Visits (2017 \$,000)

	Residents	Non-Residents	Total
Economic Output	\$717.1	\$1,126.3	\$1,843.4
Jobs	6	9	15
Job Income	\$205.6	\$317.7	\$523.3
State and Local Tax Revenue	\$46.3	\$84.2	\$130.5

Glossary

Economic Contribution: The economic activity generated in a region by residents and non-resident recreation spending.

Expenditures: The spending by recreational visitors when visiting refuges. Expenditure categories include food, lodging, transportation, and other. Expenditure information is based on the 2011 National Survey of Fishing, Hunting and Wildlife Associated Recreation (NSFHWR).

Economic Output: The total spending by final consumers on all goods. The amount reported in this study is the change in spending by final consumers in the region attributable to refuge visitation. Economic output includes spending by people who earn income from refuge visitors' activities as well as spending by refuge visitors themselves.

Impact: The new economic activity generated in a region as a refuge attracts non-residents to the area. This figure represents economic activity that would be lost if the refuge were not there.

IMPLAN: An economic modeling software package that applies input-output analysis techniques to regional economies.

Jobs: Full and part time jobs.

Job Income: Income to households from labor including wages and salaries.

Resident/Non-Resident: People living more than 50 miles from the refuges are considered non-residents for this study.

Tax Revenue: Local, county and state taxes: sales tax, property tax, and income tax

Visitors: A visitor is someone who comes to the refuge and participates in one or more of the activities available at the refuge.

Visits (visitation): A visit is not the same as a visitor. One visitor could be responsible for several visits on a refuge. For example, if a family of four went fishing in the morning and hiked a short nature trail in the afternoon, they would have contributed 8 activity visits to the refuge; yet, they are only four visitors.

References

Minnesota IMPLAN Group, Inc. *IMPLAN System (2015 data and software)*.

U. S. Department of the Interior, U.S. Fish and Wildlife Service, Division of Federal Aid. 2013. *2011 National Survey of Fishing, Hunting, and Wildlife Associated Recreation (CD-ROM)*. Washington, D.C.

U.S. Department of the Interior, U.S. Fish and Wildlife Service, National Wildlife Refuge System. *Refuge Annual Performance Plan 2017*. Washington, D.C. Unpublished.

Varian, Hal R. 2010. *Intermediate Microeconomics: A Modern Approach*. 8th ed. New York: W.W. Norton & Company.