

The Economic Contributions of Recreational Visitation at Rice Lake National Wildlife Refuge

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Division of Economics
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This paper establishes the economic contribution baseline for recreational visitation at Rice Lake 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, Rice Lake 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

President Franklin D. Roosevelt established Rice Lake Migratory Waterfowl Refuge by Executive Order in 1935 “as a refuge and breeding ground for migratory birds and other wildlife.” Early development of the Refuge was accomplished using Civilian Conservation Corps labor (Camp BS-3, Company 2705) from 1939 - 1941. A Presidential proclamation changed the name of the Refuge to Rice Lake National Wildlife Refuge in 1940.

The 18,208 acre refuge is a mosaic of lakes, marshes, forests, and grasslands that provide a variety of habitats for migrant and resident wildlife. Abundant natural foods, particularly wild rice, have attracted Native Americans and wildlife to the area for centuries. Because conservationists were concerned about low duck populations during the Dust Bowl years of the 1930s, the Refuge was established to provide for and protect ducks on their southern migration.

The Refuge historically, and even during the drought years, had large populations of migrating waterfowl. The Refuge's 3,600 acre namesake lake remains a vital stopover point for migrating waterfowl, primarily ring-necked ducks. Due to the abundant wild rice found there, the Refuge holds the Minnesota state record for the largest single concentration of waterfowl. During a single survey in October 1994 more than 1 million waterfowl were observed, approximately 600,000 ring-necked ducks and 400,000 mallards. The record was nearly matched in October 2017 when more than 900,000 ring-necked ducks were observed on the lake.

Other important migrants include mallards, wood ducks, canvasback, Canada geese, and woodcock. White-tailed deer, black bear, river otter, beaver, sandhill cranes, bald eagles, ruffed and sharptail grouse inhabit the Refuge. Songbirds, raptors, and nearly all other species associated with the bogs and forests of northern Minnesota, including gray wolves and an occasional moose, are also found on the Refuge.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 26,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 23,000 visits with residents comprising 68 percent of Refuge visitation.

Table 1. Rice Lake NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	720	-	720
Auto Tour	12,467	5,343	17,810
Boat Trail/Launch	15	35	50
Bicycle	29	3	32
Photography	1,212	808	2,020
Interpretation	156	624	780
Other Recreation	228	57	285
Visitor Center	708	708	1,415
Hunting:			
Big Game	160	240	400
Small Game	330	110	440
Migratory Birds	19	19	38
Fishing:	1,720	430	2,150
Total Visitation	17,763	8,377	26,140

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is Aitkin County, Minnesota. It is assumed that visitor expenditures occur primarily within this county. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$283,000 with non-residents accounting for \$155,000 or 55 percent of total expenditures. Expenditures on non-consumptive activities accounted for 88 percent of all expenditures.

Spending in the local area generates and supports economic activity within Aitkin County (Table 3). The contribution of recreational spending in local communities was associated with about 3 jobs, \$83,000 in employment income, \$29,000 in total tax revenue, and \$283,000 in economic output.

Table 2. Rice Lake NWR: Visitor Recreation Expenditures (2017 \$,000)

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$112.2	\$136.7	\$248.9
Hunting	\$4.7	\$10.7	\$15.4
Fishing	\$11.7	\$7.4	\$19.1
Total Expenditures	\$128.6	\$154.7	\$283.3

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

	Residents	Non-Residents	Total
Economic Output	\$128.6	\$154.7	\$283.3
Jobs	2	2	3
Job Income	\$38.6	\$44.6	\$83.2
State and Local Tax Revenue	\$12.9	\$16.1	\$29.0

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

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*. 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.