

The Economic Contributions of Recreational Visitation at Necedah National Wildlife Refuge

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This paper establishes the economic contribution baseline for recreational visitation at Necedah 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, Necedah 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

Nestled in central Wisconsin is a landscape that was epitomized by early homesteaders as the Great Wisconsin Swamp. A mosaic habitat of sedge meadow, savanna, prairie, and pine-oak forest established in 1939, the 43,656-acre Necedah National Wildlife Refuge is home to ringed boghaunter dragonflies, whooping cranes, trumpeter swans, wolves, Karner blue butterflies, badgers, and red-headed woodpeckers.

The Refuge has one of the largest savanna restorations taking place in Wisconsin. These efforts have provided habitat for more than 110 species of migratory birds, three species of amphibians, 14 types of reptiles, and more than 44 species of butterflies in central Wisconsin. The restorations on the Refuge are invaluable to the continued survival of many of these species such as the state species of concern Blanding’s turtle; federally endangered Karner blue butterfly and whooping crane; red-headed woodpecker, golden-winged warbler, and bobolink.

The primary purposes of the Refuge are to provide resting, nesting, feeding and wintering habitat for waterfowl and other migratory birds; protect and restore the Karner blue butterfly and red-headed woodpecker; protect endangered and threatened species and their habitats; provide for biodiversity; restore rare oak savanna habitat and provide public opportunities for outdoor recreation and environmental education. Over 170,000 visitors come to the Refuge each year and experience our 6 trails, auto-tour route, fishing, boating, hunting and general outdoor appreciation and enjoyment.

Activity Levels

Table 1 shows the recreation visits for the Refuge. The Refuge had about 178,000 recreational visits in 2017 which contributed to the economic effect of the Refuge. Non-consumptive recreation accounted for about 171,000 visits with residents comprising 31 percent of Refuge visitation.

Table 1. Necedah NWR: 2017 Recreation Visits

Activity	Residents	Non-Residents	Total
Non-Consumptive:			
Pedestrian	5,245	20,978	26,223
Auto Tour	14,400	57,600	72,000
Boat Trail/Launch	425	47	472
Bicycle	96	24	120
Photography	6,905	6,905	13,809
Interpretation	2,881	11,526	14,407
Other Recreation	15,555	15,555	31,110
Visitor Center	5,341	8,011	13,352
Hunting:			
Big Game	704	1,644	2,348
Small Game	1,670	716	2,386
Migratory Birds	883	288	1,171
Fishing:	622	155	777
Total Visitation	54,726	123,449	178,175

Source: Refuge Annual Performance Plan 2017 and Refuge Staff

Regional Economic Analysis

The economic area for the Refuge is Juneau County, Wisconsin. It is assumed that visitor expenditures occur primarily within this county. Visitor recreation expenditures for 2017 are shown in Table 2. Total expenditures were \$4.8 million with non-residents accounting for \$4.1 million or 85 percent of total expenditures. Expenditures on non-consumptive activities accounted for 91 percent of all expenditures.

Spending in the local area generates and supports economic activity within the Juneau County (Table 3). The contribution of recreational spending in local communities was associated with about 64 jobs, \$1.8 million in employment income, \$432,000 in total tax revenue, and \$5.7 million in economic output.

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

Activity	Residents	Non-Residents	Total
Non-Consumptive	\$658.8	\$4,001.7	\$4,660.6
Hunting	\$44.4	\$101.6	\$146.0
Fishing	\$8.5	\$5.3	\$13.8
Total Expenditures	\$711.7	\$4,108.7	\$4,820.4

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

	Residents	Non-Residents	Total
Economic Output	\$862.3	\$4,841.6	\$5,704.0
Jobs	10	54	64
Job Income	\$264.3	\$1,500.8	\$1,765.1
State and Local Tax Revenue	\$62.4	\$369.9	\$432.3

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.