

# **The Economic Contributions of Recreational Visitation at D'Arbonne National Wildlife Refuge**

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This paper establishes the economic contribution baseline for recreational visitation at D'Arbonne 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, D'Arbonne 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**

D'Arbonne National Wildlife Refuge, located north of West Monroe, Louisiana, lies on the western edge of the Mississippi Alluvial Valley. It was established in 1975 to protect bottomland hardwood forest and provide wintering habitat for migratory waterfowl. Additionally, the Refuge provides habitat for alligators, bald eagles, the little known Rafinesque's big-eared bat, and the endangered red-cockaded woodpecker. The Refuge is bisected by 13 miles of Bayou D'Arbonne, a stream in the Louisiana Natural and Scenic Rivers System, and is crisscrossed by numerous creeks, sloughs and oxbow lakes. Cypress swamps, bottomland hardwood and upland forests complete the landscape that is habitat for a diverse group of plants and animals.

In years of normal or above rainfall, the Refuge's bottomland hardwood forest is a very important overflow area for the Ouachita River floodplain. High water levels, which usually occur between January and May, can flood up to 87 percent of the Refuge. The wetland forests not only provide habitat to wetland dependent wildlife, they also reduce damage from flooding in developed areas, filter silt and other particles from the water, help neutralize pollutants and provide recharge areas for aquifers.

## Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 35,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 15,000 visits with residents comprising 76 percent of Refuge visitation.

**Table 1. D'Arbonne NWR: 2017 Recreation Visits**

Activity	Residents	Non-Residents	Total
<b>Non-Consumptive:</b>			
Pedestrian	3,200	800	4,000
Auto Tour	100	100	200
Boat Trail/Launch	6,930	2,970	9,900
Bicycle	8	2	10
Photography	60	40	100
Interpretation	-	-	-
Other Recreation	280	120	400
Visitor Center	-	-	-
<b>Hunting:</b>			
Big Game	1,364	584	1,948
Small Game	462	116	578
Migratory Birds	1,354	578	1,932
<b>Fishing:</b>	12,800	3,200	16,000
<b>Total Visitation</b>	<b>26,558</b>	<b>8,510</b>	<b>35,068</b>

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

## Regional Economic Analysis

The economic area for the Refuge is the two-county area of Ouachita and Union Parishes in Louisiana. It is assumed that visitor expenditures occur primarily within these parishes. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$1.2 million with non-residents accounting for \$603,000 or 51 percent of total expenditures. Expenditures on non-consumptive activities accounted for 46 percent of all expenditures.

Spending in the local area generates and supports economic activity within the two parish area (Table 3). The contribution of recreational spending in local communities was associated with about 15 jobs, \$509,000 in employment income, \$134,000 in total tax revenue, and \$1.7 million in economic output.

**Table 2. D'Arbonne NWR: Visitor Recreation Expenditures (2017 \$,000)**

<b>Activity</b>	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
Non-Consumptive	\$152.0	\$397.4	\$549.4
Hunting	\$74.6	\$86.4	\$161.1
Fishing	\$364.4	\$119.6	\$484.0
<b>Total Expenditures</b>	<b>\$591.1</b>	<b>\$603.4</b>	<b>\$1,194.5</b>

**Table 3. D'Arbonne NWR: Local Economic Contributions Associated with Recreation Visits (2017 \$,000)**

	<b>Residents</b>	<b>Non-Residents</b>	<b>Total</b>
Economic Output	\$834.4	\$890.3	\$1,724.7
Jobs	8	8	15
Job Income	\$249.3	\$259.1	\$508.5
State and Local Tax Revenue	\$64.0	\$69.5	\$133.5

Note: Totals may not sum due to rounding.

## 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 eight activity visits to the refuge; yet, they are only four visitors.

## References

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