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**The Regional Economic Contribution
of Federal Spending for
National Wildlife Refuges**

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Executive Summary

The National Wildlife Refuge System consists of more than 500 refuges in all 50 states and some of the territories. From tropical wetlands to arctic mountains, refuges preserve myriad habitats for thousands of species. As you visit a refuge, your first thought will not be that the refuge itself is a small business. But look about you. The wildlife biologists, the maintenance workers, and environmental educators you meet are really employed in a local business. They shop in the local supermarket and pay mortgages to the local bank. A local construction company probably built the visitors center you are passing through. Functionally, there is very little difference between the economic activity generated by a Refuge and that generated by a business. This study considers Refuges as businesses and assesses the impact of refuge funding on local economies.

Refuges differ from local merchants in that their revenues come from federal taxes rather than selling a product to the local populace. This brings "new" revenue into the region as an exporter would. Export industries are highly desired by regional economic development agencies because they stimulate the local economy more than purely local industries.

This report focuses on refuge annual operations and maintenance spending, construction spending, and payments to local governments. An introduction explains this study's place in an ongoing assessment of the economic effects of the National Wildlife Refuge System (NWRS), and outlines the economic methods used in this study. The next section contains 58 case studies of the sample refuges examined in *Banking on Nature*, a 2006 study of refuge visitation. The sample refuges highlight different issues and make the general discussion in the introduction concrete and quantitative. The third section applies similar methods at the state and national level to estimate the impact of federal spending for refuges on the nation as a whole.

Some observations from the report:

- Federal spending for refuge operations, construction, and revenue sharing is about \$XXX million per year (2009 dollars, based on FY2009 results). As this spending flowed through the national economy, it accounted for \$YYY million of output, XXX jobs, and \$YYY million in employee compensation outside the refuge boundary.

- The National Wildlife Refuge System spent \$XXX million on refuge operations in FY2009. About \$YYY million, ZZ percent, was for employee salaries and benefits. Alaska, with 87 percent of NWRS managed lands, received the largest share, \$XXX million, which generated YYY new jobs. California received the most among the 48 contiguous states, \$XXX million, which generated YYY new jobs. (California imports fewer goods than Alaska so spending recirculates in the state longer generating more jobs per dollar spent.)
- Although the federal government does not pay local taxes, it shares revenues with localities hosting federal lands. The Refuge Revenue Sharing program (RRS) contributed \$19.8 million to local coffers in 2009. The Bureau of Land Management's Payment in lieu of Taxes program contributed \$12.7 million attributable to NWRS managed lands (\$9.0 million of it in Alaska). Florida received the largest RRS amount among the lower 48 states, \$1.6 million. This contribution generated \$85.2 million in output and 811 jobs, mostly in the state and local government sector.

As an example of typical major construction spending, the study analyzed the FY2009 appropriations for projects. The act allocates \$11 million for construction of headquarters, laboratories, dams, roads, bridges, and trails. Refuge related projects were funded in 8 states. This construction generated \$33.1 million in new output and 208 new jobs.

The review of federal spending for the 58 sample refuges reflects the impact at the local level. Chincoteague NWR, for example, is a significant business in its community with 23 year-round employees and a \$1.1 million budget. Each refuge has a place in the local community.

Table ES-1. National Impacts of National Wildlife Refuge Spending, FY2009
(million \$ 2009, except jobs)

	Spending	Direct Output	Total Output	Multiplier	Total Jobs
Refuge Operations					
Revenue Sharing	32.5	33.5	85.2	2.62	811.4
Construction	11.0	11.0	33.1	3.01	208.2

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Introduction

The National Wildlife Refuge System provides wildlife with habitat and provides visitors with opportunities to enjoy a variety of wildlife dependent recreation and education activities. Where it complements wildlife management efforts, refuges may also permit farming, haying, timber removal, and other operations that generate an economic return. As you visit a refuge, your first thought will not be that the refuge itself is a small business. But look about you and you will realize that someone has to pay the wildlife biologists, the maintenance workers, and environmental educators you meet. Money from somewhere built the visitors center you are passing through. Refuge workers are like anyone else employed in a local business. They shop in the local supermarket and pay mortgages to the local bank. Functionally, there is very little difference between the economic activity generated by a Refuge and that generated by a business with the same number of employees. This study considers Refuges as businesses and assesses the impact of refuge funding on local economies.

Federal spending for National Wildlife Refuge operations exceeded \$XXX million in FY2009. Almost all of this was spent in communities with refuges -- paying payrolls and buying goods from local merchants. Circulating through the national economy this spending adds up to a significant contribution to economic activity. Refuge spending is a shot in the arm for many small communities' economy. This study analyzes refuge operating and maintenance budgets, construction spending, and payments to local governments at the refuge level for 58 sample refuges, at the state level for all 50 states, and at the national level.

This introduction outlines the economic concepts and methods used in this study. The next section of this report contains case studies of many of the sample refuges examined in *Banking on Nature*, a 2006 study of refuge visitation. The sample refuges highlight different issues and make the general discussion in the introduction concrete and quantitative. The following section applies similar methods at the state and national level to estimate the overall impact of federal spending for refuges on local areas across the nation.

Bigger Picture

What does a National Wildlife Refuge mean to the economy of its region? How does preserving and enhancing wildlife habitat affect what people do, how they recreate, and where they live? It is important to show how refuges fit into the community from every angle. The Division of Economics and Division of Refuges of the United States Fish and Wildlife Service are answering these questions through a series of studies about refuges and their role in the economy.

The first study, *Banking on Nature: The Economic Benefits to Local Communities of National Wildlife Refuge Visitation* (first issued in July 1997 and last revised in 2006), examined the recreational use of sample refuges and estimated the impact of this visitation on the local economy. Though the economic impact is small on a national scale, the study found the effects can be critical for local businesses.

This study focuses on Federal spending and revenue sharing programs that introduce new money into local economies. Imported resources can be a powerful stimulus, analogous to a new business in town. This study considers the operations of National Wildlife Refuges as a local industry and estimates the impacts on the regional economy.

A third aspect of refuge economics is the effect of permanently open land on the value of nearby land. Studies now underway will estimate the influence that refuge proximity has on the value of land and houses in the vicinity.

Finally, a parallel study will consider the ecological services of Refuges. Preserving habitat for endangered species, providing wintering and nesting ground for migratory birds, maintaining wetlands, and many other aspects of refuge management contribute to society in myriad ways. Wetlands can slow runoff, preventing flood damage; migratory birds can be hunted; and many people would find the earth a sadder place without the wildlife preserved on Refuges. The fourth study will place these abstract values in perspective.

Refuges as Export Industry

From Guam to Maine, from the Yukon Delta to the Virgin Islands, the National Wildlife Refuge System encompasses more than 500 refuges and 38 wetland management districts with a plethora of wildlife and habitats. About 350 refuges are staffed. Each staffed refuge is a small business. It provides a payroll, buys equipment and supplies in the area, and contributes to the costs of local government. Its employees are active members of their community and patrons of local stores.

Refuges differ from local merchants in that their revenues come from federal taxes rather than selling a product to the local populace. This brings "new" revenue into the region as an exporter would. An export business creates a product from inputs in the local area and then sells the product to someone outside of the region at a profit. The product leaves the region and money flows into the region. The export producer can then spend the money to buy more inputs and build more products. Because the money is from outside the region, it stimulates spending that would not have taken place in the region otherwise. Export industries are highly desired by regional economic development agencies because of this stimulating effect. Although nothing may physically leave the refuge, refuges are an export industry.

An example, from *Banking on Nature* helps explain why export industries are so important to regional economies. Imagine a town consisting of one store and one citizen, an employee of the store. All of the store's expenses involve buying stock from an out-of-town wholesaler and paying the lone employee. When the employee is paid he buys his groceries at the store. Part of the purchase price goes to buy more stock, and the rest goes to the employee's next paycheck. For the employee ever to get back more than he spent someone from out of town must buy something at the store. The real workings of a modern, interconnected regional economy are far more complex, but the concept still holds that the regional economy can't grow without importing some income from outside the region. Federal spending for refuges acts as new income for the community.

There are three avenues for federal funds to flow to local economies. The most obvious is the annual spending to maintain and operate the refuge. About \$XXX million was spent in FY2009 on refuge operations. YYY percent of these expenditures are wages to refuge workers. The second avenue is federal revenue sharing with local governments. The income received from use of refuge resources is collected in a fund, supplemented by a Congressional appropriation, and distributed to communities which contain Service lands owned in fee title. In FY2009, more than \$19.8 million was distributed by the refuge revenue sharing program. The Payment in lieu of Taxes program (PILT), operated by the Bureau of Land Management, paid out about \$12.7 million attributable to service lands reserved from the public domain. The third avenue is construction. Almost anything built on a refuge is built by local contractors or refuge workers. Congress appropriated \$11 million for specific projects at various refuges around the country in the FY2009 Department of the Interior appropriation act. This report develops estimates of the impact of each avenue for each of the sample refuges and all 50 states.

How we estimate the contribution of the refuge as a business

This study considers the operation and maintenance spending, construction spending, and contributions to local governments that result from Federal operation of a refuge as a local export industry. The methods we used are often applied to assess the impact of opening a new factory in a region. Refuges are usually well-established in their communities and unlikely to change. We use the methods to show the interconnections from the Refuge to the community. Assessing the impacts of initiating new operations depends on evaluating the current use of the related resources. Contribution analyses, like this report, ignore the current use of resources to show how one establishment interacts with others. The methods for the state level analysis parallel those for the individual refuges.

Spending for operations and maintenance, construction, and municipal revenue sharing each flow through the local economy in a unique way so each is treated separately. Construction money goes to construction industries that have typical spending patterns that depend on whether they are building homes, visitor centers, roads, or dikes. Revenue sharing money is largely spent on payrolls for teachers and municipal employees. In general, the method for each type is to estimate spending, apply that spending to appropriate industries in an economic model of the local economy, and interpret the results.

The economic model used for all three spending types is input-output analysis. Input-output analysis is based on surveys of industry spending patterns. The surveys show for each type of industry how much is bought from other industries. The results are made into a matrix which shows where each industry is buying inputs and where its outputs are being used, hence the name input-output analysis. This matrix shows all of the interconnections among industries in the economy. By manipulating the matrix, economists can estimate how money spent in one industry will ultimately flow through the whole economy. Different industries have different spending patterns so each flows a little differently. The more precisely refined the model the closer the spending pattern is likely to fit the particular industry. IMPLAN, the input-output software used for this study, contains information on 528 industries. For this study, spending in each of the three refuge categories was assigned to appropriate industries in IMPLAN to estimate the effect of that spending on the local economy. The IMPLAN input-output model is based on local industry data for 2008.

Three results are reported from IMPLAN - output, employee compensation, and employment.

- Output represents the production of local industries as a result of the refuge. It differs from "Sales" in that everything sold may not have been produced in the region. Consider a grocery store selling canned lima beans. Of the 89 cents you pay, probably 10 cents goes to the farmer, 30 cents to the canner, and 40 cents to the distributor. All of whom are outside of the region. Only the 9 cents worth of services provided by the grocer in stocking the shelves and providing a place for you to buy the product is an output of the region. IMPLAN software contains information to estimate these sales margins and assign them to the region or elsewhere. This is why direct output presented in the tables in this report is often considerably less than the estimated expenditures.

- Employee compensation shows the amount employers pay to employees. This is over and above Fish and Wildlife Service payrolls which are not included in these results. The IMPLAN results tables for refuge expenditures show the effects of Service spending, not the spending itself. If a refuge were to close, for example, the region would lose the refuge payroll and spending PLUS the output and employment indicated on the IMPLAN tables. Construction spending is equal to the direct effect because it is all paid directly to local contractors.
- Employment counts the number of jobs created as spending flows through the economy. Full time and part time employment are both included in the jobs figure.

Refuge Operations and Maintenance Expenditures

Refuge expenditures were taken from the Fish and Wildlife Service, National Wildlife Refuge System Budget Office reports at the close of fiscal year 2009 (1 October 2008 – 30 September 2009). All obligations from all of the accounts assigned to the refuge unit were summed by budget object code (BOC). These accounts include operations, maintenance, wildlife enforcement, migratory bird management, wetlands conservation, and firefighting. Object codes, BOCs, identify what the spending was for and therefore what industry was involved. Typical object categories are salaries, equipment, office supplies, and motor vehicle fuel. Some categories are not included in the IMPLAN model inputs.

Non-local expenditures are broken out in the Service object coding into two categories: employee benefits and airline travel. Employee benefits are the usual items deducted from anyone's paycheck or paid for by an employer. They include things like health insurance, life insurance, and retirement contributions. Although they may eventually result in spending in the area, as when the employee gets sick, they are not part of the employees' disposable income and so do not flow into the local economy in a timely or predictable fashion. The employee may well live somewhere else by the time life insurance or retirement savings are expended. Airline travel expenses are largely paid to airline companies and distant hotels and so do not result in local spending.

Two categories of non-expense items which appear in the accounts also need to be removed, real property and grants. Real property spending includes acquisition of land and property improvements. Acquisition of real property is a change in asset form rather than an expenditure so it does not stimulate the local economy. Some improvements to refuge quarters and other structures are accounted for as changes in the value of real property; however, characterizing these items by industry is problematic so they are also excluded from refuge expenditures. Grants often involve research on the refuge, so it could be argued that they result in local expenditures. However, refuges are not in the grant-making business so grants are frequently one-shot research projects. To include them in refuge expenditures would distort the refuges' contribution in unpredictable ways.

[State-level spending here]

Refuge Revenue Sharing and Payments in Lieu of Taxes

Two programs distribute revenue to local governments hosting National Wildlife Refuges. The Refuge Revenue Sharing program (RRS) is funded by money earning operations on Refuges, such as gas wells, haying, or timber harvesting, and Congressional appropriations. The Payment in Lieu of Taxes program (PILT) applies to Federal lands managed by several different agencies that are not subject to local property taxes. It is funded by an appropriation and operated by the Department of the Interior, .

The Refuge Revenue Sharing Act (16 U.S.C. 715s) seeks to reimburse "those units of local government which have incurred the loss or reduction of real property tax revenues by reason of the existence of" Fish and Wildlife Service units. The formula for the reimbursement amount is based on the number of acres of Service land in the local government unit. In most instances, the local government unit is the county but it may be a school district, parish, township, or borough. The Act distinguishes two types of land owned by the Fish and Wildlife Service. "Fee area" is "any area which was acquired in fee by the United States and is administered, either solely or primarily," by the Secretary of the Interior through the Fish and Wildlife Service. "Reserve area" is "any area of land withdrawn from the public domain and administered, either solely or primarily," by the Secretary of the Interior through the Fish and Wildlife Service. In the west, particularly Alaska, much of the land in refuges was set aside from existing federal lands and so is reserve land. Different payment programs apply to fee and reserve lands. Table 0-1 shows Fish and Wildlife Service landholdings by state.

Table 0-1. Federal Lands Managed by the Fish and Wildlife Service by State.

State	Acreage		Total Area	Percent
	Reserved	Fee		
Alabama	0	32,207	32,207	0.04
Alaska	76,241,588	383,257	76,624,845	86.24
Arizona	1,553,465	129,764	1,683,228	1.89
Arkansas	8,882	364,129	373,011	0.42
California	81,617	203,692	285,309	0.32
Colorado	17,781	123,354	141,135	0.16
Connecticut	0	918	918	0.00
Delaware	0	25,100	25,100	0.03
Florida	4,854	273,498	278,351	0.31
Georgia	0	481,309	481,309	0.54
Hawaii	254,418	44,178	298,596	0.34
Idaho	24,113	24,394	48,507	0.05
Illinois	65	87,357	87,422	0.10
Indiana	0	14,665	14,665	0.02
Iowa	334	69,580	69,914	0.08
Kansas	0	29,509	29,509	0.03
Kentucky	0	10,709	10,709	0.01
Louisiana	10,463	552,639	563,101	0.63
Maine	0	65,953	65,953	0.07
Maryland	0	45,737	45,737	0.05
Massachusetts	0	21,783	21,783	0.02
Michigan	3,000	112,218	115,217	0.13
Minnesota	288	478,487	478,775	0.54
Mississippi	40	211,124	211,164	0.24
Missouri	0	59,960	59,960	0.07
Montana	433,135	200,609	633,744	0.71
Nebraska	15,787	157,507	173,294	0.20
Nevada	2,245,620	89,831	2,335,451	2.63
New Hampshire	0	22,676	22,676	0.03
New Jersey	0	70,262	70,262	0.08
New Mexico	15,766	311,037	326,803	0.37
New York	0	27,837	27,837	0.03
North Carolina	0	418,574	418,574	0.47
North Dakota	18,538	464,765	483,303	0.54
Ohio	77	8,558	8,636	0.01
Oklahoma	77,966	28,628	106,594	0.12
Oregon	267,563	298,955	566,517	0.64
Pennsylvania	0	9,962	9,962	0.01
Rhode Island	0	2,369	2,369	0.00
South Carolina	0	125,672	125,672	0.14
South Dakota	1,849	202,831	204,680	0.23
Tennessee	0	52,037	52,037	0.06
Texas	0	525,228	525,228	0.59
Utah	65,781	41,680	107,460	0.12
Vermont	0	33,486	33,486	0.04
Virginia	0	129,135	129,135	0.15
Washington	40,486	108,214	148,700	0.17
West Virginia	0	18,989	18,989	0.02
Wisconsin	1,077	198,693	199,769	0.22
Wyoming	23,202	47,473	70,674	0.08
Total	81,407,753	7,440,525	88,848,277	100.00

source: USFWS, Division of Realty, 2009, (Does not include leased land or easements.)

For fee lands, the county RRS amount is the greatest of four alternative amounts:

- \$0.75 per acre
- 0.75 percent of the fair market value,
- 25 percent of net receipts,
- the RRS amount paid in fiscal year 1977.

For reserve lands, the county RRS amount is 25 percent of net receipts derived from activities on the land. Counties with reserve lands also receive a PILT payment. Fee lands are not eligible for PILT payments. The Fish and Wildlife Service maintains ownership type and value information for every unit of Service land. Each year refuge managers report net receipts from each parcel. Appraisals are updated at least every five years by Service appraisers. All four amounts are calculated for each parcel and the highest becomes the amount due to the county.

Fair market value as defined by Federal appraisal guidelines may differ from the local assessment for tax purposes. There is no strict relationship between the amount due under RRS and the real estate taxes the county would have assessed on the land were it not in Federal hands. As a result some areas receive more from RRS than they would have if the land had been taxed and others receive less. The more closely the local tax code matches the Federal appraisal and payment rates, the more closely will payments match tax revenue. So called "overpayments" and "underpayments" from RRS represent divergence of local practice from the standardized Federal practice.

RRS payments come from the National Wildlife Refuge Fund which receives the net receipts from revenue producing activities, other than recreation fees, at National Wildlife Refuges and other areas administered by the Service. Specific sources of revenue include the sale of animals, timber, hay, minerals, sand, gravel, and leases for public facilities. Expenses incurred in connection with the revenue-producing activity are deducted from the fund. The Fund is permanently appropriated to the extent of the receipts. In other words, Congress does not need to act each year for the Service to disburse funds to the counties. Quite often the revenue to the fund from refuge operations falls short of the calculated amount due to the counties under the RRS formula. A 1978 amendment to the Refuge Revenue Sharing Act permitted Congress to appropriate money from general tax income to the fund to make up the shortfall. It has been Service policy to make prorated payments to the local governments when the fund falls short. Even with an additional annual appropriation the fund has made payments from 6 percent to 77 percent short of the calculated amount every year since 1982.

Table 0-3 shows the RRS payments for the 58 sample refuges. Most refuge fee land is appraised at more than \$100 per acre ($\$100 \times 0.75 \text{ percent} = \0.75) and earns relatively little revenue, so for most of the sample refuges, the greatest of the four calculations is from the 0.75 percent of appraised value calculation. This observation extends to most refuges outside the sample.

In FY2008 the total amount due to all local governments was \$60,448,019. In FY2008, net receipts were \$5,689,953. In addition Congress appropriated \$14,085,535 for the National Wildlife Refuge Fund. So the sum available for distribution was only \$19,775,488 or 32.77 percent of the calculated amount. The RRS payment to the county in FY1977 is the absolute minimum payment the county can receive. At Eastern Neck NWR and Quivira NWR in FY2008, the 0.75 percent of appraised value generated the highest payment but when the high value is prorated by 32.77 percent because of lack of funds, the amount of the payment falls below the FY1977 value. In this situation, the FY1977 amount is paid to the county.

Table 0-3. Calculation of Refuge Revenue Sharing Payment for Sample Refuges, FY2008

	RESERVE ACRES	FEE ACRES	APRAISED VALUE	FY77 PAYMENT	.75 %OF APP. VALUE	75 CENTS PER FEE ACRE	25% NET FEE RECEIPTS	25%NET RESERVE RECEIPTS	Amount due if available for FY2008	Actual Amount Paid for FY2008
RIDGEFIELD NWR	-	5,216	13,860,000	16,050	103,950	3,912	-	-	103,950	33,597
MALHEUR NWR	57,898	129,198	25,700,000	75,842	192,750	96,899	-	-	192,750	75,842
DEER FLAT NWR	453	290	2,847,494	619	21,356	218	-	274	21,630	6,990
SANTA ANA NWR	-	2,087	1,356,500	3,551	10,174	1,565	43	-	10,174	3,551
BALCONES CANYONLANDS	-	19,403	30,984,809	-	232,386	14,552	-	-	232,386	75,109
BUFFALO LAKE NWR	-	7,664	2,452,000	5,288	18,390	5,748	1,687	-	18,390	5,944
TISHOMINGO NFH	-	231	173,200	-	1,299	173	-	-	1,299	420
WASHITA NWR	-	14	12,000	-	90	11	-	-	90	29
BITTER LAKE NWR	12,396	12,213	1,930,000	2,338	14,475	9,160	745	-	14,475	4,678
CIBOLA NWR	8,372	4,363	7,000,000	-	52,500	3,272	-	-	52,500	16,968
BILL WILLIAMS NWR	2,781	1,574	2,439,000	-	18,293	1,181	13	-	18,293	5,912
KOFA ADM SITE	-	1	206,000	-	1,545	1	-	-	1,545	499
KOFA NWR	665,400	1,161	265,500	-	1,991	871	-	218	2,209	714
MAXWELL NWR	-	2,792	3,070,000	4,074	23,025	2,094	-	-	23,025	7,442
SHIAWASSEE NWR	-	9,086	11,710,900	21,889	87,832	6,815	-	-	87,832	28,386
MUSCATATUCK NWR	-	7,802	14,056,000	44,744	105,420	5,852	146	-	105,420	45,047
OTTAWA NWR	-	5,973	18,436,000	41,985	138,270	4,480	1,327	-	138,270	46,568
SHERBURNE NWR	-	29,678	37,993,000	47,203	284,948	22,259	8,941	-	284,948	97,364
TAMARAC NWR	40	35,151	33,130,000	22,925	248,475	26,363	-	-	248,475	80,308
ST. CROIX COUNTY WPA	-	5,621	36,649,000	4,856	274,868	4,216	2,065	-	274,868	88,839
TREMPEALEAU NWR	-	6,199	7,295,000	1,105	54,713	4,649	-	-	54,713	17,683
MINNESOTA VALLEY NWR	-	9,224	60,861,000	551	456,458	6,918	14	-	456,458	147,528
DESOTO NWR	-	4,919	7,446,000	18,327	55,845	3,689	-	-	55,845	20,563
NEAL SMITH NWR	-	5,388	11,114,182	-	83,356	4,041	10,758	-	83,356	26,941
ST. MARKS NWR	93	68,659	57,380,382	11,984	430,353	51,494	148	-	430,353	139,091
WACCAMAW NWR	-	10,641	24,895,300	-	186,715	7,981	-	-	186,715	60,346

	RESERVE ACRES	FEE ACRES	APRAISED VALUE	FY77 PAYMENT	.75 %OF APP. VALUE	75 CENTS PER FEE ACRE	25% NET FEE RECEIPTS	25%NET RESERVE RECEIPTS	Amount due if available for FY2008	Actual Amount Paid for FY2008
CROSS CREEKS NWR	-	6,419	4,800,000	12,339	36,000	4,814	-	-	36,000	12,339
POCOSIN LAKES NWR	-	110,107	23,380,399	-	175,353	82,580	-	-	175,353	56,674
NOXUBEE NWR	40	47,112	111,645,668	31,585	837,343	35,334	74,399	6,856	844,199	272,847
WHEELER NWR	-	8,756	22,579,350	40,264	169,345	6,567	-	-	169,345	59,621
WHITE RIVER NWR	6	158,511	154,883,500	40,429	1,161,626	118,883	3,726	-	1,161,626	375,440
TENSAS RIVER NWR	-	74,427	117,511,259	-	881,334	55,820	228,539	-	881,334	284,849
BOMBAY HOOK NWR	-	15,978	16,280,000	21,286	122,100	11,984	117	-	122,100	39,463
CHINCOTEAGUE NWR	-	13,433	42,300,000	7,773	317,250	10,075	220	-	317,250	102,820
EASTERN NECK NWR	-	2,284	8,701,000	28,434	65,258	1,713	61	-	65,258	28,434
PATUXENT RES REFUGE	-	12,841	88,688,195	10,385	665,161	9,631	21	-	665,161	214,982
EASTERN SHORE OF VA	-	1,415	11,693,130	-	87,698	1,061	-	-	87,698	28,344
EDWIN B. FORSYTHE NWR	-	43,364	53,097,276	52,074	398,230	32,523	43	-	398,230	136,809
JOHN HEINZ NWR	-	995	12,925,207	3,440	96,939	746	-	-	96,939	32,110
STEWART B MCKINNEY	-	928	51,182,950	1,687	383,872	696	-	-	383,872	124,069
PARKER RIVER NWR	-	4,652	59,434,659	3,731	445,760	3,489	-	-	445,760	144,070
BENTON LAKE NWR	12,235	148	44,300	119	332	111	45	620	952	320
C.M. RUSSELL NWR	358,198	22,411	4,263,700	-	31,978	16,808	-	44,314	76,292	24,657
QUIVIRA NWR	-	22,019	9,906,000	33,957	74,295	16,514	-	-	74,295	33,957
BROWNS PARK NWR	6,794	5,356	4,750,000	8,502	35,625	4,017	-	-	35,625	11,514
ALASKA MARITIME NWR	872,830	6,208	3,642,000	-	27,315	4,656	-	380	27,695	8,952
KENAI NWR	1,904,472	7,950	7,975,000	-	59,813	5,963	-	-	59,813	19,332
KODIAK NWR	1,656,169	173,780	106,615,329	-	799,615	130,335	128	9,414	809,029	261,480
TETLIN NWR	700,000	5	12,500	-	94	4	-	-	94	30
KERN NWR	-	11,249	2,915,000	7,329	21,863	8,437	1,668	-	21,863	7,329
MODOC NWR	40	6,981	5,800,000	14,784	43,500	5,236	19,051	-	43,500	14,784
STONE LAKES NWR	-	1,747	11,800,000	-	88,500	1,310	-	-	88,500	28,603

Source: USFWS, Division of Realty

The Payment in Lieu of Taxes program (PILT) is designed to supplement other federal land receipt sharing programs, such as RRS. PILT payments are reduced by the receipts from such other programs subject to a floor and ceilings. PILT payments are made to units of "general local government" containing certain classes of federal land. Like RRS, recipients are most often counties but may be townships, boroughs, or independent cities.

The PILT program applies to all of the lands in the National Park System, the National Forests, and Bureau of Land Management but only to Fish and Wildlife Service lands withdrawn from the public domain. Bureau of Reclamation, some Army Corps of Engineers, semi-active Army installations, and a few other specified lands are also subject to PILT payments. Over 610 million acres were included in the FY2008 PILT program, more than a quarter of the area of the 48 contiguous states or about twice the size of Texas and California put together. Alaska accounted for the largest area, 229.5 million acres. The Fish and Wildlife Service was the third largest land manager in the program with 85.2 million acres, 14 percent. Almost all of this land, 80.3 million acres, was in the Alaskan refuges. The Fish and Wildlife Service share of state PILT payments shown in Table 0-4 was calculated as proportional to the share of acreage Service PILT lands were to total PILT lands within each state without regard to PILT ceilings or offsets.

Refuge Revenue Sharing generates more for local areas hosting refuges than PILT. The map in Figure 1 shows the distribution of RRS payments among the states. The distribution is affected not only by refuge acreage but also by revenue earned on refuge lands. Louisiana, for example, has many refuges established to preserve its unique wetlands that also produce oil and gas. Almost all of the other RRS payments are based on the 0.75 percent of value calculation. States with high land values received the largest RRS payments; Florida received more RRS than any other state in FY2008, \$1.6 million, while California was second with \$1.1 million.

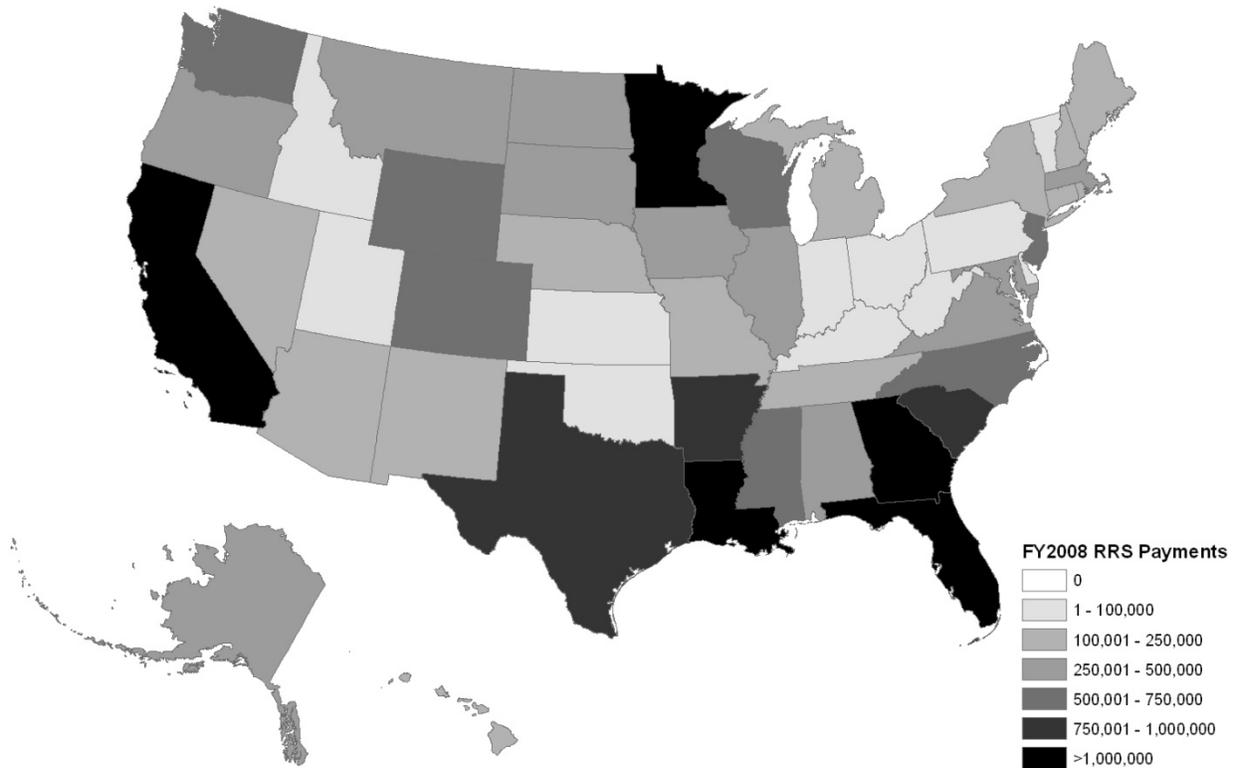
Table 0-4. Federal Contributions to Local Governments Attributable to Fish and Wildlife Service Lands, FY2008.

(2009 Dollars)

	Refuge Revenue Sharing	FWS Share of PILT	Total Payments for FWS Lands
Alabama	497,223	---	497,223
Alaska	359,625	8,978,300	9,337,925
Arizona	150,983	1,776,788	1,927,771
Arkansas	918,852	10,641	929,493
California	1,130,009	66,707	1,196,716
Colorado	605,294	20,087	625,381
Connecticut	126,832	---	126,832
Delaware	86,313	---	86,313
Florida	1,642,527	8,700	1,651,227
Georgia	1,055,030	---	1,055,030
Guam	72,720	---	72,720
Hawaii	116,914	4,565	121,479
Idaho	53,224	15,042	68,266
Illinois	318,827	142	318,969
Indiana	59,977	---	59,977
Iowa	268,414	780	269,194
Kansas	57,427	---	57,427
Kentucky	30,586	---	30,586
Louisiana	1,002,589	7,379	1,009,968
Maine	163,811	---	163,811
Maryland	300,930	---	300,930
Massachusetts	342,623	---	342,623
Michigan	176,360	6,005	182,365
Minnesota	1,097,020	273	1,097,293
Mississippi	739,323	36	739,359
Missouri	150,313	---	150,313
Montana	394,799	440,693	835,492
Nebraska	202,786	33,879	236,665
Nevada	109,126	921,630	1,030,756
New Hampshire	111,108	---	111,108
New Jersey	582,527	---	582,527
New Mexico	130,596	25,934	156,530
New York	243,260	---	243,260
North Carolina	585,842	---	585,842
North Dakota	462,828	15,002	477,830
Ohio	66,220	156	66,376
Oklahoma	86,559	132,769	219,328
Oregon	307,638	126,291	433,929

	Refuge Revenue Sharing	FWS Share of PILT	Total Payments for FWS Lands
Pennsylvania	50,721	---	50,721
Puerto Rico	411,507	1,316	412,823
Rhode Island	113,691	---	113,691
South Carolina	759,694	---	759,694
South Dakota	367,590	2,858	370,448
Tennessee	146,609	---	146,609
Texas	809,521	---	809,521
Utah	31,880	61,654	93,534
Vermont	24,331	---	24,331
Virgin Islands	19,294	122	19,416
Virginia	470,771	---	470,771
Washington	563,123	20,925	584,048
West Virginia	84,725	---	84,725
Wisconsin	565,444	1,042	566,486
Wyoming	564,017	14,933	578,950
Total	19,789,953	12,694,650	32,484,603

Figure 1. Refuge Revenue Sharing Payments in States, FY2008
(Paid in FY2009, Dollars)



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Refuge Construction

Refuges undertake construction projects like other businesses. Construction project spending is concentrated over a limited period of time and does not recur at the same level every year. Construction spending gives a sharp kick to the local economy. Fish and Wildlife Service construction budgets are set by Congress on a project by project basis. With each budget submission, the Service includes a list of proposed construction projects for the coming fiscal year and an estimate of each project's costs. The Congressional appropriations committees consider the list and add, delete, or modify the projects included to arrive at an appropriation amount. The revised list becomes part of the committee report on the bill. Table 0-5 shows all \$11 million of the national wildlife refuge construction appropriations for FY2009.

Table 0-5. National Wildlife Refuge Construction Appropriations, FY2009.

Region	Name	State	Project	Appropriated
1	Kealia Pond NWR	HI	Office and Visitor Center	750,000
1	Nisqually NWR	WA		750,000
4	Cahaba River NWR	AL	Visitor Center	300,000
4	Tennessee NWR	TN	Office and Visitor Center	800,000
4	Theodore Roosevelt NWR	MS	Visitor Center	600,000
5	Ohio River Islands NWR	WV	River island erosion mitigation	800,000
5	Patuxent Research Refuge	MD	Major safety reconstruction	3,000,000
	Don Edwards San Francisco		Salt pond and levee	
8	Bay NWR	CA	maintenance	4,000,000

Source: FWS, Division of Engineering

No year is typical, or generalizable at the refuge or state level. Broad averages are meaningless for this type of episodic expenditure. It is nearly impossible to predict future project funding and not very instructive to overanalyze past experience. A different approach is needed. In this study, recent construction activities will be mentioned for the relevant sample refuges. The impacts of these projects will be analyzed specifically with the input/output model.

As no period of activity is truly typical, we will use the FY2009 appropriation act as an example and analyze the impacts on the states included in the bill. Projects are spread over 11 states from Hawaii to Maryland so there is an informative cross-section of results. The state results should be considered one example, rather than a national average.

American Recovery and Reinvestment Act of 2009 (ARRA)

The American Recovery and Reinvestment Act of 2009 (ARRA) was enacted in February, 2009. It makes more than \$275 billion available for federal contracts, grants, and loans targeted at infrastructure repair and enhancement. The Fish and Wildlife Service is using its share of the added resources to reduce the backlog of necessary capital repair and improvement projects at National Wildlife Refuges and National Fish Hatcheries.

This report focuses on FY2009 which covered October, 2008, through September, 2009. Although the fiscal year was well under way when the act was passed, the Service spent more than \$6 million of ARRA funds in FY2009. The largest ARRA project of FY2009 was a new headquarters/visitor center at Audobon NWR in North Dakota (U. S. Department of the Interior, 2010). Site preparation and excavation during FY2009 provided \$1.28 million to local construction firms. Other large projects getting underway in FY2009 include:

- Headquarters and visitor services space renovations at Don Edwards San Francisco Bay NWR.
- Replacement of a deteriorated bridge at the National Bison Range in Montana.
- Rehabilitation of a gravel road and a new headquarters/visitor center at San Luis NWR in California.

ARRA includes some of the most detailed audit requirements ever applied to a grant program. Among the requirements is a reporting of jobs created with ARRA funds. This type of reporting is far more detailed and accurate than the input/output models used in this report so we have not tried to estimate the impact of ARRA projects. ARRA funding has also been subtracted from the State spending in order to avoid inflating the impact of Service construction on the State economies.

Note on Dollars used in this Report

In order to remain consistent with source materials, dollars of spending, RRS and PILT payments are reported in 2009 dollars. IMPLAN updated the spending to 2010 dollars for its calculations and IMPLAN results are reported in 2010 dollars. Regional income statistics are reported in 2007 dollars to remain consistent with Department of Commerce data. Inflation was very slow in this period. The value of 2008 and 2009 dollars are virtually the same. The value of 2007 dollars should be multiplied by 1.0492 to compare with 2010 dollars

Glossary

Employment Income: (See Job Income.)

Final Consumers: The people who finally use the product. Contrast final consumers with intermediate consumers who buy goods in order to sell them again.

FWS: U.S. Fish and Wildlife Service

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.

Job/Employment Income: Income to households from labor including wages and salaries. Job income excludes returns to property and proprietorship income.

Multiplier: Multipliers show the regional economic effects resulting from changes in final demand for a commodity or group of commodities.

NSFHWR: National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

NWR: National Wildlife Refuge

NWRS: National Wildlife Refuge System

Output: All of the goods produced by an economy.

PILT: Payment in Lieu of Taxes. A federal program operated by the Bureau of Land Management to distribute federal funds to local governments to mitigate the impact of nontaxable federal land on the community. The program includes most civilian federal landholdings except wildlife refuges held in fee.

RRS: Refuge Revenue Sharing. A program for distributing federal funds to local governments affected by the presence of a National Wildlife Refuge.

WMD: Wetland Management District

Sample Refuge Impacts

In this section each sample refuge is briefly introduced as a business. We characterize the area economy using population, employment, and per capita income measures. With some knowledge of the area and the refuge, the operations, Refuge Revenue Sharing (RRS), and construction impacts can be seen in context.

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Region 1

Region 1 for the U.S. Fish & Wildlife Service includes Hawaii, Idaho, Oregon, and Washington. Sample refuges selected within this region include:

Deer Flat NWR (Idaho)
Malheur NWR (Oregon)
Ridgefield NWR (Washington)

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Deer Flat National Wildlife Refuge

Description

Deer Flat National Wildlife Refuge, established in 1909, is one of the nation's oldest refuges. Located southwest of Boise, Idaho, the refuge includes the Lake Lowell sector (10,588 acres) and the Snake River Islands sector (about 800 acres). Lake Lowell is an irrigation project reservoir that provides an oasis for wildlife in this arid region.

The late-summer drawdown of the lake reveals mud flats that provide food for a variety of resident and migratory wildlife. Historic wintering waterfowl populations averaged over 300,000 birds. This number has now declined to near 100,000. The Snake River Islands (101 islands along 113 miles of river) provide a diversity of habitats from small wetlands to sagebrush uplands. Several islands house heron rookeries and gull colonies, and provide feeding and resting spots for migratory birds. The refuge is popular with the public. Each year, more than 100,000 people visit to hunt, fish, photograph and view wildlife, learn about natural resources through displays and programs at the visitor center, and walk the nature trail.

Area Economy

Deer Flat NWR is located in a rapidly growing area of southwest Idaho, near Boise. Table 1-1 shows some statistics to characterize the area economy. The area population increased by 35.3 percent from 1997 to 2007, compared with a 21.8 percent increase for the state of Idaho and a 10.5 percent increase for the U.S. as a whole. However, Canyon County alone grew by 51.3% in the same ten-year period. Area unemployment was slightly higher than Idaho as a whole in 2007. Per capita personal income in Ada County is \$43,028, and grew 21.4% between 1997 and 2007 while in the poorest county in the area, Malheur, Oregon, per capita personal income fell 4.4% over the period to \$21,733. Income increased by 19.2% in the state of Idaho and 18% in the U.S. to \$31,804 and \$38,615, respectively. The study area shows a wide range of economic conditions.

Table 1-1. Deer Flat NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Ada, ID	373.2	36.0%	4.6%	\$ 43,028	21.4%
Canyon, ID	178.7	51.3%	6.3%	\$ 22,278	-0.9%
Owyhee, ID	10.8	6.5%	2.9%	\$ 26,459	21.8%
Washington, ID	10.1	2.1%	5.4%	\$ 25,624	16.5%
Payette, ID	22.7	14.6%	6.0%	\$ 26,757	30.7%
Malheur, OR	31.0	1.0%	7.3%	\$ 21,733	-4.4%
Area Total	626.4	35.3%	5.2%	\$ 34,900	15.8%
Idaho	1,496	21.8%	4.9%	\$ 31,804	19.2%
Oregon	3,736	13.1%	6.5%	\$ 35,143	11.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce, 2007.

Refuge Expenditures

Deer Flat NWR spent \$376,500 on operations and maintenance in FY2009. Almost 63% of this funding is spent on salaries to the refuge's 4 permanent employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$74,900 in benefit payments are not counted in local spending.

Table 1-2. Deer Flat NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	236,862	62.9%
Transportation of People	1,997	0.5%
Transportation of Things	28	0.0%
Communications	17,777	4.7%
Utilities	13,073	3.5%
Contracts	-	0.0%
Building Repairs	28,145	7.5%
Equipment Maintenance	24,213	6.4%
Supplies and Materials	13,088	3.5%
Motor Vehicle Fuel	8,985	2.4%
Equipment-Capitalized	7,551	2.0%
Equipment-Non-capitalized	24,795	6.6%
Local Sub-Total	376,514	100.0%
Non-Local Expenditures		
Employee Benefits	74,917	
Air Travel	16,816	
Non-Expense Item		
Real Property	40,683	
Grants	33,924	
Organization Total	542,853	

Changes in the value of real property do not necessarily lead to local economic activity. Purchases of land, for example, are best understood as a change in the form of assets rather than expenditures. In FY2009, Deer Flat recorded a \$40,700 improvement of real property. This is not included in local expenditures.

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Deer Flat NWR was \$2.8 million in 2008. Canyon County, Idaho, contains most of the land and so received the larger share of RRS, \$6,900. Malheur County, Oregon, has fee land valued at \$22,950 and so received, \$56, from RRS. In addition, Deer Flat has 453 acres reserved from the Federal domain. Reserve lands generated \$1,096 of revenue so one quarter of the income, \$274, is distributed to four Idaho counties and Malheur County, Oregon, in proportion to the reserved area in each county. Payette County, Idaho, with only 27 acres received only \$5 as an RRS payment. Reserve lands are counted for PILT purposes. However, other PILT agencies have millions of acres in the five counties so Deer Flat accounts for only a tiny fraction of one percent of the region's PILT payments.

Refuge spending in the local economy paid for both locally produced items and things imported into the region for sale. So, all of the expenditures did not result in increased local output. Table 1-3 shows \$316,200 had a direct effect on local output. Typical purchasing patterns for industries in the region for these items suggest the remainder of the \$376,500 in spending flowed to suppliers outside the area. About \$78,100 became compensation for new local workers in 3 jobs. The iteration of refuge spending through the local economy generated \$531,300 in total output and 5 jobs.

Table 1-3. Deer Flat NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	600	2,300	100	200	0.0	0.0
Utilities	15,100	21,000	1,300	1,900	0.0	0.0
Construction	0	3,700	0	1,200	0.0	0.0
Manufacturing	33,900	42,800	4,800	5,900	0.1	0.2
Trade	83,100	106,200	28,800	37,100	1.1	1.3
Transportation	2,400	9,500	700	3,300	0.0	0.1
Information	13,500	34,000	1,700	4,600	0.0	0.1
Finance	53,900	121,600	4,000	12,900	0.2	0.7
Lodging	15,100	25,500	4,100	6,800	0.3	0.5
Government	5,000	9,100	1,600	3,300	0.0	0.0
Other	93,600	155,600	31,000	53,200	1.3	2.0
Total	316,200	531,300	78,100	130,500	3.0	5.0
Multipliers		1.68		1.67		1.67

Most of the increased output and employment occurs in the Finance, Trade, and Other industries. The Other sector includes upkeep for buildings and payments for planning services. Much of what employees buy locally falls into the transportation and finance categories so these sectors appear to have very large multipliers.

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Malheur National Wildlife Refuge

Description

Malheur National Wildlife Refuge, established in 1908, is located in southeastern Oregon on the northern edge of the Great Basin. It is adjacent to the newly established Steens Mountain Wilderness, with the Wild and Scenic Donner and Blitzen (thunder and lightning) River flowing into the refuge at its southern boundary.

Malheur NWR consists of more than 185,000 acres of prime wildlife habitat, including 120,000 acres of wetlands, a wonder in a sea of sagebrush. Malheur is a mecca for birdwatchers and wildlife enthusiasts. More than 320 species of birds, 58 species of mammals, 10 species of native fish, and a number of reptiles can be found on the refuge.

Spring is the most spectacular season at Malheur. More than 130 species of birds nest on the refuge, while other waterfowl using the Pacific Flyway stop at the refuge to refuel for their journey northward. In February, northern pintail and tundra swan begin to arrive, followed by large flocks of lesser and greater sandhill crane, and flocks of snow goose and Ross' goose.

Area Economy

Malheur NWR is located in Harney County in southeastern Oregon. Table 1-4 shows statistics that characterize the area economy. The county population decreased by 6.0 percent from 1997 to 2007, compared with a 13.1 percent increase for the state of Oregon and a 10.5 percent increase for the U.S. as a whole. County unemployment in 2007 was higher than the state and national averages at 9.4 percent. Per capita personal income in Harney County increased by 11 percent over the 1997-2007 period, while the state of Oregon and the U.S. increased by 11.2 and 18.0 percent, respectively. Harney County per capita personal income remained well below state and national averages.

Table 1-4 . Malheur NWR: Summary of Area Economy, 2007

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Harney, OR	6.8	-6.0%	9.4%	\$ 28,238	11.0%

Oregon	3,736	13.1%	6.5%	\$ 35,143	11.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce, 2007.

Refuge Expenditures

Malheur NWR spent \$2.2 million in operations and maintenance in FY2009. Fifty-six percent (56%) of this funding is spent on salaries to employees who live in the area. Malheur employs 20 people. Thirteen are at GS-9 or above. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$375,500 in benefit amounts are not counted in local spending.

Table 1-5. Malheur NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,254,551	56.6%
Transportation of People	3,260	0.1%
Transportation of Things	20,996	0.9%
Communications	141,113	6.4%
Utilities	34,417	1.6%
Contracts	1,289	0.1%
Building Repairs	518,451	23.4%
Equipment Maintenance	75,530	3.4%
Supplies and Materials	149,722	6.8%
Motor Vehicle Fuel	71,932	3.2%
Equipment-Capitalized	(125,537)	-5.7%
Equipment-Non-capitalized	70,856	3.2%
Local Sub-Total	2,216,580	100.0%
Non-Local Expenditures		
Employee Benefits	375,536	
Air Travel	49,950	
Non-Expense Item		
Real Property	-	
Grants	51,376	
Organization Total	2,693,442	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. There were no real property transactions at Malheur NWR in FY2009. Capitalized equipment shows negative spending because depreciation exceeded spending during the year.

The appraised value for Malheur NWR 129,200 acres of fee lands was \$25.7 million in 2008. Under the 0.75 percent of appraised value and 32.3 percent allocation to stay within the available budget, Harney County, Oregon, would have received \$62,300. However, the FY1977 RRS payment for Malheur was \$75,800 so the county received that amount. In addition, Malheur has 57,900 acres of lands reserved from the Federal domain. No revenue is generated from these lands so they do not contribute to RRS. Reserve lands are counted for PILT purposes. The Bureau of Land Management and Forest Service have more than 4 million acres in Harney County so Malheur accounts for only 1.2 percent of the county total PILT payment of \$972,000, or \$11,700.

As the study area consisted of only one county with fewer than 7,000 inhabitants, most of the refuge spending paid for things imported into the region. Most of the expenditures did not result in increased local output. Table 1-6 shows \$455,500 had a direct effect on local output. Typical purchasing patterns for industries in the region for these items suggest the remainder of the \$2.2 million in spending flowed to suppliers outside the area. About \$91,100 became compensation for new local workers in 4.1 jobs. As this spending flowed through the economy the high level of leakage prevented any multiplier effect. The iteration of refuge spending through the local economy generated \$467,000 in total output and 4.2 jobs.

Table 1-6. Malheur NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	0	0	0	0	0.0	0.0
Utilities	28,500	28,500	3,500	3,500	0.0	0.0
Construction	0	200	0	100	0.0	0.0
Manufacturing	4,800	4,800	1,400	1,400	0.0	0.0
Trade	153,400	155,500	50,100	51,000	2.2	2.3
Transportation	21,600	21,700	3,500	3,500	0.2	0.2
Information	34,200	34,700	5,300	5,400	0.1	0.1
Finance	90,300	95,900	800	900	0.1	0.1

Lodging	9,600	10,400	2,400	2,600	0.2	0.3
Government	10,100	10,400	3,200	3,400	0.1	0.1
Other	102,900	104,800	20,800	21,500	1.2	1.2
Total	455,500	467,000	91,100	93,300	4.1	4.2
Multipliers		1.03		1.02		1.02

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Ridgefield National Wildlife Refuge

Description

Ridgefield National Wildlife Refuge is located on the shore of the Lower Columbia River, 10 miles downstream from the Portland/Vancouver metropolitan area. This 5,217 acre refuge contains a mosaic of riverine flood plain habitat, intensively managed seasonal and permanent wetlands, and agricultural lands.

The refuge contains the historic Cathlapotle townsite, which was visited by the Lewis and Clark expedition in 1806, and today is one of the best-preserved Native American sites in the Northwest United States. Ridgefield NWR provides high quality wintering habitat for a variety of waterfowl.

Area Economy

Ridgefield NWR is located on the Columbia River in southwestern Washington. Its economic area extends to the Portland, Oregon – Vancouver, Washington, metropolitan area. Table 1-7 shows the counties making up the region. The area population increased by 17.7 percent from 1997 to 2007, compared with an 13.1 percent increase for the state of Oregon and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than the state of Oregon as a whole and the same as the U.S. average. Per capita personal income in the area increased by 8.8 percent over the 1997-2007 period. Multnomah and Clackamas County income growth exceeded the state average. State of Oregon and U.S. per capita personal income increased by 11.2 and 18.0 percent respectively.

Table 1-7. Ridgefield NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Multnomah, OR	699.2	8.1%	5.7%	\$ 40,598	13.9%
Clackamas, OR	375.1	14.0%	5.5%	\$ 43,965	12.7%
Washington, OR	519.8	26.4%	5.1%	\$ 38,371	2.3%
Clark, WA	416.5	29.9%	6.9%	\$ 34,426	4.5%
Area Total	2,010.6	17.7%	5.8%	\$ 39,372	8.8%
Oregon	3,736	13.1%	6.5%	\$ 35,143	11.2%
Washington	6,450	13.7%	5.4%	\$ 41,203	20.6%

United States	301,290	10.5%	5.8%	\$38,615	18.0%
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Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Ridgefield NWR spent \$1.1 million in operations and maintenance in FY2009. Fifty-eight percent (58%) of this funding is spent on salaries to 8 permanent and 3 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$175,400 in benefit amounts are not counted in local spending.

Table 1-8. Ridgefield NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	638,486	57.6%
Transportation of People	2,074	0.2%
Transportation of Things	3,429	0.3%
Communications	31,594	2.9%
Utilities	24,945	2.3%
Contracts	-	0.0%
Building Repairs	(1,633)	-0.1%
Equipment Maintenance	24,452	2.2%
Supplies and Materials	73,503	6.6%
Motor Vehicle Fuel	22,018	2.0%
Equipment-Capitalized	164,760	14.9%
Equipment-Non-capitalized	124,417	11.2%
Local Sub-Total	1,108,045	100.0%
Non-Local Expenditures		
Employee Benefits	175,365	
Air Travel	20,762	
Non-Expense Item		
Real Property	156,956	
Grants	135,455	
Organization Total	1,596,584	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Ridgefield recorded a \$157,000 improvement of real property. This is also not included in local expenditures.

The appraised value for Ridgefield NWR fee lands was \$13.8 million in 2008. RRS payments of \$33,600 were made to Clark County, Washington. This refuge has no reserved lands and does not generate revenue for the RRS fund.

The study area has more than 2 million inhabitants so many services are available within the region. Table 1-9 shows \$972,900 had a direct effect on local output. Typical purchasing patterns for industries in the region for these items suggest the remainder of the \$1.1 million in spending flowed to suppliers outside the area. About \$269,500 became compensation for new local workers in 7 jobs. As this spending flowed through the economy it produced a sizable multiplier effect. The iteration of refuge spending through the local economy generated \$1.8 million in total output and 12.9 jobs.

Table 1-9. Ridgefield NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,200	3,600	200	600	0.0	0.0
Utilities	12,100	23,000	1,300	2,500	0.0	0.0
Construction	100	16,900	0	6,300	0.0	0.1
Manufacturing	112,200	172,700	18,600	28,600	0.3	0.5
Trade	248,300	341,900	91,000	126,000	2.7	3.6
Transportation	11,900	41,100	3,700	14,600	0.1	0.3
Information	24,500	84,300	4,700	16,100	0.1	0.2
Finance	147,700	391,600	14,100	53,300	0.3	1.3
Lodging	41,700	83,300	12,800	25,800	0.6	1.3
Government	33,900	66,100	6,900	17,800	0.1	0.2
Other	339,300	593,100	116,000	214,800	2.7	5.2
Total	972,900	1,817,600	269,500	506,600	7.0	12.9
Multipliers		1.87		1.88		1.84

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Region 2

Region 2 of the U.S. Fish & Wildlife Service includes Arizona, New Mexico, Oklahoma, and Texas.

Sample refuges selected within this region include:

Balcones Canyonlands NWR (Texas)

Bill Williams River NWR (Arizona)

Bitter Lake NWR (New Mexico)

Buffalo Lake NWR (Texas)

Cibola NWR (Arizona)

Kofa NWR (Arizona)

Maxwell NWR (New Mexico)

Santa Ana NWR (Texas)

Sequoyah NWR (Oklahoma)

Tishomingo NWR (Oklahoma)

Washita NWR (Oklahoma)

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Balcones Canyonlands National Wildlife Refuge

Description

This Texas Hill Country refuge conserves nesting habitat of the endangered Golden-cheeked Warbler and Black-capped Vireo. This deeply dissected region of the Edwards Plateau contains many steep-banked streams and canyons. The vegetation includes oaks, elm, and Ashe juniper trees (commonly called cedar). More than 525 plant species are found in the area including the Texabama Croton, discovered here only in 1989. The Golden-cheeked Warbler and Black-capped Vireo depend on different successional stages of this vegetation. At least a third of the state's threatened and endangered species live in or move through the area.

Area Economy

Balcones Canyonlands NWR is located in central Texas northwest of the city of Austin. Table 2-1 shows some statistics characterizing the area economy. The area population increased by 42.2 percent from 1997 to 2007, twice as fast as Texas as a whole and four times the national pace. Williamson County is the ninth fastest growing county in the country (Census, 2010, accessed 2010-9-22, <http://www.census.gov/popest/counties/CO-EST2009-08.html>). Area unemployment was lower than the state of Texas and the rest of the U.S. Per capita personal income in the area increased by 14.9 percent over the 1997-2007 period, while the state of Texas and the U.S. increased by 21.6 and 18 percent respectively. However, the region's average per capita personal income remained above state and national averages.

Table 2-1. Balcones Canyonlands NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Burnet, TX	43.6	45.0%	4.0%	\$ 33,413	24.6%
Williamson, TX	372.0	79.3%	4.6%	\$ 35,659	10.4%
Travis, TX	969.9	31.7%	4.2%	\$ 40,430	16.2%
Area Total	1,385.5	42.2%	4.3%	\$ 38,928	14.9%

Texas	23,843	20.8%	4.9%	\$ 37,083	21.6%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Balcones Canyonlands NWR spent \$1.8 million in operations and maintenance in FY2009. Sixty-six percent (66%) of this funding is spent on salaries to 15 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$334,600 in benefit amounts are not counted in local spending.

Table 2-1. Balcones Canyonlands NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,160,706	65.8%
Transportation of People	9,441	0.5%
Transportation of Things	6,512	0.4%
Communications	45,421	2.6%
Utilities	19,044	1.1%
Contracts	-	0.0%
Building Repairs	19,099	1.1%
Equipment Maintenance	46,548	2.6%
Supplies and Materials	56,357	3.2%
Motor Vehicle Fuel	17,182	1.0%
Equipment-Capitalized	289,094	16.4%
Equipment-Non-capitalized	93,261	5.3%
Local Sub-Total	1,762,664	100.0%
Non-Local Expenditures		
Employee Benefits	334,609	
Air Travel	67,657	
Non-Expense Item		
Real Property	211,876	
Grants	393,890	
Organization Total	2,770,696	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, the refuge recorded a \$211,900 improvement of real property. This is also not included in local expenditures.

The appraised value for Balcones Canyonlands' 19,403 acres of fee lands in 3 counties was \$31.0 million in 2008. RRS payments of \$75,100 were divided among Burnet, Travis, and Williamson Counties, Texas. This refuge has no reserved lands and does not generate revenue for the RRS fund.

The study area encompasses the Austin metro area with more than 1.4 million inhabitants so many services are available within the region. Table 2-3 shows \$1.4 million of refuge spending had a direct effect on local output. Typical purchasing patterns for employees in this region suggest the remainder of the \$1.76 million in spending flowed to suppliers outside the area. About \$340,600 became compensation for new local workers in 8.7 jobs. As this spending flowed through the economy it produced a sizable multiplier effect. The iteration of refuge spending through the local economy generated \$2.2 million in total output and 14.2 jobs.

Table 2-3. Balcones Canyonlands NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	600	1,000	0	0	0.0	0.0
Utilities	21,700	28,000	4,300	5,500	0.0	0.1
Construction	0	10,800	0	3,400	0.0	0.1
Manufacturing	376,500	398,500	46,300	50,200	0.7	0.7
Trade	313,000	439,800	121,000	169,600	3.3	4.4
Transportation	13,100	27,600	4,400	10,000	0.1	0.2
Information	42,800	148,400	6,500	18,800	0.1	0.3
Finance	273,600	573,200	28,100	82,000	0.6	1.8
Lodging	74,100	114,100	23,100	35,600	1.1	1.7
Government	8,000	14,200	3,300	6,700	0.0	0.1
Other	278,400	490,100	103,600	193,600	2.6	4.8
Total	1,402,000	2,245,700	340,600	575,200	8.7	14.2
Multipliers		1.60		1.69		1.63

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Bill Williams River National Wildlife Refuge

Description

This 6,105-acre refuge holds one of the last stands of natural cottonwood-willow forests along the lower Colorado River, creating a unique ecosystem that provides good habitat for resident and migratory wildlife. There are few places where one can stand, look at a Saguaro cactus, a cattail stand, and a cottonwood tree together. This unique blend of upland desert, marsh, and desert riparian habitats provides for a diverse array of birds, mammals, and reptiles. This diversity of wildlife includes: the southwestern willow flycatcher, vermilion flycatcher, yellow-billed cuckoo, western tanager, Lazuli bunting, Yuma clapper rail, beaver, bobcat, mountain lion, gray fox, javelina, mule deer, desert bighorn sheep, ring-tailed cat, Razorback sucker and bonytail chub.

Area Economy

Bill Williams River NWR is located near Lake Havasu in western Arizona on the Colorado River. Table 2-4 illustrates some statistics of the area economy. The area population increased by 35.7 percent from 1997 to 2007. Most of the growth occurred in Mohave County which stretches from Lake Havasu City to the outskirts of Las Vegas. The region's growth rate is comparable to the state of Arizona as a whole and three times the growth rate of the U.S. Area unemployment in 2007 was 7.0 percent, higher than the state and nation. Per capita personal income in the area increased by 14.4 percent over the 1997-2007 period with La Paz County catching up to Mohave County in income. The regional income is only two-thirds of both the state of Arizona and the U.S. per capita income.

Table 2-4 . Bill Williams River NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
La Paz, AZ	20.1	9.9%	7.1%	\$ 23,610	23.9%
Mohave, AZ	195.9	39.0%	7.0%	\$ 23,908	13.5%
Area Total	216.0	35.7%	7.0%	\$ 23,880	14.4%
Arizona	6,353	34.1%	5.9%	\$ 32,833	16.3%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Bill Williams River NWR spent \$728,500 on operations and maintenance in FY2009. Half of this funding is spent on salaries to 5 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$112,600 in benefit amounts are not counted in local spending.

Table 2-5. Bill Williams River NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	389,066	53.4%
Transportation of People	1,980	0.3%
Transportation of Things	5,189	0.7%
Communications	10,529	1.4%
Utilities	12,842	1.8%
Contracts	716	0.1%
Building Repairs	19,257	2.6%
Equipment Maintenance	48,013	6.6%
Supplies and Materials	24,236	3.3%
Motor Vehicle Fuel	8,142	1.1%
Equipment-Capitalized	26,333	3.6%
Equipment-Non-capitalized	182,162	25.0%
Local Sub-Total	728,464	100.0%
Non-Local Expenditures		
Employee Benefits	112,627	
Air Travel	6,059	
Non-Expense Item		
Real Property	-	
Grants	20,636	
Organization Total	867,786	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value of Bill Williams River NWR 1,574 acres of fee lands was \$2.4 million in 2008. La Paz and Mohave Counties, Arizona, shared \$5,912 in RRS. In addition, Bill Williams River has 2,781 acres of lands reserved from the Federal domain in Mohave County. However, the Bureau of Land Management and the National Park Service have more than 6 million acres in Mohave County so Bill Williams accounts for only a fraction of one percent of the county's \$3.1 million PILT payment.

As the study area has only 216,000 inhabitants, much of the refuge spending paid for things imported into the region. Table 2-6 shows \$546,100 had a direct effect on local output. Typical purchasing patterns for individuals in the region suggest the remainder of the \$728,500 in spending flowed to suppliers outside the area. About \$140,300 became compensation for new local workers in 4.6 jobs. The iteration of refuge spending through the local economy generated \$746,500 in total output and 6.3 jobs.

Table 2-6. Bill Williams River NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	500	800	0	0	0.0	0.0
Utilities	14,800	19,700	2,900	3,800	0.0	0.0
Construction	0	4,500	0	1,600	0.0	0.0
Manufacturing	151,100	153,100	33,700	34,100	0.9	0.9
Trade	120,300	145,500	43,200	52,400	1.5	1.9
Transportation	6,400	9,900	1,700	2,800	0.1	0.1
Information	15,700	39,600	2,300	5,200	0.0	0.1
Finance	64,800	122,900	3,500	10,800	0.1	0.4
Lodging	19,200	30,600	5,500	8,700	0.3	0.5
Government	8,100	16,000	2,800	5,900	0.0	0.1
Other	145,200	203,900	44,700	66,000	1.5	2.2
Total	546,100	746,500	140,300	191,300	4.6	6.3
Multipliers		1.37		1.36		1.37

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Bitter Lake National Wildlife Refuge

Description

Located where the Chihuahuan Desert meets the southern plains, Bitter Lake National Wildlife Refuge provides habitat for some of the rarest creatures in New Mexico. Established in 1937 to provide habitat for thousands of migrating sandhill cranes and waterfowl, the Refuge is becoming popular for its diverse flora and fauna.

Straddling the Pecos River, the Refuge consists of a variety of water habitats surrounded by a harsh, dry environment. The waters support unique wildlife, such as the Pecos pupfish, Roswell spring snail, green throat darter, and Noel's amphipod, along the more than 80 species of dragonflies. The Refuge also includes native grasslands, sand dunes, brushy bottomlands, and re-rimmed plateaus provide a sharp contrast to the wetland habitats. Roadrunners, scaled quail, and horned lizards are commonly seen in these drier areas.

Area Economy

Bitter Lake NWR is located in southeastern New Mexico. Table 2-7 **Error! Reference source not found.** shows some statistics to characterize Chaves County. The county population increased by 0.2 percent from 1997 to 2007, compared with a 10.7 percent increase for the state of New Mexico and a 10.5 percent increase for the U.S. as a whole. County unemployment in 2007 was lower than both the state and national averages at 4.0 percent. County per capita personal income in increased by 27.5 percent over the 1997-2007 period, approaching the state of New Mexico average of \$30,700.

Table 2-7. Bitter Lake NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Chaves, NM	62.5	0.2%	4.0%	\$ 28,254	27.5%
New Mexico	1,964	10.7%	4.5%	\$ 30,706	20.7%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Bitter Lake NWR spent \$659,700 on operations and maintenance in FY2009. Almost three-quarters of this funding is spent on salaries to 7 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$152,100 in benefit amounts are not counted in local spending.

Table 2-8. Bitter Lake NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	474,938	72.0%
Transportation of People	1,994	0.3%
Transportation of Things	16,664	2.5%
Communications	11,528	1.7%
Utilities	32,579	4.9%
Contracts	1,170	0.2%
Building Repairs	18,597	2.8%
Equipment Maintenance	13,443	2.0%
Supplies and Materials	31,681	4.8%
Motor Vehicle Fuel	9,837	1.5%
Equipment-Capitalized	-	0.0%
Equipment-Non-capitalized	47,286	7.2%
Local Sub-Total	659,717	100.0%
Non-Local Expenditures		
Employee Benefits	152,142	
Air Travel	18,652	
Non-Expense Item		
Real Property	-	
Grants	26,697	
Organization Total	857,209	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Bitter Lake NWR has 12,213 acres of fee lands appraised at \$1.9 million in 2008. The refuge did not earn additional revenue so the refuge revenue sharing amount was calculated from the 0.75 percent of assessed value. Chaves County received \$4,678 in RRS. In addition, Bitter Lake NWR has 12,400 acres of lands reserved from the Federal domain. However, the Bureau of Land Management and the Forest Service have 1.2 million acres in Chaves County so Bitter Lake accounts for about one percent of the county's \$2.8 million PILT payment.

As the study area consisted of only one county with fewer than 65,000 inhabitants, most of the refuge spending paid for things imported into the region. Most of the expenditures did not result in increased local output. Table 2-9 shows \$378,200 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$660,000 in spending flowed to suppliers outside the area. About \$100,600 became compensation for new local workers in 3.8 jobs. As this spending flowed through the economy the high level of leakage prevented a large multiplier effect. The iteration of refuge spending through the local economy generated \$471,100 in total output and 4.6 jobs.

Table 2-9. Bitter Lake NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	500	1,400	0	0	0.0	0.0
Utilities	27,700	28,800	4,600	4,800	0.1	0.1
Construction	0	2,000	0	600	0.0	0.0
Manufacturing	3,200	4,700	300	400	0.0	0.0
Trade	107,600	120,500	39,200	43,700	1.6	1.7
Transportation	18,300	20,600	4,800	5,600	0.2	0.2
Information	16,300	23,700	2,300	3,500	0.0	0.1
Finance	68,300	94,800	3,500	7,200	0.1	0.2
Lodging	20,500	26,000	5,700	7,300	0.4	0.5
Government	11,200	15,100	2,600	4,300	0.0	0.1
Other	104,500	133,500	37,500	48,600	1.4	1.8
Total	378,200	471,100	100,600	126,100	3.8	4.6
Multipliers		1.25		1.25		1.21

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Buffalo Lake National Wildlife Refuge

Description

A valuable wintering area for migrating waterfowl, thousands of ducks and geese over-winter on Buffalo Lake National Wildlife Refuge every year. Located in Randall County in the Texas Panhandle, the refuge is made up of 7,664 acres of shortgrass prairie, riparian, marsh, woodland and cropland habitats. Maintaining these habitats provide homes for migratory and resident wildlife species.

Riparian areas, consisting of trees and grasses adjacent the dry lake bed, provide habitat used for feeding and nesting by neotropical migratory birds, deer, and numerous other wildlife species. Wildlife food crops are planted in the dry lake bottom by cooperative farming. The crops are used by wildlife for food and the mix of crops, stubble, and natural plants provide nesting and winter cover for migratory and resident wildlife.

Buffalo Lake NWR contains some of the best remaining shortgrass prairie in the United States, including 175 acres designated a National Natural Landmark. Shortgrass prairie ecosystems were historically maintained by annual grazing of migrating American bison. With the bison gone, this ecosystem is maintained by grazing cattle.

Area Economy

Buffalo Lake NWR is located in the Texas Panhandle. Potter and Randall Counties encompass the Amarillo metropolitan area. Table 2-10 shows some statistics of the area economy. The area population increased by 9.6 percent from 1997 to 2007, compared with a 20.8 percent increase for the state of Texas and a 10.5 percent increase for the U.S. as a whole. Area unemployment is lower than the state and nation at 3.6 percent in 2007, with the state of Texas showing a 4.9 percent unemployment rate and the U.S. a 5.8 percent rate. Per capita personal income in the area increased by 11.1 percent over the 1997-2007 period, while the state of Texas and the U.S. increased by 21.6 and 18.0 percent respectively.

Table 2-10. Buffalo Lake NWR: Summary of Area Economy, 2007
(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
			Rate		
	2007	Percent	Percent	2007	Percent
(,000)	change	(2007)	(\$2007)	change	
	1997-2007			1997-2007	

Deaf Smith, TX	18.4	-3.3%	3.8%	\$ 25,287	-9.5%
Potter, TX	120.4	8.0%	4.1%	\$ 29,331	14.3%
Randall, TX	113.3	13.7%	3.1%	\$ 34,548	11.2%
Total	252.1	9.6%	3.6%	\$ 31,381	11.1%
Texas	23,843	20.8%	4.9%	\$ 37,083	21.6%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Buffalo Lake NWR spent \$572,600 in operations and maintenance in FY2009. Almost half (45.4%) of this funding is spent on salaries to 4 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$73,000 in benefit amounts are not counted in local spending.

Table 2-11. Buffalo Lake NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	259,738	45.4%
Transportation of People	116	0.0%
Transportation of Things	-	0.0%
Communications	3,645	0.6%
Utilities	12,054	2.1%
Contracts	-	0.0%
Building Repairs	13,548	2.4%
Equipment Maintenance	22,553	3.9%
Supplies and Materials	19,333	3.4%
Motor Vehicle Fuel	10,381	1.8%
Equipment-Capitalized	125,334	21.9%
Equipment-Non-capitalized	105,890	18.5%
Local Sub-Total	572,593	100.0%
Non-Local Expenditures		
Employee Benefits	73,026	
Air Travel	7,384	
Non-Expense Item		
Real Property	50,563	

Grants	50
Organization Total	703,616

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Buffalo Lake recorded a \$50,536 improvement of real property. This is also not included in local expenditures.

The appraised value for Buffalo Lake NWR's 7,664 acres was \$2.5 million in 2008. RRS payments of \$5,944 were made to Randall County, Texas. This refuge has no reserved lands and does not generate revenue for the RRS fund.

As the study area consists of three counties with 201,000 inhabitants, much of the refuge spending paid for things imported into the region. Table 2-12 shows \$490,600 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$572,600 in spending flowed to suppliers outside the area. About \$123,200 became compensation for new local workers in 3.6 jobs. The iteration of refuge spending through the local economy generated \$732,000 in total output and 5.5 jobs.

Table 2-12. Buffalo Lake NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	200	900	0	0	0.0	0.0
Utilities	14,600	21,400	2,400	3,500	0.0	0.0
Construction	0	3,000	0	900	0.0	0.0
Manufacturing	170,900	176,900	27,600	28,500	0.5	0.6
Trade	108,900	150,800	40,600	56,100	1.3	1.8
Transportation	1,900	10,900	600	3,800	0.0	0.1
Information	7,300	26,900	1,100	3,800	0.0	0.1
Finance	50,400	117,600	3,900	14,500	0.1	0.4
Lodging	15,900	29,100	4,400	8,100	0.3	0.5
Government	4,800	11,900	1,500	4,300	0.0	0.1

Other	115,600	182,600	41,000	67,500	1.3	2.0
Total	490,600	732,000	123,200	191,100	3.6	5.5
Multipliers		1.49		1.55		1.53

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Cibola National Wildlife Refuge

Description

Cibola NWR is located in the floodplain of the lower Colorado River and surrounded by a fringe of desert ridges and washes. The refuge encompasses both the historic Colorado River channel as well as a channelized portion constructed in the late 1960's. Along with these main waterbodies, several important backwaters are home to many wildlife species that reside in this portion of the Sonoran Desert. Because of the river's life sustaining water, wildlife here survive in an environment that reaches 120 degrees in the summer and receives an average of only 2 inches of rain per year.

Over 288 species of birds have been found on Cibola NWR, including many species of migratory songbirds, Gambel's quail, roadrunners, mourning and white-winged doves, phainopepla, greater sandhill cranes, Canada and snow geese, Vermillion flycatchers, grosbeaks and many more. The bald eagle, southwestern willow flycatcher and Yuma clapper rail are among the endangered birds that use Cibola NWR. Other listed species include the desert tortoise, razorback sucker, bony-tail chub, and desert pupfish.

Area Economy

Cibola NWR is located in western Arizona on the Colorado River. Its economic area includes the Imperial Valley in California and the city of El Centro. Table 2-13 shows some statistics of the area economy. The population of the two counties increased much more slowly from 1997 to 2007 than either of their states. Area unemployment is extremely high in Imperial County, 22.9 percent, perhaps due to seasonal work and the presence of a cash economy. La Paz County is closer to the state and national averages at 7.1 percent in 2007. Per capita personal income in the area increased by 10.8 percent over the 1997-2007 period, with La Paz County growing faster and achieving relative parity with larger Imperial County. Per capita income in the area as a whole is only about two-thirds of the Arizona State and national averages.

Table 2-13. Cibola NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

Population	Unemployment Rate	Per Capita Personal Income
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County	2007 (,000)	Percent change 1997-2007	Percent (2007)	2007 (\$2007)	Percent change 1997-2007
La Paz, AZ	20.1	9.9%	7.1%	\$ 23,610	23.9%
Imperial, CA	160.8	16.0%	22.9%	\$ 23,757	9.3%
Area Total	180.9	15.3%	21.4%	\$ 23,741	10.8%
Arizona	6,353	34.1%	5.9%	\$ 32,833	16.3%
California	36,378	12.0%	7.2%	\$ 41,805	22.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Cibola NWR spent \$1.1 million in operations and maintenance in FY2009. Unlike most refuges, it spent less than one-third of its budget (31.5%) on salaries to 5 permanent employees who live in the area. An unusually large amount was assigned to supplies and materials. Employee benefits are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$113,900 in benefit amounts are not counted in local spending.

Table 2-14. Cibola NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	339,177	31.5%
Transportation of People	1,816	0.2%
Transportation of Things	-	0.0%
Communications	31,463	2.9%
Utilities	33,397	3.1%
Contracts	70	0.0%
Building Repairs	8,648	0.8%
Equipment Maintenance	49,301	4.6%
Supplies and Materials	329,207	30.6%
Motor Vehicle Fuel	19,784	1.8%
Equipment-Capitalized	187,154	17.4%
Equipment-Non-capitalized	76,780	7.1%
Local Sub-Total	1,076,795	100.0%
Non-Local Expenditures		

Employee Benefits	113,928
Air Travel	16,133
Non-Expense Item	
Real Property	-
Grants	650,351
Organization Total	1,857,206

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Cibola NWR's 4,363 fee acres was \$7.0 million in 2008. RRS payments of \$16,968 were made to La Paz County, Arizona. Cibola also has 1,327 acres of reserve land in Imperial County, California, and 8,373 acres in La Paz County, Arizona. The Bureau of Land Management has 1.7 million acres in La Paz County and 1.3 million acres in Imperial County so Cibola accounts for only a small proportion of the region's PILT payments.

The study area consists of three counties with 181,000 inhabitants. Much of the refuge spending is paid for things imported into the region and so flows quickly away from the region. Table 2-15 shows \$853,800 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$1.1 million in spending flowed to suppliers outside the area. About \$134,900 became compensation for new local workers in 4.5 jobs. As this spending flowed through the economy the high level of leakage prevented a very large multiplier effect. The iteration of refuge spending through the local economy generated \$954,200 in total output and 5.4 jobs.

Table 2-15. Cibola NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	700	1,200	100	100	0.0	0.0
Utilities	33,200	37,900	7,000	7,900	0.1	0.1
Construction	0	1,100	0	400	0.0	0.0
Manufacturing	234,300	235,500	25,100	25,300	0.5	0.5
Trade	116,600	138,200	39,300	46,600	01.5	1.7

Transportation	10,400	14,100	3,300	4,300	0.1	0.1
Information	6,900	11,400	1,000	1,900	0.0	0.0
Finance	32,100	54,600	1,400	3,700	0.0	0.1
Lodging	7,100	13,200	2,200	4,100	0.1	0.2
Government	24,700	28,500	15,900	17,500	0.2	0.2
Other	387,700	418,600	39,600	51,100	1.9	2.4
Total	853,800	954,200	134,900	162,900	4.5	5.4
Multipliers		1.12		1.21		1.20

Most of the increased output and employment occurs in the Manufacturing, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Kofa National Wildlife Refuge

Description

Kofa National Wildlife Refuge was established in 1939. The refuge encompasses 665,400 acres of pristine desert that is home to the desert bighorn sheep and the California fan palm, the only native palm in Arizona.

Bighorn sheep are found chiefly in the two mountain ranges that dominate the refuge landscape - the Kofa and Castle Dome Mountains. Although these mountains are not especially high, they are extremely rugged and rise sharply from the surrounding desert plains, providing excellent bighorn sheep habitat. A wide variety of plant life is found throughout the refuge.

Area Economy

Kofa NWR is located in southwestern Arizona near the Colorado River and the City of Yuma. Table 2-16 shows some statistics of the area economy. The area population increased by 29.3 percent from 1997 to 2007, compared with a 34.1 percent growth for the state of Arizona and a 10.5 percent increase for the U.S. as a whole. Area unemployment was much higher than the state or nation in 2007. Area per capita personal income increased by 11.7 percent over the 1997-2007 period, while the state of Arizona and the U.S. increased by 16.3 and 18.0 percent respectively. Area income is about 70 percent of the state average.

Table 2-16. Kofa NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
La Paz, AZ	20.1	9.9%	7.1%	\$ 23,610	23.9%
Yuma, AZ	189.6	31.8%	17.1%	\$ 22,786	10.5%
Area Total	209.7	29.3%	16.3%	\$ 22,865	11.7%
Arizona	6,353	34.1%	5.9%	\$ 32,833	16.3%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Kofa NWR spent \$369,200 on operations and maintenance in FY2009. Almost half of this funding is spent on salaries to 5 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$106,800 in benefit amounts are not counted in local spending.

Table 2-17. Kofa NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	171,688	46.5%
Transportation of People	2,587	0.7%
Transportation of Things	(376)	-0.1%
Communications	26,059	7.1%
Utilities	12,170	3.3%
Contracts	494	0.1%
Building Repairs	4,897	1.3%
Equipment Maintenance	23,511	6.4%
Supplies and Materials	71,925	19.5%
Motor Vehicle Fuel	13,924	3.8%
Equipment-Capitalized	4,064	1.1%
Equipment-Non-capitalized	38,237	10.4%
Local Sub-Total	369,180	100.0%
Non-Local Expenditures		
Employee Benefits	106,825	
Air Travel	32,693	
Non-Expense Item		
Real Property	---	
Grants	13,895	
Organization Total	522,586	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Kofa NWR has three parcels of fee lands. In Yuma County, the refuge has 121 acres valued at \$31,500 and a one acre administrative site valued at \$206,000. In addition, the reserve area in Yuma County generated \$692 in revenue. So Yuma County received \$1,954 in RRS. The appraised value of Kofa NWR's 1,040 acres of fee lands in La Paz County was \$234,000 in 2008 and \$180 were earned from reserve lands. So La Paz County received \$1,800 in RRS.

Kofa has 665,400 acres of lands reserved from the Federal domain in Yuma and La Paz Counties. Kofa accounts for 7.5 percent of PILT acreage in La Paz County and 33.8 percent of PILT acreage in Yuma County accounting for \$130,800 and \$1,064,000, respectively of each county's PILT payment.

The study area consists of two counties with 210,000 inhabitants. Much of the refuge spending is paid for things imported into the region and so flows quickly away from the region. Table 2-18 shows \$258,300 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$369,200 in spending flowed to suppliers outside the area. About \$59,400 became compensation for new local workers in 1.9 jobs. As this spending flowed through the economy, the high level of leakage kept the multiplier effect small. The iteration of refuge spending through the local economy generated \$302,900 in total output and 2.3 jobs.

Table 2-18. Kofa NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	200	400	0	0	0.0	0.0
Utilities	6,600	6,900	1,400	1,500	0.0	0.0
Construction	0	1,100	0	400	0.0	0.0
Manufacturing	15,400	16,000	2,900	2,900	0.1	0.1
Trade	73,600	79,800	26,600	29,000	0.9	1.0
Transportation	400	1,500	100	500	0.0	0.0
Information	26,500	32,600	4,000	5,400	0.1	0.1
Finance	20,300	31,000	700	1,600	0.0	0.1
Lodging	5,000	7,700	1,500	2,400	0.1	0.1
Government	8,800	10,700	2,200	2,900	0.0	0.0
Other	101,500	115,300	19,900	25,400	0.7	0.9
Total	258,300	302,900	59,400	72,100	1.9	2.3
Multipliers		1.17		1.21		1.21

Most of the increased output and employment occurs in the Trade and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Maxwell National Wildlife Refuge

Description

Located in the high central plains of northeastern New Mexico, Maxwell National Wildlife Refuge was established in 1965 as a feeding and resting area for migratory birds. Over 350 acres of the Refuge are planted with wheat, corn, barley, and alfalfa to provide food for resident and migratory wildlife. Visitors may see bald and golden eagles, falcons, hawks, sandhill cranes, ducks, white pelicans, burrowing owls, great horned owls, black-tailed prairie dogs, coyotes, mule deer, white-tailed deer, and the occasional elk.

The refuge has approximately 2,200 acres of both healthy and disturbed short-grass prairie habitat, some of which is in the process of being restored.

Area Economy

Maxwell NWR is located in northern New Mexico near the Colorado border. Table 2-19 shows the area economy. The population of Colfax County is very small and decreased by 5.8 percent from 1997 to 2007, the state of New Mexico and the U.S. as a whole increased by about 10.5 percent over the same period. County unemployment was slightly lower than the state average, 4.1 percent compared to 4.5 percent in 2007. Per capita personal income in the county increased by 18.6 percent over the 1997-2007 period. It kept pace with the state of New Mexico and exceeded the U.S. increase by half of a percent. Colfax County income remains well below state and national averages.

Table 2-19. Maxwell NWR: Summary of Area Economy, 2007
(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Colfax, NM	13.2	-5.8%	4.1%	\$ 26,624	18.6%
New Mexico	1,964	10.7%	4.5%	\$ 30,706	20.7%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Maxwell NWR spent \$150,300 on operations and maintenance in FY2009. Sixty-five (65) percent of this funding is spent on salaries to two employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$34,800 in benefit amounts are not counted in local spending.

Table 2-20. Maxwell NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	98,126	65.3%
Transportation of People	-	0.0%
Transportation of Things	-	0.0%
Communications	3,096	2.1%
Utilities	3,055	2.0%
Contracts	50	0.0%
Building Repairs	203	0.1%
Equipment Maintenance	7,155	4.8%
Supplies and Materials	158	0.1%
Motor Vehicle Fuel	7,204	4.8%
Equipment-Capitalized	-	0.0%
Equipment-Non-capitalized	31,287	20.8%
Local Sub-Total	150,333	100.0%
Non-Local Expenditures		
Employee Benefits	34,757	
Air Travel	2,369	
Non-Expense Item		
Real Property	2,800	
Grants	-	
Organization Total	190,258	

The appraised value for Maxwell NWR's 2,800 acres was \$3.1 million in 2008. RRS payments of \$23,025 were made to Colfax County, New Mexico. This refuge has no reserved lands and does not generate revenue for the RRS fund.

As the study area consisted of only one county with only 13,000 inhabitants, most of the refugee spending paid for things imported into the region. Table 2-21 shows \$82,300 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$150,300 in spending flowed to suppliers outside the area. About \$22,300 became compensation for new local workers in 0.9 jobs. As this spending flowed through the economy the high level of leakage prevented much of a multiplier effect. The iteration of refugee spending through the local economy generated \$97,000 in total output and 1.1 jobs.

Table 2-21. Maxwell NWR: Economic Impacts of Refugee Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	0	100	0	0	0.0	0.0
Utilities	1,000	1,500	100	200	0.0	0.0
Construction	0	200	0	100	0.0	0.0
Manufacturing	300	500	0	0	0.0	0.0
Trade	46,900	48,600	15,600	16,200	0.6	0.6
Transportation	200	500	0	100	0.0	0.0
Information	3,400	4,200	300	400	0.0	0.0
Finance	8,100	13,200	600	1,300	0.0	0.0
Lodging	4,000	5,300	900	1,200	0.1	0.1
Government	5,000	7,300	1,000	1,600	0.0	0.0
Other	13,200	15,800	3,600	4,500	0.2	0.3
Total	82,300	97,000	22,300	25,600	0.9	1.1
Multipliers		1.18		1.15		1.22

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Santa Ana National Wildlife Refuge

Description

Along the banks of the lower Rio Grande is the Santa Ana National Wildlife Refuge, a 2,088 acre refuge established in 1943 for the protection of migratory birds. This ‘island’ of thorn forest habitat is host or home to nearly 400 different types of birds and a myriad other species, including the indigo snake, malachite butterfly and the endangered ocelot.

At an ecological crossroad, Santa Ana is strategically located where the Gulf Coast, Great Plains, and Chihuahuan Desert habitats meet. Thousands of birds from the Central and Mississippi flyways funnel through the area on their way to and from Central and South America. This small patch of riparian woodland is also habitat for about one half of all butterfly species found in the United States. Santa Ana’s management program mimics the historical flooding of the Rio Grande, maintaining the bottom land hardwood forest and providing crucial nesting and feeding habitat for birds, watering holes for animals, and homes for countless amphibians, reptiles, crustaceans and insects.

Area Economy

Santa Ana NWR is located near the city of McAllen in southern Texas on the Rio Grande River. Table 2-22 shows some statistics of the area economy. The area population is growing extremely rapidly. From 1997 to 2007 the area population grew by 30.1 percent, triple the U.S. rate and outstripping the Texas rate by more than 9 percent. Area unemployment in 2007 was higher than the state or nation at 7.2 percent. Per capita personal income in the area is about one-half the state and national averages. Over the 1997-2007 period the regional income grew more slowly than the state and nation.

Table 2-22. Santa Ana NWR: Summary of Area Economy, 2007

(Population in 000’s; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Hidalgo, TX	705.5	35.7%	7.3%	\$ 18,316	17.6%
Cameron, TX	384.9	20.9%	6.8%	\$ 19,667	16.0%
Area Total	1,090.4	30.1%	7.2%	\$ 18,793	17.0%
Texas	23,843	20.8%	4.9%	\$ 37,083	21.6%

United States	301,290	10.5%	5.8%	\$38,615	18.0%
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Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Santa Ana NWR spent \$803,000 on operations and maintenance in FY2009. Sixty-three (63) percent of this funding is spent on salaries to 8 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$145,100 in benefit amounts are not counted in local spending.

Table2-23. Santa Ana NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	508,146	63.3%
Transportation of People	6	0.0%
Transportation of Things	(35)	0.0%
Communications	30,150	3.8%
Utilities	102,610	12.8%
Contracts	-	0.0%
Building Repairs	30,359	3.8%
Equipment Maintenance	5,775	0.7%
Supplies and Materials	28,446	3.5%
Motor Vehicle Fuel	2,133	0.3%
Equipment-Capitalized	51,456	6.4%
Equipment-Non-capitalized	43,921	5.5%
Local Sub-Total	802,965	100.0%
Non-Local Expenditures		
Employee Benefits	145,087	
Air Travel	2,298	
Non-Expense Item		
Real Property	51,289	
Grants	9,901	
Organization Total	1,011,541	

The appraised value for Santa Ana NWR’s 2,087 acres was \$1.4 million in 2008. RRS payments of \$3,550 were made to Hidalgo County, Texas. This refuge has no reserved lands and does not generate revenue for the RRS fund.

The study area consists of two urban counties with more than one million inhabitants. Refuge spending can circulate in the region before flowing to other areas. Table 2-24 shows \$614,600 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$803,000 in spending flowed to suppliers outside the area. About \$144,200 became compensation for new local workers in 5.1 jobs. As this spending, flowed through the economy it generated a multiplier effect. The iteration of refuge spending through the local economy generated \$868,800 in total output and 7.3 jobs.

Table 2-24. Santa Ana NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,500	2,800	200	400	0.0	0.0
Utilities	56,100	60,000	11,600	12,500	0.1	0.1
Construction	100	4,700	0	1,000	0.0	0.0
Manufacturing	70,900	84,600	4,600	5,700	0.1	0.2
Trade	138,500	174,200	49,900	62,000	1.9	2.4
Transportation	5,000	19,000	1,300	5,200	0.0	0.1
Information	31,500	64,700	4,300	8,000	0.1	0.2
Finance	82,600	143,500	4,800	13,300	0.1	0.4
Lodging	31,300	46,000	8,600	12,500	0.6	0.8
Government	63,300	73,100	12,400	15,100	0.2	0.2
Other	133,700	196,100	46,400	69,400	1.8	2.8
Total	614,600	868,800	144,200	205,300	5.1	7.3
Multipliers		1.41		1.42		1.43

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Sequoyah National Wildlife Refuge

Description

Sequoyah NWR was established in 1970 to provide habitat for waterfowl and other migratory birds and to provide food and cover for resident wildlife. The refuge was named in honor of Sequoyah, a Cherokee Native American who developed an alphabet for the Cherokee language.

Wildlife found at Sequoyah NWR varies with the seasons. During fall, winter, and spring, waterfowl are numerous. Mallards are, by far, the most abundant of the wintering ducks. The refuge hosts the largest concentration of snow geese in the state, and large numbers of wading and shorebirds are common in the summer and fall.

The bottomland habitat provides a home for a variety of wildlife, including songbirds, hawks, bobwhite quail, bobcat, squirrels, muskrat, and rabbits. Reptiles, such as the green tree frog, diamondback water snake, red-eared slider, cottonmouth, and bullfrog are also common in the refuge woodlands.

Area Economy

Sequoyah NWR is located in east central Oklahoma, 35 miles west of Fort Smith, Arkansas, off of Interstate 40. Table 2-25 shows some statistics that characterize the area economy. The area population increased by 4.6 percent from 1997 to 2007, compared with a 7.0 percent increase for the state of Oklahoma and a 10.5 percent increase for the U.S. as a whole. Area unemployment in 2007 is slightly higher than the state of Oklahoma as a whole. Per capita personal income in the area increased by 21.6 percent over the 1997-2007 period, while the state of Oklahoma and the U.S. increased by 31.1 and 18.0 percent respectively.

Table 2-25. Sequoyah NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Muskogee, OK	71.0	2.6%	4.8%	\$ 26,645	19.8%
Sequoyah, OK	40.9	8.7%	6.0%	\$ 24,720	22.9%

Haskell, OK	12.0	3.4%	3.8%	\$ 26,426	28.7%
Total	124.0	4.6%	5.1%	\$ 25,988	21.6%
Oklahoma	3,608	7.0%	3.7%	\$ 34,997	31.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Sequoyah NWR spent \$887,800 on operations and maintenance in FY2009. More than half of this funding is spent on salaries to 7 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$164,100 in benefit amounts are not counted in local spending. More than 25 percent of refuge spending was for equipment.

Table 2-26. Sequoyah NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	526,639	59.3%
Transportation of People	1,751	0.2%
Transportation of Things	2,901	0.3%
Communications	6,835	0.8%
Utilities	23,914	2.7%
Contracts	593	0.1%
Building Repairs	8,285	0.9%
Equipment Maintenance	27,393	3.1%
Supplies and Materials	28,946	3.3%
Motor Vehicle Fuel	33,553	3.8%
Equipment-Capitalized	110,760	12.5%
Equipment-Non-capitalized	116,215	13.1%
Local Sub-Total	887,785	100.0%
Non-Local Expenditures		
Employee Benefits	164,058	
Air Travel	10,254	
Non-Expense Item		
Real Property	92,489	
Grants	5,520	

Organization Total1,160,106

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Sequoyah recorded a \$92,500 improvement of real property which is also not included in local expenditures.

[Sequoyah NWR is not included in the RRS program. No payments were made to its counties for FY2008.]

The study area consists of three counties with 124,000 inhabitants. Much of the refuge spending is paid for things imported into the region and so flows quickly away from the region. Table 2-27 shows \$623,800 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$887,800 in spending flowed to suppliers outside the area. About \$141,800 became compensation for new local workers in 5.4 jobs. The iteration of refuge spending through the local economy generated \$803,400 in total output and 7.2 jobs.

Table 2-27. Sequoyah NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	300	900	0	100	0.0	0.0
Utilities	25,800	33,700	5,200	6,700	0.1	0.1
Construction	300	7,300	0	1,600	0.0	0.1
Manufacturing	132,900	140,300	20,100	21,000	0.5	0.5
Trade	197,400	225,600	63,200	72,900	2.6	2.9
Transportation	5,200	11,500	1,400	3,600	0.0	0.1
Information	10,400	24,000	1,400	4,000	0.0	0.1
Finance	95,700	135,100	7,100	12,200	0.2	0.4
Lodging	22,900	32,800	5,900	8,400	0.4	0.6
Government	14,900	24,500	5,200	9,100	0.1	0.1
Other	118,000	167,800	32,300	49,300	1.5	2.2
Total	623,800	803,400	141,800	188,800	5.4	7.2

Multipliers	1.29	1.33	1.33
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Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

DRAFT

Tishomingo National Wildlife Refuge

Description

Tishomingo National Wildlife Refuge lies at the upper Washita arm of Lake Texoma in south central Oklahoma. It is administered for the benefit of migratory waterfowl in the Central Flyway. Most of the refuge's 16,464 acres, including the 4,500-acre Cumberland Pool, were acquired in 1946.

The refuge offers a variety of aquatic habitats. The murky water of Cumberland Pool provides abundant nutrients for innumerable microscopic plants and animals. Seasonally flooded flats and willow shallows lying at the Pool's edge also provide excellent wildlife habitat. Upland areas vary from grasslands to wild plum thickets to oak-hickory-elm woodlands. Crops, primarily wheat and corn, are grown on approximately 900 acres to provide forage and grain for waterfowl.

Area Economy

Tishomingo NWR is located in central Oklahoma near the Texas border. Table 2-28 shows the area economy. The area population increased by 9 percent from 1997 to 2007, compared with a 7 percent increase for the state of Oklahoma and a 10.5 percent increase for the U.S. as a whole. The regional average masks a slight decrease in population in Johnston County. Area unemployment was higher than the rest of Oklahoma in 2007 but lower than the U.S. average. Per capita personal income grew faster in Johnston County than in the state or country. Income in the area is considerably lower than the Oklahoma or national averages and falling behind in Marshall County.

Table 2-28. Tishomingo NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Marshall, OK	14.8	17.3%	4.1%	\$ 24,842	22.8%
Johnston, OK	10.4	-0.9%	4.4%	\$ 23,548	35.1%
Area Total	25.2	9.0%	4.2%	\$ 24,307	27.4%
Oklahoma	3,608	7.0%	3.7%	\$ 34,997	31.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Tishomingo NWR spent \$677,400 on operations and maintenance in FY2009. Sixty-eight (68) percent of this funding is spent on salaries to 7 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$139,800 in benefit amounts are not counted in local spending.

Table 2-29. Tishomingo NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	462,276	68.2%
Transportation of People	852	0.1%
Transportation of Things	(6,971)	-1.0%
Communications	3,753	0.6%
Utilities	9,944	1.5%
Contracts	100	0.0%
Building Repairs	86,885	12.8%
Equipment Maintenance	25,206	3.7%
Supplies and Materials	9,109	1.3%
Motor Vehicle Fuel	23,316	3.4%
Equipment-Capitalized	15,700	2.3%
Equipment-Non-capitalized	47,269	7.0%
Local Sub-Total	677,438	100.0%
Non-Local Expenditures		
Employee Benefits	139,842	
Air Travel	10,011	
Non-Expense Item		
Real Property	9,055	
Grants	548	
Organization Total	836,893	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Tishomingo recorded a \$9,100 improvement of real property which is also not included in local expenditures

[Tishomingo NWR is not included in the RRS program. No payments were made to its counties for its lands in FY2008. Payments were made to Johnston County for 231 acres at the Tishomingo National Fish Hatchery.]

As the study area consisted of two counties with only 25,000 inhabitants, most of the refuge spending paid for things imported into the region. Table 2-30 shows \$407,600 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$677,400 in spending flowed to suppliers outside the area. About \$103,500 became compensation for new local workers in 5 jobs. As this spending flowed through the economy the high level of leakage prevented much of a multiplier effect. The iteration of refuge spending through the local economy generated \$501,500 in total output and 6 jobs.

Table 2-30. Tishomingo NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	500	700	0	0	0.0	0.0
Utilities	11,000	14,000	1,800	2,300	0.0	0.0
Construction	0	1,400	0	200	0.0	0.0
Manufacturing	4,900	5,100	1,200	1,200	0.0	0.0
Trade	128,900	145,200	38,500	43,800	1.8	2.0
Transportation	900	2,300	200	600	0.0	0.0
Information	11,200	15,100	1,100	1,700	0.0	0.1
Finance	74,400	105,200	3,300	5,800	0.2	0.4
Lodging	16,400	22,000	3,900	5,300	0.3	0.5
Government	7,800	12,500	1,800	3,500	0.0	0.1
Other	151,500	178,000	51,600	61,500	2.5	3.0
Total	407,600	501,500	103,500	125,900	5.0	6.0
Multipliers		1.23		1.22		1.20

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Washita National Wildlife Refuge

Description

Established in 1961, Washita National Wildlife Refuge lies on the upper end of Foss Reservoir and provides a feeding and resting area for migrating and wintering waterfowl and sandhill cranes.

Area Economy

Washita NWR is located in west central Oklahoma near the cities of Clinton, Weatherford, and Elk City. Table 2-31 characterizes the area economy. The area population increased by 2.8 percent from 1997 to 2007, compared with a 7.0 percent increase for the state of Oklahoma and a 10.5 percent increase for the U.S. as a whole. Growth in Beckham County masks stable and shrinking populations in the rest of the region. Area unemployment was extremely low in 2007 at 2.5 percent. Per capita personal income in the area increased by 26.1 percent over the 1997-2007 period, while the state of Oklahoma and the U.S. increased by 31.1 and 18.0 percent respectively. Regional personal income is about 80 percent of the state average.

Table 2-31. Washita NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Custer, OK	26.0	-0.6%	2.6%	\$ 28,350	21.1%
Washita, OK	11.7	1.2%	2.7%	\$ 23,136	12.0%
Roger Mills, OK	3.3	-5.9%	2.3%	\$ 29,615	24.6%
Beckham, OK	20.8	10.1%	2.2%	\$ 29,333	41.5%
Total	61.8	2.8%	2.5%	\$ 27,765	26.1%
Oklahoma	3,608	7.0%	3.7%	\$ 34,997	31.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Washita NWR spent \$535,200 on operations and maintenance in FY2009. More than three-quarters of this funding is spent on salaries to 4 permanent and 2 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$104,100 in benefit amounts are not counted in local spending.

Table 2-32. Washita NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	413,526	77.3%
Transportation of People	1,911	0.4%
Transportation of Things	16,855	3.1%
Communications	15,224	2.8%
Utilities	5,930	1.1%
Contracts	-	0.0%
Building Repairs	4,469	0.8%
Equipment Maintenance	9,713	1.8%
Supplies and Materials	4,427	0.8%
Motor Vehicle Fuel	20,721	3.9%
Equipment-Capitalized	255	0.0%
Equipment-Non-capitalized	42,180	7.9%
Local Sub-Total	535,210	100.0%
Non-Local Expenditures		
Employee Benefits	104,105	
Air Travel	10,342	
Non-Expense Item		
Real Property	-	
Grants	-	
Organization Total	649,657	

Washita NWR acquired only 90 of its 8,075 acres by purchase. This area is valued at \$12,000 so Custer County received a \$29 RRS payment for FY2008. No payments attributable to Washita NWR lands were made to the regional counties for PILT in FY2008.

The study area consists of four counties with a population of 62,000. Much of the refugee spending is paid for things imported into the region. Table 2-33 shows \$331,300 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$535,200 in spending flowed to suppliers outside the area. About \$86,500 became compensation for new local workers in 3.5 jobs. The iteration of refugee spending through the local economy generated \$435,700 in total output and 4.5 jobs.

Table 2-33. Washita NWR: Economic Impacts of Refugee Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	500	700	0	0	0.0	0.0
Utilities	9,500	13,800	1,800	2,500	0.0	0.0
Construction	0	2,900	0	900	0.0	0.0
Manufacturing	2,500	3,300	400	500	0.0	0.0
Trade	126,900	142,600	42,000	47,700	1.8	2.0
Transportation	19,100	22,800	7,400	8,800	0.1	0.1
Information	17,900	25,600	2,400	3,700	0.0	0.1
Finance	61,800	86,800	3,600	7,300	0.1	0.2
Lodging	23,000	30,000	5,800	7,600	0.4	0.6
Government	6,900	12,200	1,700	3,700	0.0	0.1
Other	63,100	95,100	21,500	31,200	1.0	1.4
Total	331,300	435,700	86,500	113,900	3.5	4.5
Multipliers		1.32		1.32		1.29

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Region 3

The Great Lakes-Big Rivers region, Region 3, of the U.S. Fish & Wildlife Service includes Iowa, Illinois, Indiana, Minnesota, Missouri, Michigan, Ohio, and Wisconsin. Sample refuges and management districts selected within this region include:

DeSoto NWR (Iowa)
Fergus Falls WMD (Minnesota)
Leopold WMD (Wisconsin)
Minnesota Valley NWR (Minnesota)
Muscatatuck NWR (Indiana)
Neal Smith NWR (Iowa)
Ottawa NWR (Ohio)
Sherburne NWR (Minnesota)
Shiawassee NWR (Michigan)
St. Croix WMD (Wisconsin)
Tamarac NWR (Minnesota)
Trempealeau NWR (Wisconsin)

DeSoto National Wildlife Refuge

Description

DeSoto NWR is comprised of 8,358 acres in Iowa and Nebraska and lies in the Missouri River Valley floodplain on a former meander of the Missouri River.

Each year, especially during the fall, spectacular flights of ducks and geese mark the changing seasons along this traditional waterfowl flyway. Visitors enjoy an interesting assortment of warblers, raptors, shorebirds, and other bird life.

The 1968 excavation of the steamboat Bertrand, which sank in 1865, adds a major historical emphasis to the refuge program. The 200,000 pieces in the Bertrand Collection provide one of the most significant assemblages of Civil War era artifacts in the country.

Area Economy

DeSoto NWR is located in south western Iowa near the Nebraska border. Table 3-1 shows statistics of the area economy. The area population increased by 4.4 percent from 1997 to 2007, compared with a 3.2 percent increase for the state of Iowa and a 10.5 percent increase for the U.S. as a whole. Faster growth in Washington County, Nebraska, masks slow or stable population growth in the Iowa counties. Area unemployment was below the U.S. average in 2007, and comparable to the unemployment rates in each state. Per capita personal income in the area increased by 15.8 percent over the 1997-2007 period similar to state and national rates. The level of personal income is similar to the average personal income in each state.

Table 3-1. DeSoto NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Harrison, IA	15.4	-0.6%	4.1%	\$ 31,587	11.4%
Pottawattamie, IA	89.4	4.3%	4.2%	\$ 33,292	16.7%
Washington, NE	19.9	9.3%	3.1%	\$ 37,113	14.9%

Area Total	124.7	4.4%	4.0%	\$ 33,692	15.8%
Iowa	2,983	3.2%	4.4%	\$ 34,916	14.4%
Nebraska	1,769	4.9%	3.3%	\$ 36,372	17.0%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

DeSoto NWR spent \$1.3 million on operations and maintenance in FY2009. Three-quarters of this funding is spent on salaries to 15 permanent and 2 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$289,100 in benefit amounts are not counted in local spending.

Table 3-2. DeSoto NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	981,126	74.7%
Transportation of People	2,363	0.2%
Transportation of Things	10,245	0.8%
Communications	23,639	1.8%
Utilities	57,890	4.4%
Contracts	573	0.0%
Building Repairs	21,169	1.6%
Equipment Maintenance	18,580	1.4%
Supplies and Materials	37,328	2.8%
Motor Vehicle Fuel	66,014	5.0%
Equipment-Capitalized	20,232	1.5%
Equipment-Non-capitalized	73,451	5.6%
Local Sub-Total	1,312,611	100.0%
Non-Local Expenditures		
Employee Benefits	289,117	
Air Travel	15,575	
Non-Expense Item		
Real Property	1,677,887	
Grants	56,757	
Organization Total	3,351,946	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, DeSoto recorded a \$1,678,000 improvement of real property which is also not included in local expenditures.

DeSoto NWR has 4,324 acres of fee lands in Washington County, Iowa, appraised at \$5.8 million in 2008. It also holds 595 acres of fee lands in Pottawattamie County, Nebraska. The counties received \$3,243 and \$446 respectively for RRS. The refuge did not earn additional revenue or hold any lands reserved from the public domain so no PILT payments are attributable to it.

Much of the refuge spending paid for things imported into the region. Table 3-3 shows \$590,500 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$1.3 million in spending flowed to suppliers outside the area. About \$149,200 became compensation for new local workers in 5.4 jobs. As this spending flowed through the economy the high level of leakage prevented much of a multiplier effect. The iteration of refuge spending through the local economy generated \$669,400 in total output and 6.0 jobs.

Table 3-3. DeSoto NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	700	1,300	0	0	0.0	0.0
Utilities	57,800	61,200	9,700	10,300	0.1	0.1
Construction	0	2,100	0	700	0.0	0.0
Manufacturing	44,000	47,200	5,700	6,100	0.1	0.2
Trade	220,200	232,600	77,200	82,000	3.3	3.5
Transportation	11,500	13,400	3,200	4,000	0.1	0.1
Information	19,200	25,800	2,600	3,500	0.1	0.1
Finance	99,400	121,100	2,900	4,500	0.1	0.2
Lodging	32,500	38,700	8,500	10,200	0.4	0.5
Government	13,000	15,700	3,800	5,000	0.0	0.1
Other	92,200	110,200	35,600	43,100	1.1	1.4
Total	590,500	669,400	149,200	169,400	5.4	6.0
Multipliers		1.13		1.14		1.11

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Fergus Falls Wetland Management District

Description

The Fergus Falls Wetland Management District (WMD) was established in 1962 with the initiation of the Accelerated Small Wetlands Acquisition Program. The mission of the district is to identify, protect, and restore the tallgrass prairie/wetland ecosystem and associated habitats and to provide opportunities for outdoor recreation and environmental education. For this purpose, the district currently manages 216 waterfowl production areas (WPAs) totaling 44,499 acres, and 1,148 perpetual easements protecting 24,015 acres of wetlands on private land. Thirty-nine perpetual wildlife habitat easements covering 4,185 acres of wetland and grassland habitats on private land have also been obtained.

In addition the District manages the Prairie Wetlands Learning Center which has innovative environmental education programs and a wide array of visitor opportunities all focused on understanding prairie wetlands and grasslands.

Area Economy

Fergus Falls WMD is located in western Minnesota. Table 3-4 shows some characteristics of the area economy. The area population increased by 4.4 percent from 1997 to 2007, compared with a 8.8 percent increase for the state of Minnesota and a 10.5 percent increase for the U.S. as a whole. The area population growth rates mask declining populations in the smaller counties, Grant and Wadena, and strong growth in Douglas County. Area unemployment is comparable to the state and national average. Per capita personal income in the area increased by 16.2 percent over the 1997-2007 period, while the state of Minnesota and the U.S. increased by 18.1 and 18.0 percent respectively.

Table 3-4. Fergus Falls WMD: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Douglas, MN	36.0	13.7%	5.0%	\$ 32,388	19.7%
Grant, MN	6.0	-4.8%	7.0%	\$ 28,936	4.9%
Otter Tail, MN	56.9	3.1%	6.1%	\$ 29,763	14.8%
Wilkin, MN	6.4	-11.8%	4.4%	\$ 32,226	20.6%

Wadena, MN	13.4	0.7%	8.4%	\$ 25,718	15.0%
Total	118.6	4.4%	5.9%	\$ 30,196	16.2%
Minnesota	5,182	8.8%	5.4%	\$ 41,105	18.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Fergus Falls WMD spent \$1.5 million on operations and maintenance in FY2009. Nearly three-quarters of this funding is spent on salaries to 15 permanent and 5 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$315,700 in benefit amounts are not counted in local spending.

Table 3-5. Fergus Falls WMD: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,136,669	73.4%
Transportation of People	1,876	0.1%
Transportation of Things	7,402	0.5%
Communications	26,726	1.7%
Utilities	34,626	2.2%
Contracts	1,050	0.1%
Building Repairs	32,242	2.1%
Equipment Maintenance	42,228	2.7%
Supplies and Materials	46,423	3.0%
Motor Vehicle Fuel	39,438	2.5%
Equipment-Capitalized	20,512	1.3%
Equipment-Non-capitalized	159,014	10.3%
Local Sub-Total	1,548,204	100.0%
Non-Local Expenditures		
Employee Benefits	315,742	
Air Travel	20,682	
Non-Expense Item		
Real Property	221,732	
Grants	298,162	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Fergus Falls WMD recorded a \$221,700 improvement of real property which is also not included in local expenditures

Fergus Falls WMD has acquired all of its nearly 50,000 acres by purchase or easement from private sellers. [No payments were made to its counties for RRS or PILT in FY2008.]

Table 3-6 shows \$1.1 million had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$1.5 million in spending flowed to suppliers outside the area. About \$262,300 became compensation for new local workers in 10.4 jobs. As this spending flowed through the economy, the iteration of spending generated \$1.4 million in total output and 13.9 jobs.

Table 3-6. Fergus Falls WMD: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	3,300	6,600	300	500	0.0	0.0
Utilities	53,300	72,400	9,900	13,300	0.1	0.1
Construction	0	10,100	0	2,800	0.0	0.1
Manufacturing	148,700	159,800	20,200	21,800	0.6	0.7
Trade	310,700	369,000	106,300	127,200	4.6	5.4
Transportation	14,200	27,200	2,300	5,700	0.1	0.3
Information	46,400	99,300	8,700	18,900	0.1	0.2
Finance	169,300	254,200	7,600	17,700	0.3	0.6
Lodging	56,300	77,200	13,600	18,700	1.1	1.6
Government	12,600	24,200	4,500	9,700	0.1	0.2
Other	236,900	331,700	89,000	124,100	3.4	4.8
Total	1,051,700	1,431,800	262,300	360,500	10.4	13.9
Multipliers		1.36		1.37		1.34

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Construction Spending

In FY2009, Fergus Falls WMD received a special appropriation of \$175,000 to repair the Stang Lake dam. Construction spending provides a one-time boost to the local economy, particularly the construction industry. As it flowed through the local economy, the dam work generated \$252,900 in output and 2.7 jobs. Most of the added activity is in the construction sector but trade, finance and other services also benefited.

Table 3-7. Fergus Falls WMD: Economic Impact of Stang Lake Dam project

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	0	600	0	0	0.0	0.0
Utilities	0	2,700	0	500	0.0	0.0
Construction	175,000	175,600	67,700	67,900	1.9	1.9
Manufacturing	0	2,700	0	500	0.0	0.0
Trade	0	18,800	0	6,700	0.0	0.3
Transportation	0	2,800	0	500	0.0	0.0
Information	0	5,600	0	1,100	0.0	0.0
Finance	0	15,700	0	1,300	0.0	0.0
Lodging	0	4,100	0	1,000	0.0	0.1
Government	0	1,400	0	500	0.0	0.0
Other	0	22,800	0	8,300	0.0	0.3
Total	175,000	252,900	67,700	88,400	1.9	2.7
Multipliers		1.45		1.31		1.42

Leopold Wetland Management District

Description

The Leopold Wetland Management District is named after Aldo Leopold, who is widely acknowledged as the father of wildlife conservation in America. Leopold is perhaps best known as the author of *A Sand County Almanac*, a book compiled of essays written on his farm in central Wisconsin. In tribute to his philosophy, the Leopold Wetland Management District is dedicated to preserving, restoring, and enhancing wildlife habitat in Wisconsin for the benefit of present and future generations.

The district, established in 1993, manages over 12,000 acres of waterfowl production areas (WPAs) in 17 southeastern Wisconsin counties, covering some of the most important waterfowl areas of Wisconsin. The district also administers 45 conservation easements, totaling 3,000 acres, in 34 eastern Wisconsin counties. WPAs consist of wetland habitat surrounded by grassland and woodland communities. While WPAs are managed primarily for ducks and geese, they also provide habitat for a variety of other wildlife species such as non-game grassland birds, shorebirds, wading birds, mink, muskrat, wild turkey, and deer.

Area Economy

Leopold WMD is located in eastern Wisconsin encompassing the cities of Madison, Fond du Lac, and Oshkosh. Table 3-8 shows some statistics characterizing the regional economy. The area population increased by 8.5 percent from 1997 to 2007, compared with a 6.3 percent increase for the state of Wisconsin and a 10.5 percent increase for the U.S. as a whole. Individual county growth rates varied from 14 percent in Adams County to -2.1 percent in Marquette County. Area unemployment was lower than state and federal rates in 2007. Per capita personal income in the area increased by 15.8 percent over the 1997-2007 period, while the state of Wisconsin and the U.S. increased by 14.5 and 18 percent. Average personal income in the area is above the state average largely due to high incomes in Dane County (Madison) and Ozaukee County (suburban Milwaukee).

Table 3-8. Leopold WMD: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		

Adams, WI	20.5	14.0%	6.8%	\$ 27,162	13.8%
Columbia, WI	55.1	9.4%	4.9%	\$ 37,230	16.0%
Dane, WI	475.6	13.7%	3.3%	\$ 43,617	20.5%
Dodge, WI	87.7	5.1%	5.0%	\$ 30,751	11.7%
Fond du Lac, WI	99.0	3.2%	4.8%	\$ 35,089	11.7%
Jefferson, WI	80.1	9.6%	4.8%	\$ 33,649	11.6%
Manitowoc, WI	80.8	-1.9%	4.9%	\$ 33,222	12.2%
Marquette, WI	15.0	-2.1%	6.1%	\$ 27,000	21.8%
Oconto, WI	37.4	10.2%	6.1%	\$ 29,802	8.5%
Outagamie, WI	173.6	11.9%	4.5%	\$ 36,687	15.3%
Ozaukee, WI	85.4	5.8%	3.7%	\$ 60,059	22.4%
Rock, WI	159.4	6.2%	6.1%	\$ 30,891	2.3%
Sauk, WI	58.4	9.6%	4.8%	\$ 34,709	20.0%
Shawano, WI	41.0	4.1%	5.0%	\$ 29,111	14.4%
Waushara, WI	24.7	11.2%	5.7%	\$ 26,298	11.6%
Winnebago, WI	161.3	5.1%	4.3%	\$ 36,600	16.6%
Area Total	1,655.0	8.5%	4.4%	\$ 37,836	15.8%
Wisconsin	5,599	6.3%	4.8%	\$ 36,272	14.5%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

District Expenditures

Leopold WMD spent \$754,800 on operations and maintenance in FY2009. Almost three-quarters of this funding is spent on salaries to 7 permanent and 2 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$143,600 in benefit amounts are not counted in local spending.

Table 3-9. Leopold WMD: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	546,346	72.4%
Transportation of People	437	0.1%
Transportation of Things	-	0.0%

Communications	8,743	1.2%
Utilities	3,327	0.4%
Contracts	-	0.0%
Building Repairs	5,942	0.8%
Equipment Maintenance	14,718	1.9%
Supplies and Materials	17,293	2.3%
Motor Vehicle Fuel	28,509	3.8%
Equipment-Capitalized	39,144	5.2%
Equipment-Non-capitalized	90,374	12.0%
Local Sub-Total	754,835	100.0%
Non-Local Expenditures		
Employee Benefits	143,578	
Air Travel	11,585	
Non-Expense Item		
Real Property	-	
Grants	45,380	
Organization Total	955,377	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Leopold WMD has acquired all of its nearly 15,000 acres by purchase or easement from private sellers. [No payments were made to its counties for RRS or PILT in FY2008.]

Table 3-10 shows \$546,000 of refuge spending had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$754,800 in spending flowed to suppliers outside the area. About \$146,700 became compensation for new local workers in 4.8 jobs. As this spending flowed through the economy, the iteration of spending generated \$812,100 in total output and 7.0 jobs.

Table 3-10. Leopold WMD: Economic Impacts of Refuge Expenditures

	Output (\$ 2010)	Employee Compensation (\$ 2010)	Employment (Number of Jobs)

Sector	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,000	2,500	200	400	0.0	0.0
Utilities	7,600	13,100	1,500	2,700	0.0	0.0
Construction	0	5,300	0	1,900	0.0	0.0
Manufacturing	77,200	95,800	9,700	13,000	0.2	0.2
Trade	185,200	219,300	65,200	77,400	2.4	2.8
Transportation	4,900	13,300	1,500	4,700	0.0	0.1
Information	17,000	39,000	2,700	6,400	0.0	0.1
Finance	99,000	177,700	8,300	19,700	0.2	0.6
Lodging	29,700	43,100	7,800	11,200	0.6	0.8
Government	8,200	14,900	3,500	6,500	0.1	0.1
Other	116,300	188,100	46,400	76,500	1.3	2.1
Total	546,000	812,100	146,700	220,500	4.8	7.0
Multipliers		1.49		1.50		1.46

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Minnesota Valley National Wildlife Refuge

Description

Minnesota Valley National Wildlife Refuge is located within the urban and suburban areas of Minneapolis and St. Paul. It is a green belt of large marsh areas bordered by office buildings, highways, residential areas, and grain terminals. The refuge is comprised of fourteen linear units totaling approximately 14,000 acres, spanning 99 miles of the Minnesota River.

The focal point of the refuge is the visitor center, which features 8,000 square feet of exhibit space, a 125-seat auditorium, two multi-purpose classrooms, a bookstore, an art gallery, and an observation deck. Environmental education and interpretation are conducted from this facility. Additional interpretive programs conducted by Service staff and volunteer naturalists are offered on numerous refuge units. Recreational activities include hiking, cross-country skiing, hunting, and fishing.

Area Economy

Minnesota Valley NWR is located in the urban core and southwestern suburbs of the Twin Cities. Table 3-11 shows the counties making up the area economy. The area population increased by 10.7 percent from 1997 to 2007, compared with an 8.8 percent increase for the state of Minnesota and a 10.5 percent increase for the U.S. as a whole. While the growth rate in Minneapolis (Hennepin County) itself was relatively slow at 3.9 percent, Scott County grew at a remarkable 62 percent rate. Scott County is the 35th fastest growing county in the U.S. The average unemployment rate in the area was lower than the state of Minnesota as a whole and the U.S. Average per capita personal income in the area is higher than the State or U.S. average and increased at a faster rate over the 1997-2007 period.

Table 3-11. Minnesota Valley NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Carver, MN	88.1	37.8%	4.9%	\$ 49,691	22.2%
Hennepin, MN	1,132.0	3.9%	4.9%	\$ 56,280	22.8%
Scott, MN	125.9	62.0%	5.0%	\$ 39,042	10.9%
Dakota, MN	389.4	16.0%	4.9%	\$ 45,045	13.4%

Area Total	1,735.4	10.7%	4.9%	\$ 52,173	20.1%
Minnesota	5,182	8.8%	5.4%	\$ 41,105	18.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Minnesota Valley NWR spent \$2.5 million in operations and maintenance in FY2009. More than half (55.6%) of this funding is spent on salaries to 23 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$393,500 in benefit amounts are not counted in local spending.

Table 3-12. Minnesota Valley NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,404,040	55.6%
Transportation of People	3,645	0.1%
Transportation of Things	107,498	4.3%
Communications	53,231	2.1%
Utilities	79,904	3.2%
Contracts	60	0.0%
Building Repairs	62,983	2.5%
Equipment Maintenance	31,677	1.3%
Supplies and Materials	536,196	21.3%
Motor Vehicle Fuel	18,900	0.7%
Equipment-Capitalized	17,663	0.7%
Equipment-Non-capitalized	207,203	8.2%
Local Sub-Total	2,523,000	100.0%
Non-Local Expenditures		
Employee Benefits	393,488	
Air Travel	27,165	
Non-Expense Item		
Real Property	---	
Grants	116,795	
Organization Total	3,060,072	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Minnesota Valley NWR's 9,224 acres of owned land was \$60.9 million in 2008. RRS payments of \$147,500 were shared among five counties. This refuge has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 3-13. Minnesota Valley NWR: Refuge Revenue Sharing for fiscal year 2009.

County	Fee Acres	Appraised Value	Total Due	Total Paid
Carver	1,855	\$ 11,371,000	\$ 85,283	\$ 27,563
Dakota	197	3,300,000	24,750	7,999
Hennepin	2,503	24,500,000	183,751	59,388
Ramsey	154	850,000	6,375	2,060
Scott	4,515	20,840,000	156,300	50,516
Total	9,224	\$ 60,861,000	\$ 456,459	\$ 147,526

Refuge spending in the local economy paid for both locally produced items and things imported into the region for sale. So all of the expenditures did not result in increased local output. Table 3-14 shows \$2.2 million had a direct effect on local output. Typical purchasing patterns for households and industries in the region suggest the remaining spending flowed to suppliers outside the area. About \$527,200 became compensation for new local workers in 13 jobs. The Twin Cities metro area has a diverse economy so spending circulated within the region longer than it would have in more rural areas. This results in relatively large multipliers. The iteration of refuge spending through the local economy generated \$3.7 million in total output and 23.2 jobs. It is interesting to notice that about the same level of spending generates 44 jobs at Chincoteague NWR. Employee compensation is much higher on average in the big city than it is in the rural Delmarva peninsula.

Table 3-14. Minnesota Valley NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,000	3,100	100	300	0.0	0.0

Utilities	94,400	124,700	14,800	19,200	0.1	0.1
Construction	0	17,800	0	7,400	0.0	0.1
Manufacturing	193,400	293,800	37,700	52,200	0.6	0.8
Trade	416,100	572,200	153,800	211,700	4.8	6.2
Transportation	126,100	178,200	40,000	60,700	0.8	1.2
Information	81,800	202,300	14,500	35,700	0.2	0.5
Finance	344,000	856,800	44,100	147,600	0.7	2.5
Lodging	85,100	154,800	26,700	48,900	1.3	2.4
Government	17,400	42,500	7,600	22,000	0.1	0.3
Other	816,900	1,298,000	188,000	391,800	4.4	8.9
Total	2,176,300	3,744,400	527,200	997,700	13.0	23.2
Multipliers		1.72		1.89		1.78

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Muscatatuck National Wildlife Refuge

Description

Muscatatuck National Wildlife Refuge is located in south central Indiana. It includes 7,724 acres near Seymour and a 78-acre parcel, known as the Restle Unit, near Bloomington. Muscatatuck's mission is to restore, preserve, and manage a mix of forest, wetland, and grassland habitat for fish, wildlife, and people. Special management emphasis is given to waterfowl, other migratory birds, and endangered species.

Nine miles of refuge roads that are open sunrise to sunset seven days/week attract approximately 185,000 visitors to the refuge each year. Wildlife-viewing opportunities are excellent at Muscatatuck, and the refuge is known as an exceptionally fine bird watching site.

Area Economy

Muscatatuck NWR is located in central Indiana, south of Indianapolis. Table 3-15 shows statistics that characterize the counties making up the area economy. The area population increased by 5.7 percent from 1997 to 2007, compared with a 6.4 percent increase for the state of Indiana and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than the state and national average. Average per capita personal income in the area increased by 11.1 percent over the 1997-2007 period exceeding the state average. State of Indiana and U.S. per capita personal income increased by 10.3 and 18.0 percent respectively.

Table 3-15. Muscatatuck NWR: Summary of Area Economy, 2007
(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Bartholomew, IN	74.6	7.2%	4.6%	\$ 36,957	9.9%
Jackson, IN	42.0	3.0%	5.3%	\$ 29,900	17.3%
Jennings, IN	28.1	6.1%	7.1%	\$ 27,202	5.9%
Area Total	144.7	5.7%	5.3%	\$ 33,014	11.1%
Indiana	6,336	6.4%	5.8%	\$ 33,215	10.3%

United States	301,290	10.5%	5.8%	\$38,615	18.0%
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Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Muscatatuck NWR spent \$834,700 in operations and maintenance in FY2009. Fifty-six percent (56%) of this funding is spent on salaries to 7 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$145,800 in benefit amounts are not counted in local spending.

Table 3-16. Muscatatuck NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	469,348	56.2%
Transportation of People	968	0.1%
Transportation of Things	(6,919)	-0.8%
Communications	17,098	2.0%
Utilities	11,660	1.4%
Contracts	1,171	0.1%
Building Repairs	194,848	23.3%
Equipment Maintenance	18,110	2.2%
Supplies and Materials	24,311	2.9%
Motor Vehicle Fuel	17,893	2.1%
Equipment-Capitalized	20,238	2.4%
Equipment-Non-capitalized	66,010	7.9%
Local Sub-Total	834,738	100.0%
Non-Local Expenditures		
Employee Benefits	145,802	
Air Travel	8,195	
Non-Expense Item		
Real Property	3,120	
Grants	29,968	
Organization Total	1,021,823	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Muscatatuck recorded a \$3,100 improvement of real property. This is also not included in local expenditures.

The appraised value for Muscatatuck NWR's 7,802 acres of fee lands was \$14.1 million in 2008. RRS payments of \$25,945, \$18,800, and \$303 were made to Jackson, Jennings, and Monroe Counties, Indiana, respectively. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 3-17 shows \$615,900 of the \$834,700 spent at the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the spending flowed to suppliers outside the area. About \$179,400 became compensation for new local workers in 7.2 jobs. The iteration of refuge spending through the local economy generated \$806,000 in total output and 8.9 jobs.

Table 3-17. Muscatatuck NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	900	1,500	100	200	0.0	0.0
Utilities	15,600	20,500	2,600	3,400	0.0	0.0
Construction	0	4,000	0	1,400	0.0	0.0
Manufacturing	63,800	68,500	10,200	10,900	0.2	0.2
Trade	118,000	141,200	40,300	48,700	1.8	2.1
Transportation	2,400	7,300	800	2,800	0.0	0.1
Information	15,400	26,900	2,100	3,700	0.0	0.1
Finance	88,900	158,200	5,300	14,400	0.2	0.6
Lodging	22,600	33,500	6,200	9,200	0.4	0.6
Government	7,900	12,500	3,800	5,700	0.1	0.1
Other	280,300	331,700	107,900	129,900	4.4	5.1
Total	615,900	806,000	179,400	230,400	7.2	8.9
Multipliers		1.31		1.28		1.24

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes building repairs and payments for planning services.

Neal Smith National Wildlife Refuge

Description

Neal Smith National Wildlife Refuge, located just 25 minutes east of Des Moines, Iowa, was established in 1990. Its mission is to re-construct tallgrass prairie and restore oak savanna on 8,654 acres of the Walnut Creek watershed and to provide a major environmental education facility focusing on prairie, oak savanna, and human interaction.

The refuge has been designated a Fish and Wildlife Service Land Management and Research Demonstration Area. It facilitates development, testing, teaching, publishing, and demonstration of state-of-the-art management techniques for fish, wildlife, and plant conservation.

The Prairie Learning Center facilities include a visitor center with classrooms, exhibit area, theater, and bookstore. Miles of paved trails radiate from the center, and an auto tour through the 740-acre bison/elk enclosure is open all year. Teacher workshops, birding, hunting, and nature watching are some of the outdoor activities featured for thousands of visitors each year.

Area Economy

Neal Smith NWR is located in central Iowa. Table 3-18 shows the contrasting counties of Jasper and Polk make up the area economy. The area population increased by 14.4 percent from 1997 to 2007, compared with a 3.2 percent increase for the state of Iowa and a 10.5 percent increase for the U.S. as a whole. Jasper County's small population sustained only a 1.6 percent increase. The average unemployment rate in the area was lower than the state and national average although Jasper County unemployment exceeded both. Average per capita personal income in the area increased by 14.3 percent over the 1997-2007 period in line with the state average. Jasper County average per capita personal income fell by 2.5 percent and remained below state and national averages. State of Iowa and U.S. per capita personal income increased by 14.4 and 18.0 percent respectively.

Table 3-18. Neal Smith NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	Percent		Rate	Percent	
	2007	change	Percent	2007	change
	(,000)	1997-2007	(2007)	(\$2007)	1997-2007

Jasper, IA	36.6	1.6%	7.6%	\$ 30,030	-2.5%
Polk, IA	417.7	15.7%	4.0%	\$ 41,992	15.5%
Area Total	454.3	14.4%	4.2%	\$ 41,027	14.3%
Iowa	2,983	3.2%	4.4%	\$ 34,916	14.4%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Neal Smith NWR spent \$1.1 million in operations and maintenance in FY2009. Fifty-five percent (55%) of this funding is spent on salaries to employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$182,100 in benefit amounts are not counted in local spending.

Table 3-19. Neal Smith NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	585,111	54.6%
Transportation of People	414	0.0%
Transportation of Things	24	0.0%
Communications	30,399	2.8%
Utilities	29,432	2.7%
Contracts	474	0.0%
Building Repairs	25,700	2.4%
Equipment Maintenance	48,230	4.5%
Supplies and Materials	43,685	4.1%
Motor Vehicle Fuel	20,077	1.9%
Equipment-Capitalized	70,552	6.6%
Equipment-Non-capitalized	217,560	20.3%
Local Sub-Total	1,071,658	100.0%
Non-Local Expenditures		
Employee Benefits	182,133	
Air Travel	10,126	
Non-Expense Item		
Real Property	-	
Grants	4,707	
Organization Total	1,268,625	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Neal Smith NWR's 5,388 acres of fee lands was \$11.1 million in 2008. RRS payments of \$26,941 were made to Jasper County, Iowa. Neal Smith NWR fee lands generate \$43,000 revenue for the RRS fund but as this is less than 0.75 percent of assessed value it does not affect the RRS payment. This refuge has no reserved lands and so is not eligible for PILT payments.

Refuge spending in the local economy paid for both locally produced items and things imported into the region for sale. So all of the expenditures did not result in increased local output. Table 3-20 shows \$924,700 had a direct effect on local output. Typical purchasing patterns for households and industries in the region suggest the remaining spending flowed to suppliers outside the area. About \$265,800 became compensation for new local workers in 7.3 jobs. The iteration of refuge spending through the local economy generated \$1.5 million in total output and 11.7 jobs.

Table 3-20. Neal Smith NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	300	500	0	0	0.0	0.0
Utilities	34,000	45,200	5,600	7,300	0.0	0.0
Construction	0	8,500	0	2,500	0.0	0.1
Manufacturing	204,700	216,500	50,100	52,400	0.7	0.8
Trade	260,300	334,100	97,200	124,600	3.2	3.9
Transportation	4,900	23,700	1,700	9,200	0.0	0.2
Information	27,800	87,300	4,400	15,400	0.1	0.3
Finance	135,500	320,300	11,400	38,400	0.4	1.2
Lodging	39,400	67,300	10,800	18,600	0.6	1.1
Government	10,200	18,600	5,700	10,600	0.1	0.1
Other	207,600	364,700	79,000	146,500	2.2	3.9
Total	924,700	1,486,700	265,800	425,600	7.3	11.7
Multipliers		1.61		1.60		1.60

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

DRAFT

Ottawa National Wildlife Refuge

Description

The Ottawa National Wildlife Refuge was established in 1961 to preserve habitat for migrating birds. The Lake Erie marshes have historically been important to fish, migratory waterfowl, songbirds, and shorebirds. Up to 70 percent of the Mississippi Flyway population of black ducks can be found in the marshes during the fall migration. Large numbers of migrating songbirds stop in the area to rest during their spring migration. This amazing wildlife spectacle attracts a large number of visitors from across the country.

Ottawa NWR has been designated as a site of regional significance in the Western Hemisphere Shorebird Reserve Network. In 2002, "Birders World" readers voted the refuge as one of their Top 15 favorite spots to see birds, and the American Bird Conservancy has identified the refuge as an Important Bird Area.

Area Economy

Ottawa NWR is located along the shores of Lake Erie in northwestern Ohio. Table 3-21 shows the counties making up the area economy. The area population decreased by 3.0 percent from 1997 to 2007, compared with a 1.8 percent increase for the state of Ohio and a 10.5 percent increase for the U.S. as a whole. The decrease was lead by a declining population in urban Lucas County which encompasses Toledo, Ohio. The average unemployment rate in the area was considerably higher than the state and national average. Average per capita personal income in the area increased by 4.2 percent over the 1997-2007 period to remain very close to the state average. State of Ohio and U.S. per capita personal income increased by 8.2 and 18.0 percent, respectively.

Table 3-21. Ottawa NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Ottawa, OH	41.1	0.9%	8.9%	\$ 35,155	5.7%
Lucas, OH	442.4	-3.3%	8.3%	\$ 33,197	4.0%
Area Total	483.5	-3.0%	8.3%	\$ 33,363	4.2%

Ohio	11,478	1.8%	6.6%	\$ 34,468	8.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Ottawa NWR spent \$1.0 million in operations and maintenance in FY2009. Two thirds (71%) of this funding is spent on salaries to 11 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$221,400 in benefit amounts are not counted in local spending. [A large credit for motor vehicle fuel appeared to reduce spending by \$30,000.]

Table 3-22. Ottawa NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	735,679	71.4%
Transportation of People	3,986	0.4%
Transportation of Things	-	0.0%
Communications	27,222	2.6%
Utilities	52,516	5.1%
Contracts	340	0.0%
Building Repairs	20,414	2.0%
Equipment Maintenance	18,911	1.8%
Supplies and Materials	79,678	7.7%
Motor Vehicle Fuel	(30,089)	-2.9%
Equipment-Capitalized	2,433	0.2%
Equipment-Non-capitalized	119,331	11.6%
Local Sub-Total	1,030,419	100.0%
Non-Local Expenditures		
Employee Benefits	221,359	
Air Travel	15,015	
Non-Expense Item		
Real Property	--	
Grants	149,265	
Organization Total	1,415,637	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Ottawa NWR's 5,973 acres of fee lands was \$18.4 million in 2008. RRS payments of \$27,551 and \$19,017 were made to Ottawa and Lucas Counties, Ohio, respectively. Ottawa NWR generated about \$5,000 in revenue for the RRS fund in Fiscal Year 2008. This refuge has no reserved lands and so is not eligible for PILT payments.

Refuge spending in the local economy paid for both locally produced items and things imported into the region for sale. So all of the expenditures did not result in increased local output. Table 3-23 shows \$832,400 had a direct effect on local output. Typical purchasing patterns for households and industries in the region suggest the remaining spending flowed to suppliers outside the area. About \$235,600 became compensation for local workers in 7.5 jobs. Toledo has a diverse economy so spending circulated within the region longer than it would have in more rural areas. This results in relatively large multipliers. The iteration of refuge spending through the local economy generated \$1.3 million in total output and 11.5 jobs.

Table 3-23. Ottawa NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,100	1,700	200	300	0.0	0.0
Utilities	59,300	69,200	12,000	13,900	0.1	0.1
Construction	0	9,000	0	3,300	0.0	0.1
Manufacturing	63,400	90,100	14,200	16,600	0.3	0.3
Trade	265,200	319,900	98,600	118,200	3.6	4.3
Transportation	4,800	19,800	1,700	8,200	0.0	0.2
Information	22,100	55,300	3,300	10,100	0.1	0.2
Finance	144,300	277,900	10,700	30,500	0.3	1.0
Lodging	45,000	69,400	12,900	20,000	0.8	1.2
Government	9,400	19,100	4,300	9,500	0.1	0.1
Other	217,900	369,800	77,600	135,900	2.2	4.0
Total	832,400	1,301,300	235,600	366,700	7.5	11.5
Multipliers		1.56		1.56		1.53

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

DRAFT

Sherburne National Wildlife Refuge

Description

Sherburne National Wildlife Refuge is located in the east central region of Minnesota, approximately 50 miles northwest of the Minneapolis/St. Paul metropolitan area and 30 miles southeast of St. Cloud. The refuge protects 30,665 acres of habitat for migratory birds and other wildlife.

The primary mission of the refuge is to represent a diverse biological community characteristic of the transition zone between tall grass prairie and forest. Established in 1965 to protect and restore the habitats associated with the St. Francis River Valley, refuge management today focuses on the restoration of oak savanna, wetland and big woods habitats.

Area Economy

The Sherburne NWR area encompasses suburbs and farmland north of the Twin Cities. Table 3-24 shows the counties making up the area economy. The area population grew much faster than the state or nation at 21.0 percent from 1997 to 2007. The outer suburbs in Sherburne County are among the fastest growing regions in the country. They grew by more than half during the period. Unemployment in the area was on a par with the state and national averages. Average per capita personal income in the area increased by 12.3 percent over the 1997-2007 period but remained below the State of Minnesota and U.S. average per capita personal income.

Table 3-24. Sherburne NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Anoka, MN	325.3	15.0%	5.5%	\$ 37,575	14.9%
Benton, MN	39.5	20.3%	6.1%	\$ 29,048	9.1%
Sherburne, MN	86.1	51.3%	6.2%	\$ 29,529	2.5%
Area Total	450.8	21.0%	5.7%	\$ 35,293	12.3%

Minnesota	5,182	8.8%	5.4%	\$ 41,105	18.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Sherburne NWR spent \$1.2 million in operations and maintenance in FY2009. Almost three-quarters (73%) of this funding is spent on salaries to 11 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$244,300 in benefit amounts are not counted in local spending.

Table 3-25. Sherburne NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	843,610	73.1%
Transportation of People	2,556	0.2%
Transportation of Things	30,931	2.7%
Communications	20,434	1.8%
Utilities	15,548	1.3%
Contracts	967	0.1%
Building Repairs	1,628	0.1%
Equipment Maintenance	24,544	2.1%
Supplies and Materials	44,853	3.9%
Motor Vehicle Fuel	44,286	3.8%
Equipment-Capitalized	25,183	2.2%
Equipment-Non-capitalized	98,823	8.6%
Local Sub-Total	1,153,364	100.0%
Non-Local Expenditures		
Employee Benefits	244,331	
Air Travel	33,073	
Non-Expense Item		
Real Property	-	
Grants	52,279	
Organization Total	1,483,047	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Sherburne NWR's 29,678 acres of fee lands was \$38 million in 2008. RRS payments of \$97,400 were made to Sherburne County which contains all of the land. Sherburne NWR generated about \$35,000 in revenue for the RRS fund in Fiscal Year 2008. This refuge has no reserved lands and so is not eligible for PILT payments.

The study area consists of three counties with 450,000 inhabitants. Much of the refuge spending is paid for things imported into the region and so flows quickly away from the region. Table 3-26 shows \$808,600 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$1.2 million in spending flowed to suppliers outside the area. About \$231,600 became compensation for new local workers in 7.3 jobs. As this spending flowed through the economy it generated \$1.2 million in total output and 10.4 jobs.

Table 3-26. Sherburne NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,500	2,800	100	300	0.0	0.0
Utilities	26,100	38,400	4,900	7,100	0.0	0.1
Construction	0	9,200	0	2,800	0.0	0.1
Manufacturing	69,400	86,200	16,400	19,700	0.3	0.3
Trade	274,400	329,200	100,400	121,200	3.6	4.2
Transportation	37,700	50,600	11,200	15,900	0.3	0.4
Information	23,900	45,000	3,900	7,100	0.1	0.1
Finance	143,000	241,100	6,900	16,700	0.3	0.7
Lodging	44,600	63,600	12,400	17,700	0.8	1.1
Government	11,200	21,700	4,200	9,000	0.1	0.1
Other	176,800	270,400	71,100	109,700	1.9	3.1
Total	808,600	1,158,300	231,600	327,200	7.3	10.4
Multipliers		1.43		1.41		1.42

Shiawassee National Wildlife Refuge

Description

Shiawassee National Wildlife Refuge is located in central lower Michigan, approximately 25 miles south of Saginaw Bay. It was established in 1953 to provide habitat for migratory waterfowl.

Known locally as the "Shiawassee Flats," the refuge lies in the Saginaw Bay watershed, historically one of the largest and most productive wetland ecosystems in Michigan. Four rivers converge on the refuge, including the Tittabawassee, Flint, Cass, and Shiawassee Rivers.

Area Economy

Shiawassee NWR is located in Saginaw County, near the head of Saginaw Bay. Table 3-27 shows some statistics of the area economy. The area population decreased by 4.3 percent from 1997 to 2007, compared with a 2.5 percent increase for the state and a 10.5 percent increase for the U.S. as a whole. Area unemployment is higher than the state and nation at 8.6 percent in 2007. Per capita personal income in the area fell by 2.4 percent over the 1997-2007 period, while the state of Michigan and the U.S. increased.

Table 3-27. Shiawassee NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Saginaw, MI	202.3	-4.3%	8.6%	\$ 28,679	-2.4%
Michigan	10,050	2.5%	8.3%	\$ 34,423	5.0%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Shiawassee NWR spent \$848,000 in operations and maintenance in FY2009. Almost three-quarters (73.7%) of this funding is spent on salaries to 8 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$175,000 in benefit amounts are not counted in local spending.

Table 3-28. Shiawassee NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	624,951	73.7%
Transportation of People	5,114	0.6%
Transportation of Things	-	0.0%
Communications	16,895	2.0%
Utilities	16,259	1.9%
Contracts	199	0.0%
Building Repairs	16,656	2.0%
Equipment Maintenance	3,435	0.4%
Supplies and Materials	54,813	6.5%
Motor Vehicle Fuel	10,945	1.3%
Equipment-Capitalized	31,744	3.7%
Equipment-Non-capitalized	66,540	7.9%
Local Sub-Total	847,551	100.0%
Non-Local Expenditures		
Employee Benefits	174,750	
Air Travel	15,621	
Non-Expense Item		
Real Property	2,190,391	
Grants	121,290	
Organization Total	3,349,604	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Shiawassee recorded a \$2.2 million improvement of real property. This is also not included in local expenditures.

The appraised value for Shiawassee NWR's 9,084 acres was \$11.7 million in 2008. RRS payments of \$28,386 were made to Saginaw County, Michigan. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 3-29 shows \$631,900 of the \$847,500 spent at the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the spending flowed to suppliers outside the area. About \$189,800 became compensation for new local workers in 5.8 jobs. The iteration of refuge spending through the local economy generated \$948,000 in total output and 8.4 jobs.

Table 3-29. Shiawassee NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,100	2,200	100	200	0.0	0.0
Utilities	22,100	29,600	4,100	5,500	0.0	0.1
Construction	100	7,100	0	2,300	0.0	0.1
Manufacturing	48,300	53,800	9,700	10,700	0.2	0.2
Trade	176,000	212,000	68,400	82,400	2.3	2.8
Transportation	4,700	12,900	1,400	4,500	0.0	0.1
Information	22,100	49,200	3,500	8,400	0.1	0.1
Finance	130,800	236,100	10,700	25,700	0.3	0.7
Lodging	39,500	55,800	11,100	15,700	0.7	1.0
Government	11,000	19,800	4,700	8,700	0.1	0.1
Other	176,200	269,600	76,100	115,100	2.2	3.3
Total	631,900	948,000	189,800	279,100	5.8	8.4
Multipliers		1.50		1.47		1.45

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes building repairs and payments for planning services.

St. Croix Wetland Management District

Description

Lying along the eastern edge of the tall grass prairie in west-central Wisconsin, the St. Croix Wetland Management District (WMD) encompasses a fascinating diversity of habitats. Within the eight-county district, one can travel north through the high river bluffs of Pepin County, to the prairie potholes of St. Croix County, and then to the pine barrens of Burnett County.

The district includes Barron, Burnett, Dunn, Washburn, Pierce, Pepin, Polk, and St. Croix counties. The central portion of St. Croix County, the heart of the district, is known as the Star Prairie Pothole Grasslands. These grasslands are ranked sixth out of 26 priority grassland landscapes in Wisconsin.

The district manages relatively small tracts of prairie wetland and grassland habitats as waterfowl production areas (WPAs). The district's 41 WPAs totaling 7,500 acres were purchased using Federal Duck Stamp dollars within the historic prairie pothole portion of the district, including southern Polk, St. Croix and Dunn counties. After purchase, prairie wetland and grassland habitats are restored.

Area Economy

The St. Croix WMD is adjacent to the Minneapolis/St. Paul Metropolitan Area of two million people. This dynamic presents unique opportunities and challenges for prairie wetland habitat preservation, restoration and management. Table 3-30 shows statistics to characterize the counties making up the area economy. The area population increased by 15.6 percent from 1997 to 2007, compared with a 6.3 percent increase for the state of Wisconsin and a 10.5 percent increase for the U.S. as a whole. The population growth rate near Minneapolis in St. Croix, Polk, and Pierce Counties was stronger than Wisconsin as a whole. Pepin and Barron Counties grew very slowly. The average unemployment rate in the area was similar to Wisconsin as a whole. Per capita personal income in the area is lower than the State or U.S. average and increasing at a slower rate over the 1997-2007 period.

Table 3-30. St. Croix WMD: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007	Percent	Rate	2007	Percent
	(,000)	change	Percent	(\$2007)	change
	1997-2007	(2007)	(2007)	1997-2007	1997-2007

St. Croix, WI	81.0	38.5%	4.3%	\$ 36,543	8.8%
Polk, WI	44.2	12.3%	5.8%	\$ 28,674	10.8%
Dunn, WI	42.5	9.1%	4.2%	\$ 27,588	11.8%
Burnett, WI	16.3	9.3%	6.8%	\$ 27,404	16.3%
Washburn, WI	16.7	8.8%	6.4%	\$ 26,006	8.2%
Barron, WI	45.5	3.2%	5.6%	\$ 29,003	14.3%
Pierce, WI	39.8	12.2%	4.2%	\$ 31,609	10.4%
Pepin, WI	7.4	3.3%	4.4%	\$ 29,940	16.0%
Total	293.4	15.6%	4.9%	\$ 30,948	10.9%
Wisconsin	5,599	6.3%	4.8%	\$ 36,272	14.5%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

St. Croix WMD spent \$818,800 in operations and maintenance in FY2009. More than half (63%) of this funding is spent on salaries to 8 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$179,800 in benefit amounts are not counted in local spending. An accounting adjustment caused a large credit for transportation of things in FY2009.

Table 3-31. St. Croix WMD: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	515,438	63.0%
Transportation of People	676	0.1%
Transportation of Things	(10,474)	-1.3%
Communications	12,327	1.5%
Utilities	7,173	0.9%
Contracts	702	0.1%
Building Repairs	7,987	1.0%
Equipment Maintenance	36,508	4.5%
Supplies and Materials	92,826	11.3%
Motor Vehicle Fuel	28,942	3.5%
Equipment-Capitalized	26,154	3.2%

Equipment-Non-capitalized	100,508	12.3%
Local Sub-Total	818,767	100.0%
Non-Local Expenditures		
Employee Benefits	179,838	
Air Travel	9,905	
Non-Expense Item		
Real Property	-	
Grants	67,005	
Organization Total	1,075,514	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for St. Croix's land was \$36.6 million in 2008. RRS payments of \$88,800 were made to St. Croix County. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 3-32 shows only \$574,800 of the \$818,800 spent by the WMD had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$136,100 became compensation for new local workers in 5.5 jobs. As this spending flowed through the economy, it generated \$763,300 in total output and 7.4 jobs.

Table 3-32. St. Croix WMD: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,200	2,600	300	400	0.0	0.0
Utilities	11,000	16,500	2,000	2,900	0.0	0.0
Construction	0	5,000	0	1,400	0.0	0.1
Manufacturing	66,200	73,000	10,700	12,000	0.2	0.3
Trade	187,200	213,100	64,600	73,800	2.8	3.1
Transportation	2,700	9,200	700	3,200	0.0	0.1
Information	15,400	28,500	2,200	4,100	0.0	0.1

Finance	78,100	129,000	3,900	9,900	0.1	0.4
Lodging	25,900	38,500	6,400	9,500	0.5	0.8
Government	9,400	18,100	3,400	6,700	0.1	0.1
Other	177,700	229,700	42,000	62,400	1.6	2.4
Total	574,800	763,300	136,100	186,400	5.5	7.4
Multipliers		1.33		1.37		1.35

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Tamarac National Wildlife Refuge

Description

Tamarac National Wildlife Refuge covers 42,724 acres and lies in the glacial lake country of northwestern Minnesota in Becker County, 18 miles northeast of Detroit Lakes. It was established in 1938 as a refuge breeding ground for migratory birds and other wildlife.

Refuge topography consists of rolling forested hills interspersed with lakes, rivers, marshes, bogs and shrub swamps. The refuge is named for the Tamarac tree, a deciduous conifer that turns a brilliant gold before losing its needles each fall.

Tamarac lies in the heart of one of the most diverse vegetative transition zones in North America, where northern hardwood forests, coniferous forests and the tall grass prairie converge. This diversity of habitat brings with it a wealth of wildlife, both woodland and prairie species.

Area Economy

Tamarac NWR is located in rural northwestern Minnesota. Table 3-33 shows relevant statistics about the area economy. The area population increased by 8.8 percent from 1997 to 2007, precisely on a par with Minnesota and somewhat slower than the U.S. as a whole. The average unemployment rate in the area was higher than the Minnesota and U.S. averages. Average per capita personal income in the area increased by 21.3 percent over the 1997-2007 period. Although incomes in the area are below state and national averages, Becker County's income growth exceeded state and national averages while Hubbard County fell further behind.

Table 3-33. Tamarac NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Becker, MN	31.9	8.9%	6.8%	\$ 31,754	26.0%
Hubbard, MN	18.8	8.6%	7.7%	\$ 27,984	13.1%
Total	50.6	8.8%	7.1%	\$ 30,356	21.3%
Minnesota	5,182	8.8%	5.4%	\$ 41,105	18.1%

United States	301,290	10.5%	5.8%	\$38,615	18.0%
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Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Tamarac NWR spent \$832,400 in operations and maintenance in FY2009. Seventy percent (70%) of this funding is spent on salaries to 9 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$171,500 in benefit amounts are not counted in local spending.

Table 3-34. Tamarac NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	582,890	70.0%
Transportation of People	985	0.1%
Transportation of Things	700	0.1%
Communications	22,899	2.8%
Utilities	12,586	1.5%
Contracts	985	0.1%
Building Repairs	20,454	2.5%
Equipment Maintenance	12,651	1.5%
Supplies and Materials	55,575	6.7%
Motor Vehicle Fuel	25,624	3.1%
Equipment-Capitalized	23,614	2.8%
Equipment-Non-capitalized	73,457	8.8%
Local Sub-Total	832,420	100.0%
Non-Local Expenditures		
Employee Benefits	171,489	
Air Travel	23,704	
Non-Expense Item		
Real Property	46,245	
Grants	56,117	
Organization Total	1,129,976	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Tamarac recorded a \$46,200 improvement of real property. This is also not included in local expenditures.

The appraised value for Tamarac NWR fee lands was \$33.1 million in 2008. RRS payments of \$80,300 were made to Becker County, Minnesota. This refuge has 40 acres of reserved lands but does not generate revenue for the RRS fund.

Refuge spending in the local economy paid for both locally produced items and things imported into the region for sale. So all of the expenditures did not result in increased local output. Table 3-36 shows \$536,000 had a direct effect on local output. Typical purchasing patterns for households and industries in the region suggest the remaining spending flowed to suppliers outside the area. About \$130,300 became compensation for local workers in 5.2 jobs. The iteration of refuge spending through the local economy generated \$700,800 in total output and 6.9 jobs.

Table 3-36. Neal Smith NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	500	700	100	100	0.0	0.0
Utilities	13,800	15,000	2,500	2,700	0.0	0.0
Construction	0	5,600	0	1,200	0.0	0.1
Manufacturing	73,200	78,000	17,300	18,300	0.4	0.4
Trade	154,400	174,800	49,800	56,900	2.4	2.7
Transportation	4,000	8,800	1,100	2,400	0.0	0.1
Information	19,400	29,700	3,000	4,800	0.0	0.1
Finance	92,000	144,800	4,100	10,000	0.2	0.4
Lodging	26,200	36,400	6,600	9,200	0.5	0.7
Government	9,600	17,700	3,600	6,900	0.1	0.1
Other	143,000	189,500	42,400	59,200	1.6	2.2
Total	536,000	700,800	130,300	171,800	5.2	6.9
Multipliers		1.31		1.32		1.33

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

DRAFT

Trempealeau National Wildlife Refuge

Description

This 6,226-acre Refuge lies within the Mississippi flyway, along the Mississippi River in western Wisconsin. It is an isolated backwater, cut off from the Mississippi and Trempealeau rivers by dikes, providing needed resting and feeding areas for waterfowl and other birds. The Refuge is situated in a unique geological formation known as the driftless area. Thousands of years ago, glaciers surrounded but did not pass over the land. Blown into mounds, sand and silt from melting glaciers formed the rolling sand prairies of the Refuge.

Wetlands are a prominent feature. Before the railroads arrived and the locks and dams were built, the lands within the Refuge were part of the Mississippi River. As such, these backwaters experienced floods and droughts. Today, using dikes and control structures, managers can mimic this natural cycle by lowering the water to expose mudflats and allow plants to germinate. Migratory waterfowl and marsh birds benefit.

Area Economy

Trempealeau NWR is located on the Mississippi River near Winona, Minnesota, and LaCrosse, Wisconsin. Table 3-37 shows economic statistics of the counties. LaCrosse County has more than half the regional population and is the fastest growing. The area population increased by 3.9 percent from 1997 to 2007, compared with a 6.3 percent increase for the state of Wisconsin and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than the states and U.S. Average per capita personal income in the area increased by 15.7 percent over the 1997-2007 period although Winona County, Minnesota, and Buffalo County, Wisconsin, income growth exceeded the state average.

Table 3-37. Trempealeau NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
La Crosse, WI	111.5	6.1%	3.8%	\$ 32,853	12.0%
Winona, MN	49.8	0.1%	4.7%	\$ 32,964	22.3%

Trempealeau, WI	27.8	4.6%	4.4%	\$ 29,775	16.1%
Buffalo, WI	13.8	0.2%	4.1%	\$ 35,409	23.5%
Area Total	203.0	3.9%	4.1%	\$ 32,633	15.7%
Wisconsin	5,599	6.3%	4.8%	\$ 36,272	14.5%
Minnesota	5,182	8.8%	5.4%	\$ 41,105	18.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Trempealeau NWR spent \$425,000 in operations and maintenance in FY2009. Fifty-eight percent (58%) of this funding is spent on salaries to 4 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$71,200 in benefit amounts are not counted in local spending.

Table 3-38. Trempealeau NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	246,719	58.1%
Transportation of People	664	0.2%
Transportation of Things	-	0.0%
Communications	67,926	16.0%
Utilities	8,906	2.1%
Contracts	-	0.0%
Building Repairs	6,811	1.6%
Equipment Maintenance	7,269	1.7%
Supplies and Materials	28,010	6.6%
Motor Vehicle Fuel	2,785	0.7%
Equipment-Capitalized	14,003	3.3%
Equipment-Non-capitalized	41,895	9.9%
Local Sub-Total	424,987	100.0%
Non-Local Expenditures		
Employee Benefits	71,170	
Air Travel	2,761	
Non-Expense Item		
Real Property	-	-----

Grants	24,360
Organization Total	523,278

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Trempealeau NWR's 6,300 acres of fee lands was \$7.3 million in 2008. RRS payments of \$11,600 were made to Trempealeau County, Wisconsin and \$6,100 to Buffalo County, Wisconsin. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 3-38 shows only \$287,600 of the \$425,000 spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$73,500 became compensation for new local workers in 2.2 jobs. As this spending flowed through the economy, it generated \$350,100 in total output and 2.8 jobs.

Table 3-38. Trempealeau NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	400	1,000	100	100	0.0	0.0
Utilities	10,300	12,200	2,000	2,300	0.0	0.0
Construction	0	1,400	0	500	0.0	0.0
Manufacturing	111,200	115,700	26,100	26,900	0.5	0.5
Trade	54,900	63,800	20,700	24,000	0.8	0.9
Transportation	1,200	3,800	400	1,400	0.0	0.0
Information	6,300	11,100	900	1,600	0.0	0.0
Finance	32,000	46,600	1,700	3,500	0.0	0.1
Lodging	9,200	12,600	2,200	3,100	0.2	0.2
Government	1,800	3,500	600	1,300	0.0	0.0
Other	60,200	78,400	18,900	26,700	0.6	0.8
Total	287,600	350,100	73,500	91,300	2.2	2.8
Multipliers		1.22		1.24		1.27

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Region 4

Region 4 of the U.S. Fish & Wildlife Service serves the Southeast including Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Puerto Rico, South Carolina, and Tennessee.

Sample refuges selected within this region include:

Cross Creeks NWR (Tennessee)
Noxubee NWR (Mississippi)
Pocosin Lakes NWR (North Carolina)
St. Marks NWR (Florida)
Tensas River NWR (Louisiana)
Waccamaw NWR (South Carolina)
Wheeler NWR (Alabama)
White River NWR (Arkansas)

Cross Creeks National Wildlife Refuge

Description

Cross Creeks NWR is located on the Cumberland River four miles east of Dover, in Stewart County, Tennessee, approximately seventy-five miles northwest of Nashville, Tennessee. The refuge was established in 1962 as a result of mitigation proceedings with the U.S. Army Corps of Engineers when a portion of the Kentucky Woodlands NWR was inundated with the creation of the Lake Barkley Project. Its primary purpose is to provide feeding and resting habitat for migratory birds with an emphasis placed on providing habitat for wintering waterfowl.

Area Economy

Cross Creeks NWR is located in the rural area beyond the northwestern suburbs of Nashville in western Tennessee. Table 4-1 shows the counties making up the area economy. The area population increased by 21.1 percent from 1997 to 2007, compared with an 11.8 percent increase for the state of Tennessee and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was slightly lower than the state of Tennessee as a whole and higher than the U.S. rate. Average per capita personal income in the area increased by 31.1 percent over the 1997-2007 period and is higher than the state average.

Table 4-1. Cross Creeks NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Stewart, TN	13.0	13.8%	8.5%	\$25,938	20.6%
Montgomery, TN	154.4	21.8%	6.1%	\$35,337	31.8%
Area Total	167.4	21.1%	6.3%	\$34,606	31.1%
Tennessee	6,149	11.8%	6.7%	\$33,395	14.0%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Cross Creeks NWR spent \$365,300 in operations and maintenance in FY2009. Fifty-six percent (56%) of this funding is spent on salaries to four employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$59,900 in benefit amounts are not counted in local spending.

Table 4-2. Cross Creeks NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	203,003	55.6%
Transportation of People	413	0.1%
Transportation of Things	-	0.0%
Communications	7,782	2.1%
Utilities	7,567	2.1%
Contracts	1,189	0.3%
Building Repairs	9,127	2.5%
Equipment Maintenance	15,156	4.1%
Supplies and Materials	34,188	9.4%
Motor Vehicle Fuel	13,306	3.6%
Equipment-Capitalized	43,847	12.0%
Equipment-Non-capitalized	29,680	8.1%
Local Sub-Total	365,257	100.0%
Non-Local Expenditures		
Employee Benefits	59,852	
Air Travel	3,422	
Non-Expense Item		
Real Property	-	
Grants	2,857	
Organization Total	431,388	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

The appraised value for Cross Creeks NWR fee lands was \$4.8 million in 2008. RRS payments of \$12,339 were made to Stewart County, Tennessee. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 4-3 shows only \$254,300 of the \$365,300 spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$59,000 became compensation for local workers in 2.0 jobs. As this spending flowed through the economy, it generated \$333,400 in total output and 2.6 jobs.

Table 4-3. Cross Creeks NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	100	200	0	0	0.0	0.0
Utilities	1,700	2,400	200	300	0.0	0.0
Construction	0	1,400	0	300	0.0	0.0
Manufacturing	49,700	53,400	11,200	12,200	0.2	0.2
Trade	68,000	78,300	23,800	27,600	0.9	1.0
Transportation	600	2,000	100	600	0.0	0.0
Information	6,700	11,800	1,100	2,200	0.0	0.0
Finance	31,500	57,100	1,300	3,600	0.1	0.2
Lodging	9,100	14,000	2,600	4,000	0.2	0.3
Government	12,100	18,300	2,300	3,700	0.0	0.1
Other	74,800	94,400	16,400	22,600	0.6	0.9
Total	254,300	333,400	59,000	77,100	2.0	2.6
Multipliers		1.31		1.31		1.30

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Noxubee National Wildlife Refuge

Description

Noxubee National Wildlife Refuge is located in three counties (Noxubee, Oktibbeha, and Winston) and was originally created from lands obtained through the 1930's Resettlement Administration. With additional land acquisitions through the years, Noxubee now consists of 48,000 acres. Approximately 44,500 acres of the refuge is bottomland and upland forest. These forest lands are occupied by a variety of game species, including quail, deer, and turkey. Many neotropical bird species inhabit the Noxubee forests. Four green-tree reservoirs, two major lakes (Bluff and Loakfoma), 16 small impoundments, and assorted wetland areas provide important habitat for wood stork, American alligator, bald eagle and wintering waterfowl.

Area Economy

Noxubee NWR is located in rural eastern Mississippi. Table 4-4 shows some statistics that characterize the area economy. The area population increased by 1.2 percent from 1997 to 2007, compared with a 5.2 percent increase for the state of Mississippi and a 10.5 percent increase for the U.S. as a whole. Two of the counties lost population over the period. The area unemployment rate in 2007 is higher than the state of Mississippi and the U.S. rates. Per capita personal income in the area increased faster than the state as a whole at 22.3 percent over the 1997-2007 period. Noxubee County income, however, grew much more slowly. Noxubee is the sixth poorest county in Mississippi, in terms of per capita personal income.

Table 4-4. Noxubee NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Noxubee,MS	11.9	-4.5%	14.1%	\$20,338	3.5%
Oktibbeha,MS	44.0	4.3%	6.5%	\$26,740	31.0%
Winston,MS	19.7	-1.7%	7.8%	\$24,102	14.2%
Total	75.5	1.2%	7.8%	\$25,047	22.3%
Mississippi	2,921	5.2%	6.8%	\$28,541	19.1%
UnitedStates	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Noxubee NWR spent \$1.4 million on operations and maintenance in FY2009. More than half of this funding (61%) is spent on salaries to 15 employees who live in the area. Ten FTEs are at the GS-9 level or higher. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$295,800 in benefit amounts are not counted in local spending.

Table 4-5. Noxubee NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	839,036	61.2%
Transportation of People	2,960	0.2%
Transportation of Things	-	0.0%
Communications	8,231	0.6%
Utilities	42,582	3.1%
Contracts	350	0.0%
Building Repairs	6,453	0.5%
Equipment Maintenance	11,738	0.9%
Supplies and Materials	82,864	6.0%
Motor Vehicle Fuel	28,786	2.1%
Equipment-Capitalized	126,226	9.2%
Equipment-Non-capitalized	222,317	16.2%
Local Sub-Total	1,371,543	100.0%
Non-Local Expenditures		
Employee Benefits	295,848	
Air Travel	27,936	
Non-Expense Item		
Real Property	-	
Grants	3,950	
Organization Total	1,699,277	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Noxubee NWR has 47,112 acres of fee lands in three counties valued at \$111.6 million. In addition, 40 acres were reserved from the public domain in Oktibbeha County. These reserved lands generated \$27,424 in revenue for the RRS fund from timber harvesting activities. One-quarter of these earnings, \$6,856, are returned to the county in addition to 0.75% of the appraised value of lands in the county. Fee lands also generated \$297,600 for the RRS fund but this revenue did not affect the local allocation of RRS funds. All told, Noxubee County received \$56,994, Oktibbeha County received \$89,306, and Winston County received \$126,545 from RRS in 2009. No PILT payments were made related to the small area of reserved lands.

Table 4-6 shows \$895,700 of the \$1.4 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$210,900 became compensation for local workers in 8.3 jobs. As this spending flowed through the economy, it generated \$1.1 million in total output and 10.8 jobs.

Table 4-6. Noxubee NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,000	2,000	0	100	0.0	0.0
Utilities	11,100	14,300	1,800	2,200	0.0	0.0
Construction	200	12,000	0	1,600	0.0	0.2
Manufacturing	172,700	176,800	23,100	23,700	0.5	0.5
Trade	347,800	387,200	121,200	134,800	4.8	5.3
Transportation	2,400	7,700	500	2,200	0.0	0.1
Information	10,300	25,700	1,400	3,500	0.0	0.1
Finance	120,300	187,200	5,300	13,200	0.2	0.5
Lodging	43,200	60,500	11,100	15,600	0.9	1.2
Government	50,600	64,300	8,300	12,400	0.1	0.2
Other	136,000	202,800	38,000	63,400	1.6	2.6
Total	895,700	1,140,500	210,900	273,000	8.3	10.8
Multipliers		1.27		1.29		1.30

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Pocosin Lakes National Wildlife Refuge

Description

Pocosin Lakes NWR was established in 1990 when the Conservation Fund in conjunction with the Richard King Mellon Foundation donated over 93,000 acres to the U.S. Fish & Wildlife Service. The adjacent 12,000 acre Pungo NWR, established in 1963 to serve as a sanctuary for migratory waterfowl, was combined with these new refuge lands and became the Pungo Unit of Pocosin Lakes NWR. Today the Refuge encompasses more than 113,000 acres.

Prior to its establishment, many acres of refuge wetlands were drained through a network of canals and ditches to expand agricultural areas; an alteration that has made the refuge more vulnerable to wildfires.

Pocosin Lakes NWR was established to provide habitat for migratory waterfowl and other birds, to protect and enhance a unique type of wetlands called pocosin, to protect and enhance habitat for those species which are classified as endangered, threatened, or of special concern, and to provide opportunities for wildlife-oriented interpretation, outdoor recreation and environmental education.

Area Economy

Pocosin Lakes NWR is located in the thinly populated wetlands of coastal North Carolina. Table 4-7 shows the counties making up the area economy. The area population fell by 4.4 percent from 1997 to 2007, compared with an 18 percent increase for the state of North Carolina and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was higher than the state of North Carolina as a whole and the U.S. rates. Average per capita personal income in the area increased by 9.7 percent over the 1997-2007. State of North Carolina and U.S. per capita personal income increased by 11.0 and 18.0 percent, respectively.

Table 4-7. Pocosin Lakes NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Hyde, NC	5.2	-4.9%	7.1%	\$27,312	8.5%
Washington, NC	12.9	-8.0%	7.9%	\$26,323	9.9%
Tyrrell, NC	4.1	9.9%	7.3%	\$24,714	10.5%

Area Total	22.2	-4.4%	7.6%	\$26,255	9.7%
North Carolina	9,042	18.1%	6.2%	\$33,735	11.0%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Pocosin Lakes NWR spent \$8.7 million in operations and maintenance in FY2009. More than \$7.3 million of this was for professional services related to fire suppression. Because of the fire suppression spending, only a relatively small proportion, \$826,000, of total funding was spent on salaries to the refuge's 13 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$280,000 in benefit amounts are not counted in local spending.

Table 4-8. Pocosin Lakes NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	826,110	9.5%
Transportation of People	3,087	0.0%
Transportation of Things	(69)	0.0%
Communications	15,304	0.2%
Utilities	29,160	0.3%
Contracts	1,007	0.0%
Building Repairs	37,613	0.4%
Equipment Maintenance	139,327	1.6%
Supplies and Materials	7,352,735	85.0%
Motor Vehicle Fuel	68,325	0.8%
Equipment-Capitalized	101,521	1.2%
Equipment-Non-capitalized	79,681	0.9%
Local Sub-Total	8,653,801	100.0%
Non-Local Expenditures		
Employee Benefits	279,897	
Air Travel	34,241	
Non-Expense Item		
Real Property	13,961	
Grants	29,890	

Organization Total

9,011,789

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Pocosin Lakes recorded a \$13,961 improvement of real property. This is also not included in local expenditures.

The appraised value for Pocosin Lakes NWR lands was \$23.4 million in 2008. RRS payments of \$56,674 were made to three North Carolina counties. Hyde, Tyrell, and Washington Counties received \$20,906, \$25,977, and \$9,791, respectively. This refuge has no reserved lands and does not generate revenue for the RRS fund.

The fire suppression funding is many times the usual refuge budget. In order to demonstrate the large effects of such big inputs on the local economy, we show the effects both with and without the fire suppression spending. Table 4-9 shows that \$8.34 million of the \$8.65 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$785,800 became compensation for local workers in 25.3 jobs. As this spending flowed through the economy, it generated \$1.1 million in total output and 46.1 jobs.

Table 4-9. Pocosin Lakes NWR Economic Impacts of Refuge Expenditures including Fire Suppression Funding

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	4,000	17,600	500	2,200	0.0	0.1
Utilities	27,400	40,200	4,800	7,100	0.0	0.1
Construction	0	11,100	0	2,300	0.0	0.1
Manufacturing	19,100	35,900	2,200	3,700	0.1	0.2
Trade	255,100	377,900	82,300	126,400	3.8	5.6
Transportation	18,700	48,700	300	2,400	0.1	0.7
Information	10,600	93,600	1,000	9,900	0.0	0.5
Finance	145,200	772,300	2,900	37,800	0.5	5.4

Lodging	37,300	213,100	10,500	59,300	0.7	4.6
Government	15,200	103,400	3,200	34,700	0.1	0.7
Other	7,807,400	8,306,500	678,300	798,500	19.9	28.1
Total	8,340,000	10,020,200	785,800	1,084,300	25.3	46.1
Multipliers		1.20		1.38		1.82

Most of the increased output and employment occurs in the Other Services industries where the fire suppression money was spent. The Other sector includes upkeep for buildings and payments for planning and other services.

Table 4-10 shows that without the fire suppression spending the refuge had a direct effect on local output of \$745,600. About \$161,700 became compensation for local workers in 9.3 jobs. As this spending flowed through the economy, it generated \$929,600 in total output and 11.4 jobs. Notice that the multipliers differ between Tables 6 and 7 because of the change in the distribution of spending.

Table 4-10. Pocosin Lakes NWR: Economic Impacts of Refuge Expenditures excluding Fire Suppression Funding

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	4,000	6,300	500	900	0.0	0.0
Utilities	27,400	29,300	4,800	5,100	0.0	0.0
Construction	0	3,400	0	600	0.0	0.0
Manufacturing	19,100	21,600	2,200	2,500	0.1	0.1
Trade	255,100	281,200	82,300	91,600	3.8	4.2
Transportation	18,700	22,600	300	700	0.1	0.2
Information	10,600	15,700	1,000	1,500	0.0	0.1
Finance	145,200	218,900	2,900	6,400	0.5	1.0
Lodging	37,300	50,200	10,500	14,100	0.7	1.0
Government	15,200	25,300	3,200	6,700	0.1	0.1
Other	213,000	255,100	54,100	68,000	3.9	4.7
Total	745,600	929,600	161,700	198,100	9.3	11.4
Multipliers		1.25		1.23		1.23

St. Marks National Wildlife Refuge

Description

St. Marks NWR, located 25 miles south of Tallahassee along the Gulf Coast of Florida, is an oasis of natural Florida habitats for wildlife, especially birds. Natural salt marshes, freshwater swamps, pine forests and lakes provide a haven for wildlife and people.

Established in 1931 for wintering migratory birds, St. Marks NWR has a long tradition of excellent birdwatching. There are over 300 species of birds recorded on the refuge, with 98 species nesting on-site. Wildlife abounds on St. Marks NWR due to the wide diversity of habitats, ranging from wilderness saltmarshes, ribboned with tidal creeks, to rolling longleaf pine forests, with swamps, sinkholes, and palm/oak hammocks in between. Located in Wakulla, Jefferson, and Taylor counties, the refuge spans over 43 miles of coastline and supports 52 species of mammals such as the Florida black bear and bobcat.

Area Economy

St. Marks NWR is located on the Gulf coast south of the Tallahassee metro area. Table 4-11 shows the counties making up the area economy. The area population grew rapidly from 1997 to 2007, but slower than Florida as a whole. Wakulla County is dominated by National Forest and Refuge lands but grew by 45 percent over the decade. The average unemployment rate in the area was lower than the state and U.S. average rates. Average per capita personal income in the area increased by 16.7 percent over the 1997-2007 period, slightly slower than the state and national rates.

Table 4-11. St. Marks NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Leon, FL	262.1	14.2%	4.4%	\$34,332	17.9%
Wakulla, FL	30.1	45.0%	4.5%	\$25,789	4.0%
Area Total	292.2	16.8%	4.4%	\$33,452	16.7%
Florida	18,200	19.8%	6.3%	\$38,417	21.4%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

St. Marks NWR spent \$1.98 million in operations and maintenance in FY2009. Sixty-four percent (64%) of this funding was spent on salaries to the refuge's 18 permanent and 3 temporary full-time equivalent positions. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$404,600 in benefit amounts are not counted in local spending.

Table 4-12. St. Marks NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,264,274	63.9%
Transportation of People	3,666	0.2%
Transportation of Things	41	0.0%
Communications	28,054	1.4%
Utilities	32,670	1.7%
Contracts	95	0.0%
Building Repairs	1,242	0.1%
Equipment Maintenance	35,881	1.8%
Supplies and Materials	(17,299)	-0.9%
Motor Vehicle Fuel	41,252	2.1%
Equipment-Capitalized	421,851	21.3%
Equipment-Non-capitalized	167,034	8.4%
Local Sub-Total	1,978,762	100.0%
Non-Local Expenditures		
Employee Benefits	404,620	
Air Travel	54,785	
Non-Expense Item		
Real Property	207,557	
Grants	76,956	
Organization Total	2,722,680	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, St. Marks recorded a \$207,600 improvement of real property. This is also not included in local expenditures.

The appraised value for St. Marks NWR lands was \$57.4 million in 2008. RRS payments of \$139,090 were made to three Florida counties. Wakulla, Jefferson, and Tyler Counties received \$126,246, \$12,600, and \$246, respectively. This refuge has 93 acres of reserved lands which account for \$155 of Wakulla County's \$286,751 FY2009 PILT payment. St. Marks does not generate revenue for the RRS fund.

Table 4-13 shows \$895,700 of the \$1.37 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$210,900 became compensation for local workers in 8.3 jobs. As this spending flowed through the economy, it generated \$1.14 million in total output and 10.8 jobs.

Table 4-13. St. Marks NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,000	2,000	0	100	0.0	0.0
Utilities	11,100	14,300	1,800	2,200	0.0	0.0
Construction	200	12,000	0	1,600	0.0	0.2
Manufacturing	172,700	176,800	23,100	23,700	0.5	0.5
Trade	347,800	387,200	121,200	134,800	4.8	5.3
Transportation	2,400	7,700	500	2,200	0.0	0.1
Information	10,300	25,700	1,400	3,500	0.0	0.1
Finance	120,300	187,200	5,300	13,200	0.2	0.5
Lodging	43,200	60,500	11,100	15,600	0.9	1.2
Government	50,600	64,300	8,300	12,400	0.1	0.2
Other	136,000	202,800	38,000	63,400	1.6	2.6
Total	895,700	1,140,500	210,900	273,000	8.3	10.8
Multipliers		1.27		1.29		1.30

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Tensas River National Wildlife Refuge

Description

Tensas River NWR is a 63,925-acre island of forest in a sea of agricultural land. It was established in 1980 to preserve the largest privately owned tract of bottomland hardwood habitat remaining in the Mississippi delta. The refuge is home to the threatened Louisiana black bear and American alligator.

Hunting and fishing are the largest public-use programs on the refuge. Deer, squirrel, raccoon, turkey, and waterfowl are hunted with bow and arrow, muzzleloaders, and other weapons. Bass and crappie are popular quarry for anglers. Several lakes are open for fishing year-round. Much of the refuge is difficult to access on foot, limiting non-consumptive use. The refuge has a strong environmental education program. Teacher-training workshops and environmental summer camps are hosted annually.

Area Economy

Tensas River NWR is located in rural northeastern Louisiana. Table 4-14 shows some statistics that characterize the area economy. The area population decreased by 7.7 percent from 1997 to 2007, compared with a 1.1 percent decrease for the state of Louisiana and a 10.5 percent increase for the U.S. as a whole. The state population decline may be attributable to the effects of Hurricanes Katrina and Rita but this area is outside the hurricane impact zone. The area unemployment rate in 2007 is higher than the state of Louisiana and the U.S. rates. Per capita personal income in the area increased by 15.2 percent over the 1997-2007 period. However, the area income remained well below the state average.

Table 4-14. Tensas River NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Madison, LA	11.8	-13.6%	7.7%	\$21,052	20.0%
Tensas, LA	5.8	-14.2%	7.9%	\$27,229	16.1%
Franklin, LA	20.1	-7.0%	7.3%	\$23,440	14.8%
Richland, LA	20.5	-2.4%	6.2%	\$24,318	13.1%
Area Total	58.2	-7.7%	7.0%	\$23,643	15.2%
Louisiana	4,373	-1.1%	4.5%	\$35,100	31.4%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Tensas River NWR spent \$1.4 million on operations and maintenance in FY2009. More than half of this funding (53%) is spent on salaries to 12 employees who live in the area. Eight FTEs are at the GS-9 level or higher. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$246,100 in benefit amounts are not counted in local spending.

Table 4-15. Tensas NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	734,038	53.5%
Transportation of People	6,281	0.5%
Transportation of Things	-	0.0%
Communications	67,363	4.9%
Utilities	18,335	1.3%
Contracts	71	0.0%
Building Repairs	268,818	19.6%
Equipment Maintenance	31,936	2.3%
Supplies and Materials	33,145	2.4%
Motor Vehicle Fuel	40,335	2.9%
Equipment-Capitalized	55,115	4.0%
Equipment-Non-capitalized	117,244	8.5%
Local Sub-Total	1,372,681	100.0%
Non-Local Expenditures		
Employee Benefits	246,136	
Air Travel	26,064	
Non-Expense Item		
Real Property	173,456	
Grants	12,078	
Organization Total	1,830,415	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. . In FY2009, Tensas River NWR recorded a \$173,500 improvement of real property. This is also not included in local expenditures.

Tensas River NWR has 74,412 acres of fee lands in two parishes valued at \$117.5 million. These lands generated \$914,000 for the RRS fund but this revenue did not affect the local allocation of RRS funds. All told Madison Parish received \$211,800 and Tensas Parish received \$73,000 from RRS in 2009.

Table 4-16 shows \$840,700 of the \$1.37 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$193,100 became compensation for new local workers in 11.4 jobs. As this spending flowed through the economy, it generated \$235,400 in total output and 13.3 jobs.

Table 4-16. Tensas River NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,300	1,900	100	200	0.0	0.0
Utilities	21,200	25,800	4,100	5,000	0.0	0.1
Construction	0	3,400	0	700	0.0	0.0
Manufacturing	54,700	55,200	3,300	3,300	0.1	0.1
Trade	162,600	193,800	48,800	59,400	2.2	2.6
Transportation	2,200	6,100	400	1,500	0.0	0.1
Information	52,100	64,100	4,500	5,600	0.1	0.2
Finance	115,500	178,500	5,200	11,000	0.3	0.6
Lodging	25,000	33,400	5,900	8,100	0.4	0.6
Government	14,600	21,300	6,600	9,100	0.1	0.2
Other	391,600	446,500	114,200	131,400	8.0	8.9
Total	840,700	1,029,900	193,100	235,400	11.4	13.3
Multipliers		1.23		1.22		1.17

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Waccamaw National Wildlife Refuge

Description

Waccamaw NWR was established on December 1, 1997 to protect an important coastal river ecosystem for the benefit of endangered and threatened species and wildlife. Located in portions of Horry, Georgetown, and Marion County, Waccamaw NWR spans more than 9,000 acres. Waccamaw NWR is one of four refuges in the Ace Basin/Cape Romain/Santee/Waccamaw NWR Complex. It has a permanent staff of two.

Area Economy

Waccamaw NWR is located inland from Myrtle Beach, South Carolina. Table 4-16 shows economic statistics of the nearby counties. The population of Georgetown County, which includes the city of Myrtle Beach, increased by 14.8 percent from 1997 to 2007, compared with a 14.1 percent increase for the state of South Carolina and a 10.5 percent increase for the U.S. as a whole. Marion County population fell by five percent. The unemployment rate in Marion County was very high in 2007 and per capita personal income comparatively low. Georgetown County also had a higher unemployment rate than the state or nation but higher average per capita personal income than the state in general. Income growth in Georgetown County exceeded the state and national average.

Table 4-16. Waccamaw NWR: Summary of Area Economy, 2007
(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Marion, SC	33.9	-5.0%	14.0%	\$22,145	9.2%
Georgetown, SC	60.4	14.8%	7.6%	\$34,694	32.1%
Area Total	94.3	6.8%	9.5%	\$30,184	25.2%
South Carolina	4,405	14.1%	6.9%	\$31,103	14.7%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Waccamaw NWR spent \$199,900 in operations and maintenance in FY2009. Three quarters (78%) of this funding is spent on salaries to two employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$53,400 in benefit amounts are not counted in local spending.

Table 4-17. Waccamaw NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	156,211	78.1%
Transportation of People	684	0.3%
Transportation of Things	-	0.0%
Communications	3,779	1.9%
Utilities	7,111	3.6%
Contracts	-	0.0%
Building Repairs	115	0.1%
Equipment Maintenance	4,273	2.1%
Supplies and Materials	7,240	3.6%
Motor Vehicle Fuel	5,671	2.8%
Equipment-Capitalized	1,350	0.7%
Equipment-Non-capitalized	13,478	6.7%
Local Sub-Total	199,913	100.0%
Non-Local Expenditures		
Employee Benefits	53,381	
Air Travel	14,124	
Non-Expense Item		
Real Property	63,758	
Grants	30,110	
Organization Total	361,286	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Waccamaw continues to expand with sales from willing sellers. In FY2009, Waccamaw NWR recorded a \$63,758 improvement of real property. This is also not included in local expenditures.

The appraised value for Waccamaw NWR's 10,640 acres of fee lands was \$24.9 million in 2008. RRS payments of \$18,450 were made to Georgetown County and \$41,900 to Horry County. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 4-18 shows \$136,600 of the \$199,900 spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$31,200 became compensation for local workers in 1.3 jobs. As this spending flowed through the economy, it generated \$186,800 in total output and 1.8 jobs.

Table 4-18. Waccamaw NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	100	300	0	0	0.0	0.0
Utilities	2,000	2,300	100	100	0.0	0.0
Construction	0	1,900	0	400	0.0	0.0
Manufacturing	3,600	4,500	500	600	0.0	0.0
Trade	45,800	51,500	15,100	17,100	0.6	0.7
Transportation	10,800	12,100	700	1,200	0.1	0.1
Information	4,200	7,400	500	800	0.0	0.0
Finance	27,400	45,000	1,600	3,600	0.1	0.2
Lodging	8,400	11,900	2,400	3,400	0.1	0.2
Government	8,800	11,700	1,800	2,700	0.0	0.0
Other	25,500	38,200	8,600	13,100	0.3	0.5
Total	136,600	186,800	31,200	43,000	1.3	1.8
Multipliers		1.37		1.38		1.38

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Wheeler National Wildlife Refuge

Description

Wheeler NWR, located along the Tennessee River between Huntsville and Decatur, Alabama, was established in 1938 to provide habitat for wintering and migrating birds. Considered the easternmost Refuge in the Mississippi flyway, this 34,500 acre Refuge attracts thousands of wintering waterfowl each year. In addition to migratory birds, the Refuge hosts 115 species of fish, 74 species of reptiles and amphibians, 47 species of mammals, and 285 different species of songbirds. The Refuge is also home to 10 federally listed endangered or threatened species.

Wheeler NWR is comprised of a great diversity of habitat types such as bottomland hardwoods, wetlands, pine uplands, agricultural fields, and backwater embayments. These habitats provide excellent feeding, loafing, and roosting sites for waterfowl, as well as nesting sites for migrating songbirds. The Refuge provides a much needed oasis in one of the fastest growing regions in the state, with Madison being ranked as one of the top ten fastest growing cities in the nation in 2002.

Area Economy

Wheeler NWR is located the urban corridor between Huntsville and Decatur, Alabama. Table 4-19 shows the counties making up the area economy. The area population increased by 14 percent from 1997 to 2007, compared with a 5.9 percent increase for the state of Alabama and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than the state of Alabama and the U.S. rate. Average per capita personal income in the area increased by 16.9 percent over the 1997-2007 period. State of Alabama and U.S. per capita personal income increased by 19.9 and 18 percent, respectively.

Table 4-19. Wheeler NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent	Rate	2007 (\$2007)	Percent
		change	Percent		change
		1997-2007	(2007)		1997-2007
Morgan, AL	114.8	5.2%	4.7%	\$33,938	16.9%
Madison, AL	312.4	16.6%	3.7%	\$38,263	17.2%
Limestone, AL	73.9	18.4%	4.2%	\$29,309	15.1%

Area Total	501.1	14.0%	3.9%	\$35,952	16.9%
Alabama	4,627	5.9%	5.2%	\$32,419	19.9%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Wheeler NWR spent \$1.4 million in operations and maintenance in FY2009. More than half, \$909,000, of this funding was spent on salaries to the refuge's 14 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$288,300 in benefit amounts are not counted in local spending.

Table 4-20. Wheeler NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	909,013	65.5%
Transportation of People	707	0.1%
Transportation of Things	6	0.0%
Communications	34,438	2.5%
Utilities	25,988	1.9%
Contracts	49	0.0%
Building Repairs	12,327	0.9%
Equipment Maintenance	47,829	3.4%
Supplies and Materials	37,446	2.7%
Motor Vehicle Fuel	33,465	2.4%
Equipment-Capitalized	169,108	12.2%
Equipment-Non-capitalized	116,768	8.4%
Local Sub-Total	1,387,144	100.0%
Non-Local Expenditures		
Employee Benefits	288,258	
Air Travel	19,534	
Non-Expense Item		
Real Property	11,141	
Grants	69,712	
Organization Total	1,775,790	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Wheeler recorded a \$111,141 improvement of real property. This is also not included in local expenditures.

The appraised value for Wheeler NWR lands was \$22.6 million in 2008. RRS payments of \$60,000 were made to three North Carolina counties. Madison, Morgan, and Limestone Counties received \$14,135, \$36,057, and \$9,429, respectively. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 4-21 shows \$996,100 of the \$1.4 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$256,000 became compensation for local workers in 7.9 jobs. As this spending flowed through the economy, it generated \$1.4 million in total output and 11.3 jobs. The more complex economy of a more urbanized region is evident in the multipliers which are larger than in many of the sample refuges.

Table 4-21. Wheeler NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	500	1,200	100	100	0.0	0.0
Utilities	800	1,200	100	200	0.0	0.0
Construction	0	8,500	0	3,100	0.0	0.1
Manufacturing	209,100	235,700	34,100	37,700	0.6	0.7
Trade	287,900	336,300	110,000	128,700	3.6	4.2
Transportation	4,500	14,200	1,400	5,100	0.0	0.1
Information	38,100	77,300	5,400	10,800	0.1	0.2
Finance	164,800	275,600	10,900	26,100	0.4	0.9
Lodging	52,200	74,500	14,700	21,000	0.9	1.3
Government	50,200	77,000	9,100	16,000	0.1	0.2
Other	187,900	303,900	70,300	121,500	2.1	3.5
Total	996,100	1,405,300	256,000	370,300	7.9	11.3
Multipliers		1.41		1.45		1.43

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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White River National Wildlife Refuge

Description

White River NWR, was established in 1935 for the protection of migratory birds. The refuge lies in the floodplain of the White River near where it meets the Mississippi River. White River NWR is one of the largest remaining bottomland hardwood forests in the Mississippi River Valley.

Approximately two-thirds of the bird species found in Arkansas can be seen at White River NWR. Many of these are neotropical migratory songbirds that use the refuge as a stopping point on their journey to and from central and south America. Mallards along with gadwalls, American widgeon, and greenwing teal arrive in early autumn. Populations usually peak in late December. During some years, 350,000 birds will winter in these flooded bottomland hardwood forests.

Area Economy

White River NWR is located in the Mississippi floodplain of rural eastern Arkansas. Table 4-22 shows the counties making up the area economy. The area population decreased by 14.7 percent from 1997 to 2007, compared with a 8.8 percent increase for the state of Arkansas and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was much higher than the state of Arkansas and the U.S. rates. Incomes in the area remain 30 percent below the U.S. average even though average per capita personal income in the area increased by 16.7 percent over the 1997-2007 period. State of Arkansas and U.S. per capita personal income increased by 19.2 and 18 percent, respectively.

Table 4-22. White River NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Monroe, AR	8.7	-18.3%	5.9%	\$24,015	12.8%
Arkansas, AR	19.4	-7.7%	9.2%	\$32,165	17.3%
Desha, AR	13.8	-11.9%	8.1%	\$23,565	8.0%
Phillips, AR	22.0	-20.1%	6.7%	\$24,703	23.6%
Area Total	63.8	-14.7%	7.9%	\$26,626	16.7%
Arkansas	2,831	8.8%	5.2%	\$30,177	19.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

White River NWR spent \$1.3 million in operations and maintenance in FY2009. More than half (65%) of this funding was spent on salaries to the refuge’s 14 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$265,200 in benefit amounts are not counted in local spending.

Table 4-23. White River NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	874,348	65.1%
Transportation of People	872	0.1%
Transportation of Things	80	0.0%
Communications	30,202	2.2%
Utilities	19,154	1.4%
Contracts	1,099	0.1%
Building Repairs	(17,439)	-1.3%
Equipment Maintenance	52,353	3.9%
Supplies and Materials	19,879	1.5%
Motor Vehicle Fuel	36,282	2.7%
Equipment-Capitalized	239,094	17.8%
Equipment-Non-capitalized	87,856	6.5%
Local Sub-Total	1,343,780	100.0%
Non-Local Expenditures		
Employee Benefits	265,158	
Air Travel	11,418	
Non-Expense Item		
Real Property	60,822	
Grants	47,201	
Organization Total	1,728,378	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, White River recorded a \$60,800 improvement of real property. This is also not included in local expenditures.

The appraised value for White River NWR lands was \$154.9 million in 2008. RRS payments of \$375,400 were made to four Arkansas counties. This refuge has 6 acres of reserved lands which do not generate revenue for the RRS fund. Less than one percent of Monroe County's PILT payment is attributable to White River. Its fee lands generate about \$14,800 for the RRS fund but this does not affect the payment to local governments.

Table 4-24 shows \$893,800 of the \$1.3 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$188,200 became compensation for local workers in 7.0 jobs. As this spending flowed through the economy, it generated \$1.1 million in total output and 9.0 jobs.

Table 4-24. White River NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	2,900	4,200	100	300	0.0	0.0
Utilities	22,200	26,400	4,100	4,900	0.0	0.1
Construction	0	3,900	0	1,200	0.0	0.1
Manufacturing	270,600	279,700	24,300	25,200	0.6	0.6
Trade	223,000	257,100	75,400	87,700	2.9	3.3
Transportation	3,800	11,600	900	3,900	0.0	0.1
Information	15,500	27,500	2,200	4,200	0.0	0.1
Finance	138,400	194,300	7,200	14,600	0.2	0.5
Lodging	31,900	41,900	7,600	9,900	0.6	0.8
Government	24,900	34,300	11,600	15,200	0.2	0.3
Other	160,800	215,600	54,600	73,500	2.4	3.2
Total	893,800	1,096,600	188,200	240,700	7.0	9.0
Multipliers		1.23		1.28		1.29

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Region 5

U.S. Fish & Wildlife Service Northeast Region 5 includes Connecticut, District of Columbia, Delaware, Massachusetts, Maryland, Maine, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Virginia, and Vermont. Sample refuges selected within this region include:

Bombay Hook NWR (Delaware)
Chincoteague NWR (Virginia)
Eastern Neck NWR (Maryland)
Eastern Shore of Virginia NWR (Virginia)
Edwin B. Forsythe NWR (New Jersey)
John Heinz at Tinicum NWR (Pennsylvania)
Parker River NWR (Massachusetts)
Patuxent Research NWR (Maryland)
Stewart B. McKinney NWR (Connecticut)

Bombay Hook National Wildlife Refuge

Description

Bombay Hook NWR comprises 15,978 acres, approximately four-fifths of which is tidal salt marsh. The refuge has one of the largest expanses of nearly unaltered tidal salt marsh in the mid-Atlantic region. Tidal salt marsh is the most valuable wildlife habitat in the State of Delaware. With its intersecting tidal streams and rivers, it provides excellent natural habitat for the birds and mammals of the area. It also serves as a nursery and breeding area for marine organisms, many of which have sporting and commercial value. It also includes 1,100 acres of impounded fresh water pools, brushy and timbered swamps, 1,100 acres of agricultural lands, and timbered and grassy upland. The general terrain is flat and less than ten feet above sea level.

Bombay Hook was established in 1937 primarily as a refuge and breeding ground for migrating birds and other wildlife. The value and importance of Bombay Hook for the protection and conservation of waterfowl has increased greatly over the years, primarily due to the loss of extensive surrounding marshland to urban and industrial development.

Area Economy

Bombay Hook NWR is located on Delaware Bay north of Dover, Delaware. Table 5-1 shows statistics characterizing the counties making up the area economy. The area population increased by 11.6 percent from 1997 to 2007, compared with a 14.7 percent increase for the state of Delaware and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was comparable to the state rate. Average per capita personal income in the area increased marginally faster than the state or national averages over the 1997-2007 period. New Castle County encompasses the southern suburbs of Philadelphia. It is considerably wealthier than Kent County and the U.S. as a whole and income continues to grow.

Table 5-1. Bombay Hook NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent	Rate	2007 (\$2007)	Percent
		change	Percent		change
		1997-2007	(2007)		1997-2007
Kent, DE	151.7	23.9%	4.7%	\$29,578	9.9%
New Castle, DE	526.4	8.5%	4.7%	\$45,755	20.4%

Area Total	678.1	11.6%	4.7%	\$42,136	18.6%
Delaware	862	14.7%	4.9%	\$40,112	17.3%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Bombay Hook NWR spent \$1.0 million in operations and maintenance in FY2009. More than half, \$742,300, of this funding was spent on salaries to the refuge's 10 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$205,000 in benefit amounts are not counted in local spending.

Table 5-2. Bombay Hook NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	742,323	65.5%
Transportation of People	658	0.1%
Transportation of Things	14,041	0.0%
Communications	41,104	2.5%
Utilities	11,685	1.9%
Contracts	425	0.0%
Building Repairs	4,759	0.9%
Equipment Maintenance	56,023	3.4%
Supplies and Materials	113,744	2.7%
Motor Vehicle Fuel	8,084	2.4%
Equipment-Capitalized	18,489	12.2%
Equipment-Non-capitalized	31,483	8.4%
Local Sub-Total	1,042,818	100.0%
Non-Local Expenditures		
Employee Benefits	204,656	
Air Travel	6,732	
Non-Expense Item		
Real Property	24,700	
Grants	876	
Organization Total	1,279,782	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Bombay Hook recorded a \$24,700 improvement of real property. This is also not included in local expenditures.

The appraised value for Bombay Hook NWR lands was \$16.3 million in 2008. RRS payments of \$39,463 were made to Kent County, Delaware. Refuge fee lands generate about \$500 for the RRS fund but this does not affect the payment to local governments.

Table 5-3 shows \$838,600 of the \$1.1 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$234,400 became compensation for new local workers in 6.1 jobs. As this spending flowed through the economy, it generated \$1.4 million in total output and 9.8 jobs.

Table 5-3. Bombay Hook NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	800	1,600	100	200	0.0	0.0
Utilities	21,400	35,200	4,400	7,000	0.0	0.1
Construction	0	9,400	0	3,500	0.0	0.1
Manufacturing	87,600	112,400	15,000	17,000	0.3	0.3
Trade	186,900	246,400	72,600	95,400	2.4	3.0
Transportation	18,000	28,800	5,400	9,800	0.1	0.2
Information	25,100	66,300	4,300	10,600	0.1	0.2
Finance	160,600	330,800	17,700	52,900	0.4	1.2
Lodging	43,200	66,500	13,000	20,200	0.6	0.9
Government	13,600	26,800	6,000	11,700	0.1	0.2
Other	281,400	441,600	96,000	166,600	2.2	3.7
Area Total	838,600	1,365,800	234,400	394,900	6.1	9.8
Multipliers		1.63		1.68		1.61

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Chincoteague NWR

Description

Chincoteague NWR is a 14,014-acre refuge on the Maryland-Virginia border. It encompasses the southern end of Assateague Island, a mid-Atlantic, coastal barrier island, and includes several other units on other islands in the vicinity. The refuge was established in 1943 to provide wintering and resting habitat for migratory birds. Its mission now includes preservation of endangered species, maintenance of indigenous species, and wildlife-dependent public use. It is one of the most heavily used refuges in the system with more than one million visits a year.

The refuge has 26 full time permanent positions. Twelve of these are at the GS-9 level or above. In addition, 6 temporary fee collection and ranger positions are filled during the summer months to help control the high visitor traffic.

Area Economy

The town of Chincoteague, in Accomack County, Virginia, is the gateway to the refuge. Like many Atlantic seaside towns, it has outgrown its Main Street in recent years. The road to the refuge is lined with restaurants, motels, and gift shops. The town's economy is dominated by tourism and so is highly seasonal. Away from the oceanside, the region is largely agricultural. Accomack County's population grew 5.8 percent from 1997 to 2007 while the rest of Virginia grew by 12.7 percent. The population of neighboring Worcester County, Maryland, has increased 12.5 percent in the same 10 year period. Much of this development has been in the northern part of the county around Ocean City. Growth in per-capita personal income in both counties has been slower than state and national rates over the 1997 to 2007 period. Accomack County's per capita personal income remains at \$24,342 per capita, 58 percent of the state average and 63 percent of the Federal average.

Table 5-4 . Chincoteague NWR: Summary of Area Economy, 2007

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Accomack, VA	38.4	5.8%	5.0%	\$24,342	12.9%
Worcester, MD	49.3	12.5%	7.5%	\$37,769	18.6%
Area Total	87.6	9.5%	6.5%	\$31,890	16.7%
Virginia	7,699	12.7%	3.9%	\$41,727	22.8%

Maryland	5,619	8.9%	4.4%	\$46,471	25.5%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Chincoteague NWR spends \$3.4 million in operations and maintenance each year. Three quarters of this funding is spent on salaries to employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$397,700 in benefit amounts are not counted in local spending.

Table 5-5. Chincoteague NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,507,699	44.8%
Transportation of People	4,206	0.1%
Transportation of Things	4,962	0.1%
Communications	30,769	0.9%
Utilities	43,304	1.3%
Contracts	115	0.0%
Building Repairs	1,196,301	35.5%
Equipment Maintenance	74,809	2.2%
Supplies and Materials	296,760	8.8%
Motor Vehicle Fuel	37,571	1.1%
Equipment-Capitalized	48,111	1.4%
Equipment-Non-capitalized	123,806	3.7%
Local Sub-Total	3,368,415	100.0%
Non-Local Expenditures		
Employee Benefits	397,735	
Air Travel	29,040	
Non-Expense Item		
Real Property	20,325	
Grants	909	
Organization Total	3,816,424	

Changes in the value of real property do not necessarily lead to local economic activity. Purchases of land, for example, are best understood as a change in the form of assets rather than expenditures. In FY1996, Chincoteague recorded a \$6,198 improvement of staff quarters at the refuge. This is not included in local expenditures.

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Refuge spending in the local economy paid for both locally produced items and things imported into the region for sale. So all of the expenditures did not result in increased local output. Table 5-6 shows \$2.7 million had a direct effect on local output. Typical purchasing patterns for households and industries in the region suggest the remaining spending flowed to suppliers outside the area. About \$663,900 became compensation for local workers in 36.3 jobs. The iteration of refuge spending through the local economy generated \$3.5 million in total output and 44.4 jobs.

Table 5-6. Chincoteague NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	2,100	4,900	100	400	0.0	0.0
Utilities	56,500	78,900	8,400	11,600	0.1	0.1
Construction	100	19,200	0	4,900	0.0	0.2
Manufacturing	126,800	142,100	33,600	36,200	0.7	0.8
Trade	283,600	390,500	90,200	125,900	4.1	5.7
Transportation	7,700	14,000	2,400	4,300	0.1	0.2
Information	29,300	75,800	4,300	11,600	0.1	0.2
Finance	253,500	539,500	12,900	40,900	0.5	1.7
Lodging	99,000	176,700	30,100	53,900	1.5	2.7
Government	22,400	49,500	8,000	17,800	0.1	0.3
Other	1,789,800	2,042,800	473,900	566,600	29.2	32.5
Total	2,670,800	3,533,900	663,900	873,900	36.3	44.4
Multipliers		1.32		1.32		1.22

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services. Much of what employees buy locally falls into the trade and finance categories so these sectors appear to have very large multipliers. Chincoteague's economy is highly seasonal so earnings by seasonal laborers may not be spent within the region but returned to the workers' distant place of residence. This may help explain the high leakage and low multipliers.

Refuge Revenue Sharing and Payments in Lieu of Taxes

Chincoteague contains 13,433 acres of fee lands that were appraised at \$42.3 million in FY2008. The refuge revenue sharing fund paid \$99,300 to Accomack County, Maryland, \$2,900 to Chincoteague County, Virginia, and \$587 to Worcester County, Maryland. The refuge earned no funds for refuge revenue sharing.

None of Chincoteague's lands were reserved from the public domain so PILT payments were not made for this refuge.

Eastern Neck National Wildlife Refuge

Description

Eastern Neck National Wildlife Refuge, a part of the Chesapeake Marshlands National Wildlife Refuge Complex, is a 2,286-acre island located at the confluence of the Chester River and the Chesapeake Bay. Established in 1962 as a sanctuary for migratory birds, Eastern Neck NWR provides natural habitat for over 240 bird species, including American bald, and is a major staging site for tundra swans.

Eastern Neck NWR serves as a land-use model within the Chesapeake Bay watershed through its sustainable agriculture, wetland restoration and native landscaping.

Area Economy

Eastern Neck NWR is located on Chesapeake Bay north of the Bay Bridge, near Chestertown, Maryland. Table 5-7 shows the counties making up the area economy. The area population increased by 15.5 percent from 1997 to 2007, compared with a 8.9 percent increase for the state of Maryland and 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was the same as the state's rate. Average per capita personal income in the area increased faster than the state or national averages over the 1997-2007 period.

Table 5-7. Eastern Neck NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Kent, MD	19.9	4.6%	4.8%	\$45,832	39.8%
Queen Anne, MD	46.5	20.9%	4.2%	\$44,882	24.4%
Area Total	66.4	15.5%	4.4%	\$45,166	28.7%
Maryland	5,619	8.9%	4.4%	\$46,471	25.5%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Eastern Neck NWR spent \$363,600 in operations and maintenance in FY2009. Forty percent of this funding was spent on salaries to the refuge's 2.5 FTE employees who live in the area. Salaries are normally a larger portion of the Refuge budget but large equipment purchases in FY2009 reduced its proportion. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$56,200 in benefit amounts are not counted in local spending.

Table 5-8. Eastern Neck NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	144,451	39.7%
Transportation of People	15	0.0%
Transportation of Things	-	0.0%
Communications	6,662	1.8%
Utilities	7,410	2.0%
Contracts	-	0.0%
Building Repairs	58,756	16.2%
Equipment Maintenance	6,685	1.8%
Supplies and Materials	12,651	3.5%
Motor Vehicle Fuel	9,959	2.7%
Equipment-Capitalized	84,714	23.3%
Equipment-Non-capitalized	32,271	8.9%
Local Sub-Total	363,574	100.0%
Non-Local Expenditures		
Employee Benefits	56,221	
Air Travel	2,152	
Non-Expense Item		
Real Property	-	
Grants	-	
Organization Total	421,947	

The appraised value for Eastern Neck NWR lands was \$8.7 million in 2008. Under the RRS formula, a payment of \$65,300 was due to Kent County, Maryland. The pro-rated payment based on the funding for FY2009 would have been \$21,901. Since reimbursement could not be less than the FY1977 payment of \$28,434, Kent County received \$28,434. Refuge fee lands generate about \$500 for the RRS fund but this does not affect the payment to local governments.

Table 5-9 shows \$202,900 of the \$363,600 spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$57,300 became compensation for local workers in 1.9 jobs. As this spending flowed through the economy, it generated \$278,300 in total output and 2.6 jobs.

Table 5-9. Eastern Neck NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	300	600	100	100	0.0	0.0
Utilities	7,800	8,400	1,300	1,400	0.0	0.0
Construction	0	2,400	0	600	0.0	0.0
Manufacturing	32,400	33,800	8,000	8,200	0.2	0.2
Trade	44,100	55,700	14,000	18,200	0.5	0.6
Transportation	400	1,300	100	200	0.0	0.0
Information	6,200	11,100	900	1,700	0.0	0.0
Finance	22,800	43,100	800	2,200	0.1	0.2
Lodging	7,800	12,800	2,500	4,000	0.1	0.2
Government	2,600	5,200	1,100	2,000	0.0	0.0
Other	78,400	103,800	28,600	37,300	1.0	1.3
Area Total	202,900	278,300	57,300	76,100	1.9	2.6
Multipliers		1.37		1.33		1.37

Most of the increased output and employment occurs in Trade and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Eastern Shore of Virginia National Wildlife Refuge

Description

Lying at the tip of the Delmarva Peninsula, the Eastern Shore of Virginia National Wildlife Refuge serves as one of the country's most valuable stopovers for migratory birds. Nestled between the Atlantic Ocean and Chesapeake Bay, this 1,127-acre refuge was established in 1984 for migratory birds and endangered species management and for wildlife-dependent recreation including interpretation and education.

This area is one of the most important avian migration funnels in North America. Each fall the refuge is the scene of a spectacular drama as millions of songbirds and monarch butterflies and thousands of raptors converge at the tip of the peninsula on their voyage south.

Area Economy

Eastern Shore NWR is located across the Chesapeake Bay Bridge-Tunnel from Norfolk, Virginia, which dominates the regional economy. Table 5-10 shows the counties making up the area economy. The area population decreased by 1.1 percent from 1997 to 2007, compared with a 12.7 percent increase for the Commonwealth of Virginia and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was higher than the state average rate. Average per capita personal income in the area increased by 26.4 percent over the 1997-2007 period. Virginia per capita personal income increased by 22.8 percent over the period. Virginia average per capita personal income is higher than the U.S. average income but incomes in the Eastern Shore region are considerably below the national average.

Table 5-10. Eastern Shore NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Northampton, VA	13.4	2.0%	5.5%	\$27,083	17.7%
Norfolk, VA	236.0	-1.3%	5.3%	\$33,371	26.9%
Total	249.4	-1.1%	5.3%	\$33,034	26.4%
Virginia	7,699	12.7%	3.9%	\$41,727	22.8%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Eastern Shore of Virginia NWR spent \$660,700 in operations and maintenance in FY2009. More than half (52.4 percent) of this funding was spent on salaries to the refuge’s 6.5 FTE employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$116,900 in benefit amounts are not counted in local spending.

Table 5-11. Eastern Shore NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	346,139	52.4%
Transportation of People	1,491	0.2%
Transportation of Things	2,000	0.3%
Communications	9,955	1.5%
Utilities	34,805	5.3%
Contracts	145	0.0%
Building Repairs	58,332	8.8%
Equipment Maintenance	7,079	1.1%
Supplies and Materials	29,166	4.4%
Motor Vehicle Fuel	11,310	1.7%
Equipment-Capitalized	111,297	16.8%
Equipment-Non-capitalized	48,948	7.4%
Local Sub-Total	660,666	100.0%
Non-Local Expenditures		
Employee Benefits	116,863	
Air Travel	8,353	
Non-Expense Item		
Real Property	22,029	
Grants	20,738	
Organization Total	828,650	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Eastern Shore recorded a \$22,000 improvement of real property. This is also not included in local expenditures.

The appraised value for Eastern Shore NWR lands was \$11.4 million in 2008. RRS payments of \$28,344 were made to Northampton County, Virginia. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 5-12 shows \$546,000 of the \$660,700 spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$179,200 became compensation for local workers in 4.6 jobs. As this spending flowed through the economy, it generated \$750,800 in total output and 6.1 jobs.

Table 5-12. Eastern Shore NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	200	400	0	0	0.0	0.0
Utilities	30,500	31,400	3,400	3,500	0.0	0.0
Construction	0	2,300	0	800	0.0	0.0
Manufacturing	18,700	21,300	3,500	4,000	0.1	0.1
Trade	114,900	133,500	43,800	50,800	1.4	1.6
Transportation	4,400	10,900	1,700	4,600	0.0	0.1
Information	11,200	34,500	1,800	6,000	0.0	0.1
Finance	77,900	152,900	8,200	22,000	0.2	0.5
Lodging	20,700	32,000	6,100	9,500	0.4	0.6
Government	13,200	19,400	4,800	7,900	0.1	0.1
Other	254,200	312,200	105,900	131,500	2.4	3.0
Area Total	546,000	750,800	179,200	240,600	4.6	6.1
Multipliers		1.38		1.34		1.33

Most of the increased output and employment occurs in the Trade, Finance, and Other Services industries. The Other sector includes upkeep for buildings and payments for large capital items.

DRAFT

Edwin B. Forsythe National Wildlife Refuge

Description

Edwin B. Forsythe NWR is located on the New Jersey shore, 10 miles north of Atlantic City. Its oldest division was established in 1939 to provide important wintering habitat for waterfowl, especially black ducks and Atlantic brant. Nearly 80 percent of the refuge is tidal salt meadow and marsh, interspersed with shallow coves and bays. Most of the remainder of the refuge acreage is woodlands dominated by pitch pines, oaks, and white cedar, with some fields which are maintained to provide habitat diversity.

Each spring and fall, thousands of water birds stop at Forsythe Refuge during their long migrations. Waterfowl, wading birds, and shore birds may be viewed from the Wildlife Drive as they feed and rest. Refuge uplands also provide important stopover habitat for migrating passerines.

Area Economy

The area around Forsythe NWR is highly developed with both seasonal and permanent homes, and ocean-oriented recreation. Table 5-13 shows some statistics that characterize the area economy. The area population increased by 11.3 percent from 1997 to 2007, compared with a 5.3 percent increase for the state of New Jersey and a 10.5 percent increase for the U.S. as a whole. The area unemployment rate in 2007 is comparable to the state of New Jersey and the U.S. rates. Per capita personal income in the area increased more slowly than the state or U.S. as a whole at 10.2 percent over the 1997-2007 period. The area income remained well below the state average.

Table 5-13. Forsythe NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Burlington, NJ	446.2	6.9%	5.0%	\$44,077	18.7%
Atlantic, NJ	270.0	10.3%	7.0%	\$36,325	-3.6%
Ocean, NJ	564.8	15.6%	6.0%	\$37,228	10.1%
Area Total	1,281.0	11.3%	5.8%	\$39,423	10.2%
New Jersey	8,653	5.3%	5.5%	\$49,511	19.6%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Forsythe NWR spent \$1.33 million on operations and maintenance in FY2009. More than half of this funding (60%) is spent on salaries to 11 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$219,500 in benefit amounts are not counted in local spending.

Table 5-14. Forsythe NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	800,902	60.4%
Transportation of People	15,874	1.2%
Transportation of Things	1,825	0.1%
Communications	26,302	2.0%
Utilities	11,492	0.9%
Contracts	230	0.0%
Building Repairs	208,213	15.7%
Equipment Maintenance	21,516	1.6%
Supplies and Materials	50,905	3.8%
Motor Vehicle Fuel	34,125	2.6%
Equipment-Capitalized	109,716	8.3%
Equipment-Non-capitalized	45,081	3.4%
Local Sub-Total	1,326,181	100.0%
Non-Local Expenditures		
Employee Benefits	219,460	
Air Travel	104,732	
Non-Expense Item		
Real Property	54,471	
Grants	31,035	
Organization Total	1,735,879	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. . In FY2009, Forsythe NWR recorded a \$54,500 improvement of real property. This is also not included in local expenditures.

Forsythe NWR has 43,400 acres of fee lands valued at \$53.1 million. In New Jersey, the township government receives the RRS payment. Fourteen townships with Forsythe NWR lands shared \$136,800 in RRS payments for FY2008.

Table 5-15 shows \$1.0 of the \$1.33 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$311,700 became compensation for local workers in 8.8 jobs. As this spending flowed through the economy, it generated \$1.4 million in total output and 11.7 jobs.

Table 5-15. Forsythe NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,200	2,000	200	300	0.0	0.0
Utilities	18,100	26,800	2,700	4,000	0.0	0.0
Construction	300	10,700	0	2,100	0.0	0.1
Manufacturing	77,400	92,700	19,100	20,700	0.3	0.3
Trade	184,000	235,100	63,000	81,300	2.0	2.5
Transportation	79,400	87,600	18,600	21,700	0.4	0.4
Information	19,800	37,200	3,900	7,400	0.0	0.1
Finance	120,900	237,700	8,500	23,600	0.3	0.7
Lodging	57,800	87,300	17,800	26,600	0.7	1.1
Government	9,600	17,800	4,300	7,800	0.1	0.1
Other	454,600	579,600	173,600	223,900	5.1	6.3
Area Total	1,023,000	1,414,600	311,700	419,500	8.8	11.7
Multipliers		1.38		1.35		1.33

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for capital equipment which had large expenditures in Forsythe's FY2009 budget.

DRAFT

John Heinz at Tinicum National Wildlife Refuge

Description

The John Heinz at Tinicum National Wildlife Refuge was established by an act of Congress in 1972 to protect the largest remaining freshwater tidal marsh in Pennsylvania, approximately 200 acres, about one mile from Philadelphia International Airport. When acquisition is complete, it will consist of 1,200 acres of varied habitats. The refuge is a resting and feeding area for more than 300 species of birds, 85 of which nest here. Fox, deer, muskrat, turtles, fish, frogs and a wide variety of wildflowers and plants are among the species that call the refuge "home". The Congressional mandate set forth for the refuge was to protect, preserve and enhance habitat; provide compatible outdoor recreation opportunities for the public; and to promote environmental education.

Area Economy

Heinz NWR is located near the urban core of Philadelphia. Table 5-16 shows that Philadelphia and Delaware Counties contained more than 2 million people in 2007. The city population decreased by 5.4 percent from 1997 to 2007, while suburban Delaware County's population remained steady. Pennsylvania's population increased slightly over the decade. The average unemployment rate in the city was higher than Pennsylvania and the U.S. average rates. Average per capita personal income in the area increased by 23.7 percent over the 1997-2007. City incomes grew faster than state or nationwide averages.

Table 5-16. John Heinz at Tinicum NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Delaware, PA	553.2	0.4%	5.0%	\$48,060	19.4%
Philadelphia, PA	1,448.6	-5.4%	7.2%	\$34,764	26.1%
Area Total	2,001.8	-3.9%	6.5%	\$38,438	23.7%
Pennsylvania	12,420	1.6%	5.3%	\$38,793	17.9%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

John Heinz at Tinicum NWR spent \$994,500 in operations and maintenance in FY2009. More than two-thirds (67 %) was spent on salaries to the refuge's 9 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$187,100 in benefit amounts are not counted in local spending.

Table 5-17. John Heinz at Tinicum NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	668,809	67.3%
Transportation of People	3,208	0.3%
Transportation of Things	15,751	1.6%
Communications	13,112	1.3%
Utilities	78,898	7.9%
Contracts	531	0.1%
Building Repairs	42,571	4.3%
Equipment Maintenance	37,001	3.7%
Supplies and Materials	86,460	8.7%
Motor Vehicle Fuel	19,226	1.9%
Equipment-Capitalized	490	0.0%
Equipment-Non-capitalized	28,398	2.9%
Local Sub-Total	994,455	100.0%
Non-Local Expenditures		
Employee Benefits	187,111	
Air Travel	10,475	
Non-Expense Item		
Real Property	-	
Grants	12,037	
Organization Total	1,204,077	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study

The appraised value for Heinz NWR lands was \$9.0 million in 2008. RRS payments of \$32,110 were made to six Pennsylvania townships, boroughs, and school districts. The Interborough School District received the lion's share, \$17,668. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 5-18 shows \$813,600 of the \$994,500 spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$207,600 became compensation for local workers in 5.5 jobs. As this spending flowed through the economy, it generated \$1.3 million in total output and 8.7 jobs. The more complex economy of a more urbanized region is evident in the multipliers which are larger than most of the sample refuges.

Table 5-18. John Heinz at Tinicum NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	0	0	0	0	0.0	0.0
Utilities	88,600	101,700	5,300	6,000	0.0	0.0
Construction	0	5,400	0	2,400	0.0	0.0
Manufacturing	26,800	64,500	3,200	6,600	0.0	0.1
Trade	149,100	194,600	53,500	70,500	1.7	2.1
Transportation	23,000	40,600	6,300	12,900	0.2	0.3
Information	26,200	74,300	4,600	13,000	0.1	0.2
Finance	146,200	296,900	18,600	49,300	0.2	0.7
Lodging	43,000	68,700	14,200	22,900	0.6	1.0
Government	10,600	24,400	3,900	9,700	0.1	0.1
Other	300,200	470,400	98,000	166,800	2.7	4.2
Total	813,600	1,341,500	207,600	360,000	5.5	8.7
Multipliers		1.65		1.73		1.58

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Parker River National Wildlife Refuge

Description

Parker River National Wildlife Refuge was established in 1942 primarily to provide feeding, resting, and nesting habitat for migratory birds. The refuge is a vital stopover site on the Atlantic Flyway for waterfowl, shorebirds, and songbirds during pre- and post-breeding migratory periods.

The refuge occupies the southern three-fourths of Plum Island, an 8 mile long barrier island near Newburyport, Massachusetts, and nearby parcels. The refuge contains diverse upland and wetland habitats including sandy beach and dune, shrub/thicket, bog, swamp, freshwater marsh, saltwater marsh and associated creek, river, mud flat, and salt panne. These habitats support varied and abundant populations of resident and migratory wildlife including more than 300 species of birds.

Area Economy

Parker River NWR is located in the North Shore suburbs of Boston, Massachusetts. Table 5-19 shows economic statistics of Essex County. The area population increased by 3.8 percent from 1997 to 2007. Essex County unemployment rate and personal income are very similar to the statewide averages. Massachusetts and Essex County income is higher and grew faster than the national average.

Table 5-19. Parker River NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Essex, MA	732.6	3.8%	5.6%	\$48,429	24.0%
Massachusetts	6,468	3.9%	5.3%	\$48,995	24.4%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Parker River NWR spent \$1.98 million on operations and maintenance in FY2009. Almost half (47%) of this funding is spent on salaries to employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$258,100 in benefit amounts are not counted in local spending.

Table 5-20. Parker River NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	936,229	47.3%
Transportation of People	6,154	0.3%
Transportation of Things	-	0.0%
Communications	32,159	1.6%
Utilities	21,952	1.1%
Contracts	1,627	0.1%
Building Repairs	737,117	37.2%
Equipment Maintenance	29,523	1.5%
Supplies and Materials	78,673	4.0%
Motor Vehicle Fuel	25,118	1.3%
Equipment-Capitalized	82,547	4.2%
Equipment-Non-capitalized	29,163	1.5%
Local Sub-Total	1,980,262	100.0%
Non-Local Expenditures		
Employee Benefits	258,070	
Air Travel	14,023	
Non-Expense Item		
Real Property	6,706	
Grants	33,011	
Organization Total	2,292,073	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Parker River NWR also recorded some real property improvements in FY2009. Major building expenses related to opening a new visitor center were also paid in FY2009, inflating the building repairs budget more than it would be in an average year.

The appraised value for Parker River NWR's 4,600 acres of fee lands was \$59.4 million in 2008. RRS payments of \$144,000 were made to four towns in the region, Ipswich, Newburyport, Newbury, and Rowley. This refuge has no reserved lands and does not generate revenue for the RRS fund.

Table 5-21 shows only \$1.6 of the \$1.98 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$517,000 became compensation for local workers in 16.9 jobs. As this spending flowed through the economy, it generated \$2.3 million in total output and 21.7 jobs.

Table 5-21. Parker River NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	300	600	100	100	0.0	0.0
Utilities	27,700	37,400	5,500	7,300	0.0	0.0
Construction	0	9,400	0	3,200	0.0	0.1
Manufacturing	115,400	132,000	29,200	32,400	0.3	0.4
Trade	180,400	263,300	63,000	93,300	1.9	2.8
Transportation	2,000	7,700	600	2,900	0.0	0.1
Information	28,400	92,300	5,100	16,300	0.1	0.2
Finance	158,700	355,800	11,000	36,300	0.3	0.8
Lodging	46,400	79,300	14,800	25,300	0.7	1.2
Government	15,100	31,800	6,700	14,100	0.1	0.2
Other	1,022,800	1,255,400	381,000	475,500	13.5	15.9
Area Total	1,597,200	2,265,100	517,000	706,700	16.9	21.7
Multipliers		1.42		1.37		1.28

Most of the increased output and employment occurs in the Manufacturing, Finance, Trade, and Other Services industries. The Other sector includes upkeep and improvements for buildings and payments for planning services.

Patuxent Research National Wildlife Refuge

Description

Established in 1936 by executive order of President Franklin D. Roosevelt, the Patuxent Research Refuge is the Nation's only National Wildlife Refuge established to support wildlife research. With land surrounding the Patuxent and Little Patuxent Rivers between Washington, D.C., and Baltimore, MD, the Refuge has grown from the original 2,670 acres to its present size of 12,750 and encompasses land formerly managed by the Departments of Agriculture and Defense. Throughout decades of change, Patuxent's mission of conserving and protecting the nation's wildlife and habitat through research and wildlife management techniques has remained virtually unchanged.

Patuxent Research Refuge supports a wide diversity of wildlife in forest, meadow, and wetland habitats. The land is managed to maintain biological diversity and to protect and benefit native and migratory bird species. During the fall and spring migrations, many waterfowl species stop to rest and feed. Over 270 species of birds occur on the Refuge. A nesting pair of bald eagles has used the North Tract of the Refuge since 1989.

Area Economy

Patuxent Research Refuge is located in the suburbs between Washington and Baltimore. Table 5-22 illustrates some indicators of the area economy. The area population increased by 6.6 percent from 1997 to 2007, compared with a 8.9 percent increase for the state of Maryland and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than the U.S. average. Average per capita personal income in Anne Arundel County increased much faster than the state or national averages over the 1997-2007 period and it has the fourth highest average per capita income among Maryland counties.

Table 5-22. Patuxent Research Refuge: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment Rate		Per Capita Personal Income	
	2007	Percent change	Rate	2007	Percent change	
	(,000)	1997-2007	(2007)	(\$2007)	1997-2007	
Anne Arundel, MD	510.5	8.1%	3.9%	\$51,890	33.9%	
Prince George, MD	825.3	5.7%	4.5%	\$37,555	15.3%	
Area Total	1,335.8	6.6%	4.2%	\$43,033	23.2%	

Maryland	5,619	8.9%	4.4%	\$46,471	25.5%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Patuxent spent \$3.25 million in operations and maintenance in FY2009. Nearly half, \$1.6 million, of this funding was spent on salaries to the refuge's 22 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$329,200 in benefit amounts are not counted in local spending.

Table 5-23. Patuxent Research Refuge: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,574,634	48.4%
Transportation of People	14,249	0.4%
Transportation of Things	10,492	0.3%
Communications	47,067	1.4%
Utilities	200,499	6.2%
Contracts	1,361	0.0%
Building Repairs	835,515	25.7%
Equipment Maintenance	49,010	1.5%
Supplies and Materials	134,367	4.1%
Motor Vehicle Fuel	138,824	4.3%
Equipment-Capitalized	139,005	4.3%
Equipment-Non-capitalized	106,913	3.3%
Local Sub-Total	3,251,937	100.0%
Non-Local Expenditures		
Employee Benefits	329,198	
Air Travel	42,753	
Non-Expense Item		
Real Property	1,243,694	
Grants	44,607	
Organization Total	4,912,189	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Patuxent was undergoing major safety improvements that are reflected in higher than usual building repairs and real property spending discussed below. Most of this out-of-the-ordinary spending appears as real property and so is not counted in the regional impact analysis.

The appraised value for Patuxent lands was \$88.7 million in 2008. RRS payments of \$206,611 and \$28,344 were made to Prince Georges and Anne Arundel Counties, Maryland, respectively. Refuge fee lands generate about \$80 for the RRS fund but this does not affect the payment to local governments.

Table 5-24 shows \$2.6 million of the \$3.25 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$817,600 became compensation for local workers in 25.3 jobs. As this spending flowed through the economy, it generated \$3.8 million in total output and 33.3 jobs.

Table 5-24. Patuxent Research Refuge: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	700	1,300	100	200	0.0	0.0
Utilities	211,500	230,000	34,500	37,500	0.3	0.3
Construction	400	42,300	0	9,000	0.0	0.2
Manufacturing	92,400	155,100	17,500	22,100	0.3	0.3
Trade	502,900	661,500	179,600	240,300	5.5	7.1
Transportation	21,800	54,300	7,000	20,300	0.2	0.4
Information	74,700	172,200	13,900	31,900	0.1	0.4
Finance	280,600	607,500	18,400	57,900	0.5	1.7
Lodging	90,500	153,800	28,700	49,100	1.3	2.3
Government	21,800	45,600	10,900	23,300	0.1	0.3
Other	1,307,500	1,641,600	507,100	653,600	17.0	20.3
Area Total	2,604,800	3,765,200	817,600	1,145,300	25.3	33.3
Multipliers		1.45		1.40		1.32

Most of the increased output and employment occurs in the Utilities, Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services related to the safety upgrades at the refuge.

Construction Spending

Patuxent Research Refuge received a special \$4 million appropriation for safety improvements for FY2009. This is part of an on-going effort to improve and modernize the research refuge. In addition to the appropriated funding, Patuxent will receive \$15.5 million for other improvements from the American Reinvestment and Recovery Act (ARRA). Construction spending provides a one-time boost to local economies and so we treat it separately from the operations and maintenance analysis. The \$4 million spending in construction is reflected in other sectors as it flows through the economy. The work will add \$6.1 million in output to the region and ultimately support 46 jobs.

Table 5-25. Patuxent Research Refuge: Economic Impacts of FY2009 Safety Improvements

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	0	1,700	0	200	0.0	0.0
Utilities	0	28,400	0	4,600	0.0	0.0
Construction	4,000,000	4,041,400	2,121,700	2,131,200	30.7	30.9
Manufacturing	0	107,700	0	10,900	0.0	0.2
Trade	0	461,800	0	179,600	0.0	4.8
Transportation	0	52,900	0	19,000	0.0	0.4
Information	0	100,800	0	19,000	0.0	0.2
Finance	0	529,400	0	53,100	0.0	1.4
Lodging	0	116,500	0	37,200	0.0	1.8
Government	0	32,700	0	15,800	0.0	0.2
Other	0	629,000	0	277,600	0.0	6.0
Area Total	4,000,000	6,102,300	2,121,700	2,748,100	30.7	46.0
Multipliers		1.53		1.30		1.50

Stewart B. McKinney National Wildlife Refuge

Description

Stewart B. McKinney NWR is comprised of ten different units that span 70 miles of Connecticut's Long Island Sound shoreline. The headquarters is located approximately 45 minutes south of Hartford in Westbrook, Connecticut.

Located in the Atlantic Flyway, the refuge provides important resting, feeding, and nesting habitat for many species of wading birds, shorebirds, songbirds and terns, including the endangered roseate tern. Adjacent waters serve as wintering habitat for brant, scoters, American black duck and other waterfowl. Overall, the refuge encompasses over 800 acres of barrier beach, tidal wetland and fragile island habitats. Falkner Island Unit is home to more than 124 pairs of nesting Federally Endangered Roseate Terns and 3,000 nesting pairs of common terns. Salt Meadow Unit is used by over 280 species of migrating neotropical birds during the spring and fall migrations.

Area Economy

McKinney NWR is located on the less developed eastern coast of Connecticut. Table 5-26 shows some statistics to characterize the region. The area population increased by 4.0 percent from 1997 to 2007, which is comparable to Connecticut growth rates. Area unemployment in 2007 was also comparable to U.S. and Connecticut rates. Fairfield County has the sixth highest per capita personal income in the nation. The other counties in the area are well above the national average although they are lower than the Connecticut average. Average per capita personal income increased by 26.8 percent over the 1997-2007 period.

Table 5-26. McKinney NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Middlesex, CT	163.8	8.9%	4.8%	\$48,265	18.0%
New Haven, CT	844.4	3.8%	6.3%	\$44,322	16.8%
Fairfield, CT	890.6	3.4%	5.2%	\$81,576	33.8%
Area Total	1,898.8	4.0%	5.6%	\$62,136	26.8%
Connecticut	3,490	4.2%	5.6%	\$54,981	23.8%

United States	301,290	10.5%	5.8%	\$38,615	18.0%
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Source: U.S. Department of Commerce 2007.

Refuge Expenditures

McKinney NWR spent \$475,400 on operations and maintenance in FY2009. Half of this funding is spent on salaries to 4 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$69,100 in benefit amounts are not counted in local spending.

Table 5-27. Stewart B. McKinney NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	240,680	50.6%
Transportation of People	2,938	0.6%
Transportation of Things	(10,665)	-2.2%
Communications	8,961	1.9%
Utilities	21,593	4.5%
Contracts	-	0.0%
Building Repairs	117,034	24.6%
Equipment Maintenance	39,774	8.4%
Supplies and Materials	10,928	2.3%
Motor Vehicle Fuel	10,924	2.3%
Equipment-Capitalized	13,071	2.7%
Equipment-Non-capitalized	20,197	4.2%
Local Sub-Total	475,434	100.0%
Non-Local Expenditures		
Employee Benefits	69,121	
Air Travel	6,173	
Non-Expense Item		
Real Property	-	
Grants	48,094	
Organization Total	598,821	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Stewart B. McKinney NWR has 928 acres of fee lands appraised at \$51.2 million in 2008. The refuge did not earn additional revenue so the refuge revenue sharing amount was calculated from the 0.75 percent of assessed value. Nine Connecticut towns received a total of \$124,067 in RRS. The City of Stratford, Connecticut, received the lion's share, \$78,938.

Table 5-28 shows \$418,500 had a direct effect on local output. Typical purchasing patterns for households in this region suggest the remainder of the \$475,400 in spending flowed to suppliers outside the area. About \$126,000 became compensation for local workers in 3.7 jobs. The iteration of refuge spending through the local economy generated \$677,200 in total output and 5.2 jobs. The large regional population and more developed economy are evident in the higher multipliers than in many other regions.

Table 5-28. Stewart B. McKinney NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	100	500	0	0	0.0	0.0
Utilities	25,300	31,700	2,900	3,700	0.0	0.0
Construction	0	4,300	0	1,100	0.0	0.0
Manufacturing	12,700	20,500	2,000	3,200	0.0	0.0
Trade	74,400	104,300	24,700	35,400	0.6	0.9
Transportation	1,400	6,700	500	2,700	0.0	0.0
Information	12,900	39,200	2,100	5,900	0.0	0.1
Finance	54,400	137,800	7,300	23,900	0.1	0.4
Lodging	13,700	23,800	4,400	7,700	0.2	0.3
Government	4,200	8,700	2,300	4,400	0.0	0.1
Other	219,300	299,800	79,900	113,000	2.7	3.4
Total	418,500	677,200	126,000	201,100	3.7	5.2
Multipliers		1.62		1.60		1.41

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Region 6

The Mountain-Prairie Region includes the states of Colorado, Kansas, Montana, North Dakota, Nebraska, South Dakota, Utah, and Wyoming. Sample refuges and management districts selected within this region include:

Bear River MBR (Utah)
Benton Lake NWR (Montana)
Browns Park NWR (Colorado)
Charles M. Russell NWR (Montana)
Huron WMD (South Dakota)
Madison WMD (South Dakota)
Quivira NWR (Kansas)
Rainwater Basin WMD (Nebraska)

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Bear River Migratory Bird Refuge

Description

Historically, the marshes of Bear River Migratory Bird Refuge (MBR) have been an oasis for water birds. This oasis is surrounded by arid desert lands. As a key part of the Great Salt Lake ecosystem, the Refuge provides habitat for more than 200 bird species, making it a popular birding hotspot in northern Utah. In spring, summer, and fall, visitors can view American avocets, black-necked stilts, white-faced ibis, and a host of other species.

The Refuge serves a vital role in the Bear River delta ecosystem by protecting, creating, and managing more than 41,000 acres of freshwater wetlands. Fresh water from the Bear River is captured in a series of 25 impoundments.

Water levels are manipulated in these wetlands to ensure that adequate amounts of water and subsequent aquatic habitat are available throughout critical life stages of breeding and migrating birds. The importance of the Refuge as a staging area for migratory waterfowl is evidenced by the tremendous numbers of ducks (500,000) and Canada geese (5,000) found on the Refuge each fall. In addition, roughly 75 percent of the western population of tundra swans (more than 30,000 birds) uses the Refuge for fall staging and wintering in mild years.

Area Economy

Bear River MBR is located on the north shore of Utah’s Great Salt Lake. Table 6-1 shows economic statistics of Box Elder County. The area population increased by 17.3 percent from 1997 to 2007. Box Elder County unemployment rate is very similar to the statewide averages. Average per capita personal income is lower and slower growing in Box Elder County than in the rest of the state and nation.

Table 6-1. Bear River MBR: Summary of Area Economy, 2007

(Population in 000’s; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007	Percent	Rate	2007	Percent
	(,000)	change	Percent	(\$2007)	change
	1997-2007	(2007)		1997-2007	
Box Elder, UT	47.8	17.3%	3.9%	\$ 25,898	3.8%

Utah	2,669	25.9%	3.7%	\$ 29,831	12.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Bear River MBR spent \$1.3 million on operations and maintenance in FY2009. Two thirds (67%) of this funding is spent on salaries to 11 permanent and 3 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$290,300 in benefit amounts are not counted in local spending.

Table 6-2. Bear River MBR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	887,318	67.9%
Transportation of People	22,503	1.7%
Transportation of Things	16,678	1.3%
Communications	43,215	3.3%
Utilities	34,616	2.6%
Contracts	1,075	0.1%
Building Repairs	32,999	2.5%
Equipment Maintenance	22,343	1.7%
Supplies and Materials	54,373	4.2%
Motor Vehicle Fuel	34,215	2.6%
Equipment-Capitalized	34,475	2.6%
Equipment-Non-capitalized	122,459	9.4%
Local Sub-Total	1,306,267	100.0%
Non-Local Expenditures		
Employee Benefits	290,280	
Air Travel	31,593	
Non-Expense Item		
Real Property	-	
Grants	66,425	
Organization Total	1,694,566	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

Bear River MBR has 43,443 acres reserved from the public domain in Box Elder County, Utah. This represents 3.6 percent of PILT-eligible Federal lands in the County so \$101,359 of the \$2.8 million PILT payment to the County is attributable to Bear River.

[The appraised value for Bear River is not in the table for the RRS fund.]

Box Elder County has very little industry so \$934,000 of Refuge spending leaves the area immediately. Table 6-3 shows only \$372,400 of the \$1.3 million spent by the refuge had a direct effect on local output. About \$94,800 became compensation for local workers in 3.4 jobs. Extremely high leakage continued in later rounds of spending so that there is no multiplier effect. As spending flowed through the economy, it generated \$376,600 in total output, only \$4,200 more than direct spending, and no additional jobs.

Table 6-3. Bear River MBR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	0	100	0	0	0.0	0.0
Utilities	17,800	17,800	3,000	3,000	0.0	0.0
Construction	0	0	0	0	0.0	0.0
Manufacturing	50,400	51,500	12,900	13,100	0.2	0.2
Trade	126,900	127,200	39,500	39,600	1.7	1.7
Transportation	17,300	17,900	6,100	6,300	0.1	0.1
Information	28,700	28,700	4,500	4,500	0.1	0.1
Finance	19,900	21,100	1,400	1,500	0.1	0.1
Lodging	21,800	22,200	5,500	5,600	0.4	0.4
Government	19,600	19,700	4,300	4,400	0.1	0.1
Other	70,000	70,400	17,500	17,600	0.8	0.8
Area Total	372,400	376,600	94,800	95,700	3.4	3.4
Multipliers		1.01		1.01		1.00

Most of the increased output and employment occurs in the Trade industries.

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Benton Lake National Wildlife Refuge

Description

Covering 12,383 acres (19 square miles), Benton Lake National Wildlife Refuge (NWR) is located on the western edge of the northern Great Plains, 50 miles east of the Rocky Mountains and 12 miles north of Great Falls, Montana. Despite its name, Benton Lake is actually a 5,000 acre shallow wetland created by glaciers thousands of years ago.

The gently rolling terrain of the Refuge is dominated by native shortgrass prairie and surrounded on three sides by mountain ranges. The main marsh on the Refuge has been subdivided into eight impoundments by a series of dikes and water control structures; this allows efficient water management and provides a diversity of habitat types.

Area Economy

Benton Lake NWR is located ten miles north of Great Falls, Montana. Table 6-4 shows economic statistics of the area. The area population was almost unchanged from 1997 to 2007. Sparsely populated Chouteau County lost 10.5 percent of its population while larger Great Falls gained slightly. The area unemployment rate and personal income are very similar to the statewide averages.

Table 6-4. Benton Lake NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Cascade, MT	81.8	1.1%	4.1%	\$34,417	22.7%
Chouteau, MT	5.2	-10.5%	3.2%	\$32,753	20.9%
Area Total	87.0	0.4%	4.1%	\$34,317	22.6%
Montana	957	7.5%	4.6%	\$33,225	29.4%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Benton Lake NWR spent \$1.6 million on operations and maintenance in FY2009. Almost two-thirds (65%) of this funding is spent on salaries to 14 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$312,400 in benefit amounts are not counted in local spending.

Table 6-5. Benton Lake NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,052,335	65.2%
Transportation of People	8,427	0.5%
Transportation of Things	(9,202)	-0.6%
Communications	27,567	1.7%
Utilities	98,685	6.1%
Contracts	1,300	0.1%
Building Repairs	68,350	4.2%
Equipment Maintenance	24,767	1.5%
Supplies and Materials	135,375	8.4%
Motor Vehicle Fuel	40,633	2.5%
Equipment-Capitalized	56,157	3.5%
Equipment-Non-capitalized	108,839	6.7%
Local Sub-Total	1,613,233	100.0%
Non-Local Expenditures		
Employee Benefits	312,399	
Air Travel	82,969	
Non-Expense Item		
Real Property	398,545	
Grants	72,396	
Organization Total	2,479,542	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. Benton Lake NWR also recorded \$398,500 in real property improvements in FY2009 which are not included in local spending.

Benton Lake NWR has 12,235 acres of land reserved from the public domain and 148 acres of purchased land. The appraised value of the fee lands was \$44,300 in 2008. RRS payments of \$320 were divided among Cascade, Chouteau, and Teton Counties, Montana. Benton Lake NWR accounts for 5.5 percent of federal lands in Cascade County so \$26,026 of the county's PILT payment can be attributed to the refuge. Benton Lake's 280 acres in Chouteau County represent less than 0.2 percent of federal lands and account for \$583. This refuge generated \$2,600 in revenue for the RRS fund in 2008.

Table 6-6 shows only \$1.2 million of the \$1.6 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$277,300 became compensation for new local workers in 9.9 jobs. As this spending flowed through the economy, it generated \$1.8 million in total output and 15.3 jobs.

Table 6-6. Benton Lake NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,100	2,200	100	100	0.0	0.0
Utilities	112,700	131,200	16,800	19,600	0.2	0.2
Construction	0	13,800	0	4,900	0.0	0.2
Manufacturing	34,900	44,300	7,800	9,200	0.2	0.2
Trade	302,500	374,500	108,800	135,100	3.8	4.6
Transportation	14,400	36,400	2,500	8,800	0.1	0.3
Information	33,700	84,500	4,500	13,100	0.1	0.3
Finance	272,900	470,700	21,000	52,900	0.9	1.8
Lodging	68,900	105,200	18,100	27,700	1.2	1.9
Government	18,500	36,100	7,000	14,700	0.1	0.2
Other	363,900	546,100	90,700	148,700	3.4	5.5
Area Total	1,223,600	1,845,000	277,300	434,800	9.9	15.3
Multipliers		1.51		1.57		1.55

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep and improvements for buildings and payments for planning services.

Browns Park National Wildlife Refuge

Description

Browns Park National Wildlife Refuge was established in 1963 in the northwest corner of Colorado to provide habitat for migratory birds and suitable wildlife-dependent recreation. The Green River runs through the heart of the refuge’s 13,455 acres.

Plants such as the threatened Ute's ladies tresses orchid and hundreds of species of animals depend on the habitat that the Refuge provides. Migrating waterfowl stop to refuel at Browns Park NWR, wintering elk and mule deer rely on the open grasslands, and the Refuge's cottonwood forests provide critical migration habitat for hundreds of thousands of Neotropical migratory songbirds. The shrublands also provide critical habitat for several species of concern including the loggerhead shrike, sage grouse, sage sparrow, sage thrasher, and Brewer's sparrow. The Green River provides habitat for wintering bald eagles, nesting osprey, river otters, beaver, and the endangered Colorado pike minnow.

Area Economy

Browns Park NWR lies in the remote northwest corner of Colorado. Table 6-7 shows some statistics that characterize the area economy. The area population increased by 9.3 percent from 1997 to 2007, led by Uintah County, Utah. Colorado and Utah are growing in population much faster than the U.S. as a whole. The area unemployment rate in 2007 is very low compared with national rates. Per capita personal income in the area increased by more than one-half during the 1997-2007 period.

Table 6-7. Browns Park NWR: Summary of Area Economy, 2007
(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Moffat, CO	13.6	7.6%	3.9%	\$32,383	20.5%
Uinta, WY	20.2	1.1%	3.0%	\$42,621	65.9%
Uintah, UT	29.0	16.7%	2.2%	\$29,534	55.6%
Area Total	62.7	9.3%	2.8%	\$34,356	50.3%
Colorado	4,843	20.5%	4.9%	\$41,192	18.8%
Wyoming	523	6.9%	3.2%	\$47,047	55.6%

Utah	2,669	25.9%	3.7%	\$29,831	12.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Browns Park NWR spent \$540,100 on operations and maintenance in FY2009. More than half of this funding (56%) is spent on salaries to 5 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$87,900 in benefit amounts are not counted in local spending.

Table 6-8. Browns Park NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	302,225	56.0%
Transportation of People	824	0.2%
Transportation of Things	-	0.0%
Communications	18,049	3.3%
Utilities	12,205	2.3%
Contracts	156	0.0%
Building Repairs	79,266	14.7%
Equipment Maintenance	29,784	5.5%
Supplies and Materials	21,464	4.0%
Motor Vehicle Fuel	12,590	2.3%
Equipment-Capitalized	2,660	0.5%
Equipment-Non-capitalized	60,863	11.3%
Local Sub-Total	540,087	100.0%
Non-Local Expenditures		
Employee Benefits	87,927	
Air Travel	11,460	
Non-Expense Item		
Real Property	197,258	
Grants	-	
Organization Total	836,733	

In FY2009, Browns Park NWR recorded a \$197,300 improvement of real property. This is also not included in local expenditures.

Browns Park NWR has 5,356 acres of fee lands valued at \$4.75 million. Moffat County, Colorado, received \$11,514 in RRS payments for FY2008. The refuge also has 6,794 acres of land reserved from the federal domain which is 0.4 percent of the federal lands in Moffat County. The refuge can be credited with \$3,080 of the \$757,730 PILT payment to Moffat County.

Table 6-9 shows \$334,700 of the \$540,100 spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$88,800 became compensation for local workers in 4.1 jobs. As this spending flowed through the economy, it generated \$413,900 in total output and 4.8 jobs.

Table 6-9. Browns Park NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	100	200	0	0	0.0	0.0
Utilities	16,000	20,100	3,000	3,800	0.0	0.0
Construction	0	2,400	0	1,000	0.0	0.0
Manufacturing	12,300	12,800	2,500	2,500	0.1	0.1
Trade	80,800	95,800	28,600	34,300	1.0	1.2
Transportation	1,500	3,800	500	1,300	0.0	0.0
Information	12,600	21,500	1,900	3,400	0.0	0.1
Finance	40,300	58,900	1,300	3,100	0.0	0.1
Lodging	10,000	14,200	2,800	4,100	0.2	0.3
Government	2,900	5,300	800	1,700	0.0	0.0
Other	158,200	178,900	47,300	54,500	2.7	3.0
Area Total	334,700	413,900	88,800	109,700	4.1	4.8
Multipliers		1.24		1.24		1.17

Most of the increased output and employment occurs in the Trade and Other Services industries. The Other sector includes upkeep for buildings and payments for capital equipment which had large expenditures in the refuge's FY2009 budget.

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Charles M. Russell National Wildlife Refuge

Description

Located in north-central Montana, Charles M. Russell NWR is a 1.1-million-acre refuge that contains native prairies, forested coulees, river bottoms, badlands, and the 250,000-acre Ft. Peck Reservoir. Refuge wildlife includes mule and white-tailed deer, elk, bighorn sheep, antelope, coyote, bobcat, beaver, sharp-tailed grouse, and numerous other species.

The refuge is spread across 6 counties: Fergus, Phillips, Petroleum, Garfield, Valley, and McCone. Paved highway access to the refuge is available on the western portion only where State Highway 191 crosses the Missouri River, and in the eastern portion around Ft. Peck Reservoir. Gravel and dirt roads provide access to most of the recreation facilities within the refuge. Eight of those facilities are administered by the Army Corps of Engineers, two by the state of Montana, one by the U.S. Bureau of Land Management, and two by the U.S. Fish and Wildlife Service.

Area Economy

Charles M. Russell NWR is located in the ranchlands of northeastern Montana. Table 6-10 shows the counties making up the area economy. Three of the 6 counties in the region have fewer than 2,000 people. The area population decreased by 13.7 percent from 1997 to 2007, compared with a 7.5 percent increase for the state of Montana and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than the state of Montana as a whole and the U.S. rates. Average per capita personal income in the area increased by 27.7 percent over the 1997-2007 period.

Table 6-10. Charles M. Russell NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Fergus, MT	11.2	-9.5%	4.2%	\$32,585	34.7%
Phillips, MT	3.9	-20.6%	4.5%	\$26,876	31.4%
Valley, MT	6.9	-14.9%	3.8%	\$31,556	17.5%
McCone, MT	1.7	-18.2%	2.6%	\$24,857	13.6%
Petroleum, MT	0.4	-14.8%	5.3%	\$25,159	46.5%

Garfield, MT	1.2	-11.6%	3.3%	\$27,730	29.3%
Area Total	25.3	-13.7%	4.0%	\$30,538	27.7%
Montana	957	7.5%	4.6%	\$33,225	29.4%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Charles M. Russell NWR spent \$2.1 million in operations and maintenance in FY2009. Almost two-thirds (66%) of this funding is spent on salaries to the refuge's 23 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$430,000 in benefit amounts are not counted in local spending.

Table 6-11. Charles M. Russell NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,365,067	65.9%
Transportation of People	4,007	0.2%
Transportation of Things	(2,320)	-0.1%
Communications	42,372	2.0%
Utilities	30,992	1.5%
Contracts	2,077	0.1%
Building Repairs	56,211	2.7%
Equipment Maintenance	47,208	2.3%
Supplies and Materials	71,947	3.5%
Motor Vehicle Fuel	85,486	4.1%
Equipment-Capitalized	208,812	10.1%
Equipment-Non-capitalized	160,805	7.8%
Local Sub-Total	2,072,663	100.0%
Non-Local Expenditures		
Employee Benefits	429,981	
Air Travel	40,677	
Non-Expense Item		
Real Property	19,033	
Grants	259,295	
Organization Total	2,821,650	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Charles M. Russell recorded a \$19,000 improvement of real property. This is also not included in local expenditures.

The appraised value for Russell NWR fee lands was \$22.4 million in 2008 which garnered \$31,980 from the RRS fund. In addition, enterprises on refuge reserved lands earned \$177,000. So the larger portion of RRS payments were derived from locally earned revenues.

Table 6-12. Charles M. Russell NWR: Refuge Revenue Sharing and PILT

(\$2008, except acres)

	Reserve Acre	Fee Acres	Appraised Value	.75% of Appraised Value	25% Net Reserve Receipts	Total Amount	Pro-rated Payment for FY2008
Fergus	29,481	2,512	597,000	4,478	3,647	8,125	2,626
Garfield	83,869	5,952	1,429,400	10,721	10,376	21,097	6,819
McCone	7,796	2,784	418,000	3,135	965	4,100	1,325
Petroleum	31,927	2,981	447,000	3,353	3,950	7,303	2,360
Phillips	147,452	1,727	404,300	3,032	18,241	21,273	6,875
Valley	57,672	6,455	968,000	7,260	7,135	14,395	4,652
Total	358,198	22,411	4,263,700	31,979	44,314	76,293	24,657

The 6 counties shared \$2.8 million in PILT payments for FY2008 as shown in Table 6-12. Refuge lands accounted for 8.5 percent of the 4.4 million acres of federal land in the region. It is notable that several counties' payments were capped because of their small populations. Approximately \$185,000 of the PILT payment is attributable to Charles M. Russell NWR lands.

The study area is sparsely populated with few paved roads. Table 6-13 shows \$1.1 million of the \$2.1 million spending had a direct effect on local output. Typical purchasing patterns for industries in the region for these items suggest the remainder flowed to suppliers outside the area. About \$230,800 became compensation for local workers in 11.5 jobs. The iteration of refuge spending through the local economy generated \$1.4 million in total output and 14.7 jobs.

Table 6-13. Charles M. Russell NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,400	1,900	0	0	0.0	0.0
Utilities	52,100	71,600	6,200	8,500	0.1	0.1
Construction	0	11,100	0	3,800	0.0	0.1
Manufacturing	58,500	64,100	6,700	7,500	0.4	0.4
Trade	376,600	422,800	116,600	132,600	4.5	5.1
Transportation	6,100	10,600	800	2,100	0.0	0.1
Information	38,700	68,700	4,700	9,800	0.1	0.3
Finance	236,100	353,900	9,300	18,400	0.5	1.1
Lodging	65,900	84,200	14,500	18,600	1.3	1.7
Government	21,000	35,700	6,500	11,500	0.1	0.3
Other	244,700	315,500	65,500	87,000	4.3	5.4
Total	1,101,100	1,440,200	230,800	300,000	11.5	14.7
Multipliers		1.31		1.30		1.28

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Huron Wetland Management District

Description

Huron Wetland Management District (WMD) was created on May 31, 1992. Huron WMD covers eight counties in east-central South Dakota. The topography of this area ranges from flat, gently rolling drift prairie to the Missouri Coteau hills in the western end of the District. The public lands of Huron WMD are managed to provide habitat for endangered species, migratory birds, and other wildlife and to provide places for people to learn about and enjoy wildlife. Leased lands are not usually available for public recreation but require the majority of staff time to administer.

Area Economy

The Huron Wetland Management District is in eastern South Dakota. Only one of its counties has a city of more than 10,000, Huron, and all but one are losing population. Table 6-14 shows the counties making up the area economy. The area population decreased by 13.1 percent from 1997 to 2007, compared with a 6.9 percent increase for the state of South Dakota and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than South Dakota as a whole. Per capita personal income in the area is higher than the State or U.S. average and increasing at a rapid rate over the 1997-2007 period. Buffalo County is an exception as it had unemployment well above state and national averages and income at a fraction of the state average. By some measures, it is considered the poorest county in the nation.

Table 6-14. Huron WMD: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Beadle, SD	15.7	-14.0%	2.4%	\$39,838	36.1%
Hand, SD	3.3	-16.7%	2.6%	\$42,466	56.8%
Hyde, SD	1.5	-14.3%	2.9%	\$33,752	39.9%
Sanborn, SD	2.4	-11.3%	2.6%	\$45,569	47.5%
Jerauld, SD	2.0	-17.9%	2.3%	\$40,078	40.6%
Buffalo, SD	2.1	7.4%	11.1%	\$15,752	7.8%
Sully, SD	1.4	-12.4%	2.4%	\$64,352	78.4%

Area Total	28.4	-13.1%	2.7%	\$39,768	41.6%
South Dakota	796	6.9%	3.1%	\$35,760	26.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Huron WMD spent \$808,900 in operations and maintenance in FY2009. More than two-thirds (67%) of this funding is spent on salaries to 9 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$187,100 in benefit amounts are not counted in local spending.

Table 6-15. Huron WMD: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	544,062	67.3%
Transportation of People	1,543	0.2%
Transportation of Things	17,500	2.2%
Communications	30,028	3.7%
Utilities	5,354	0.7%
Contracts	277	0.0%
Building Repairs	73,317	9.1%
Equipment Maintenance	10,809	1.3%
Supplies and Materials	18,919	2.3%
Motor Vehicle Fuel	29,453	3.6%
Equipment-Capitalized	39,491	4.9%
Equipment-Non-capitalized	38,132	4.7%
Local Sub-Total	808,886	100.0%
Non-Local Expenditures		
Employee Benefits	187,120	
Air Travel	17,563	
Non-Expense Item		
Real Property	-	
Grants	9,057	
Organization Total	1,022,627	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

[Not in RRS data] The appraised value for Huron’s land was \$xxx million in 2008. RRS payments of \$88,800 were made to the 7 counties. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 6-16 shows only \$532,800 of the \$808,900 spent by the WMD had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$109,500 became compensation for local workers in 4.9 jobs. As this spending flowed through the economy, it generated \$678,000 in total output and 6.3 jobs.

Table 6-16. Huron WMD Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	2,000	2,700	0	100	0.0	0.0
Utilities	13,100	21,500	1,800	3,000	0.0	0.0
Construction	0	4,900	0	1,300	0.0	0.1
Manufacturing	73,000	75,900	9,900	10,200	0.2	0.3
Trade	139,400	163,800	44,100	51,800	2.0	2.3
Transportation	25,300	29,400	3,900	4,800	0.2	0.2
Information	21,800	36,100	2,800	5,000	0.1	0.1
Finance	134,200	173,600	8,200	13,900	0.5	0.6
Lodging	19,800	25,700	4,500	5,800	0.4	0.5
Government	15,000	21,000	4,100	6,600	0.1	0.1
Other	89,300	123,400	30,300	42,400	1.4	1.9
Total	532,800	678,100	109,500	145,000	4.9	6.3
Multipliers		1.27		1.32		1.29

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Madison Wetland Management District

Description

The Madison Wetland Management District (WMD) was established to preserve wetlands and manage habitat for waterfowl and other wildlife. Headquartered in Madison, South Dakota, the 10 permanent and 4 seasonal District staff members manage 38,500 acres of upland and wetland areas. The northeast portion of the District (Deuel County) lies within the "Coteau des Prairie" or tall grass prairie region of South Dakota.

The District staff also administers two easement programs with private landowners. One is a wetland easement program consisting of 52,200 acres of wetlands that are protected from drainage. The second is a grassland easement program that protects 39,000 acres of grasslands from plowing.

Area Economy

The Madison Wetland Management District is in eastern South Dakota. It includes the growing city of Sioux Falls as well as more rural areas. Table 6-17 shows the counties making up the area economy. The area population decreased by 16.4 percent from 1997 to 2007, compared with a 6.9 percent increase for the state of South Dakota and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was lower than South Dakota as a whole. Per capita personal income in the area is higher than the State average.

Table 6-17. Madison WMD: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Deuel, SD	4.2	-6.7%	3.8%	\$39,143	47.5%
Hamlin, SD	5.6	3.0%	3.3%	\$31,361	31.4%
Kingsbury, SD	5.4	-8.8%	3.2%	\$36,260	23.6%
Miner, SD	2.5	-19.2%	3.5%	\$35,196	34.3%
McCook, SD	5.7	-0.5%	3.4%	\$34,144	12.6%
Lake, SD	11.4	2.3%	3.1%	\$33,442	21.6%
Minnehaha, SD	175.1	24.3%	2.8%	\$38,406	15.6%

Moody, SD	6.5	-3.2%	4.3%	\$38,584	29.2%
Brookings, SD	29.3	6.0%	2.3%	\$33,614	31.5%
Area Total	245.8	16.4%	2.8%	\$37,281	18.8%
South Dakota	796	6.9%	3.1%	\$35,760	26.1%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Madison WMD spent \$995,800 in operations and maintenance in FY2009. More than two-thirds (72%) of this funding is spent on salaries to employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$216,400 in benefit amounts are not counted in local spending.

Table 6-18. Madison WMD: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	713,991	71.7%
Transportation of People	1,908	0.2%
Transportation of Things	(2,397)	-0.2%
Communications	14,258	1.4%
Utilities	6,043	0.6%
Contracts	1,616	0.2%
Building Repairs	32,296	3.2%
Equipment Maintenance	37,821	3.8%
Supplies and Materials	23,874	2.4%
Motor Vehicle Fuel	37,720	3.8%
Equipment-Capitalized	1,755	0.2%
Equipment-Non-capitalized	126,880	12.7%
Local Sub-Total	995,765	100.0%
Non-Local Expenditures		
Employee Benefits	216,368	
Air Travel	24,154	
Non-Expense Item		
Real Property	-	
Grants	1,984	
Organization Total	1,238,271	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

[Not in RRS data] The appraised value for Madison’s land was \$xxx million in 2008. RRS payments of \$88,800 were made to the 7 counties. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 6-19 shows \$789,500 of the \$995,800 spent by the WMD had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$217,600 became compensation for new local workers in 7.5 jobs. As this spending flowed through the economy, it generated \$1.2 million in total output and 11.2 jobs.

Table 6-19. Madison WMD Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,000	2,600	0	100	0.0	0.0
Utilities	11,600	21,300	1,800	3,300	0.0	0.0
Construction	0	7,900	0	2,600	0.0	0.1
Manufacturing	73,000	85,600	15,000	18,500	0.3	0.4
Trade	232,200	288,500	80,500	100,200	3.0	3.7
Transportation	12,800	27,200	3,700	9,400	0.1	0.2
Information	26,200	65,900	3,600	9,500	0.1	0.2
Finance	170,400	337,600	16,400	42,000	0.5	1.3
Lodging	44,500	66,500	11,300	16,900	0.8	1.1
Government	14,000	26,800	5,400	10,600	0.1	0.2
Other	203,900	315,300	79,700	125,100	2.7	4.0
Total	789,500	1,245,200	217,600	338,400	7.5	11.2
Multipliers		1.58		1.56		1.49

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Quivira National Wildlife Refuge

Description

Quivira NWR was established in 1955, and acquisition of the 21,820 acres was completed in 1969. The natural and developed marshes on the refuge provide resting and feeding areas for spring and fall migrating waterfowl and wintering habitat for mallards and Canada geese. In addition, thousands of shorebirds and sandhill cranes use the refuge during migration in the spring and fall. Whooping cranes, bald eagles, and interior least terns use the refuge as well. Summer residents include white pelicans, gulls, various hawks, avocets, egrets, and many others. Ring-necked pheasants, bobwhite quail, wild turkey, white-tailed deer, prairie dogs, and coyotes are commonly seen.

The refuge has 21 miles of canals through which water is diverted to over 30 wetlands ranging in size from 10 to 1,500 acres and totaling over 5,000 acres. Hunting and fishing are permitted on 8,000 acres of the refuge in accordance with state seasons. The refuge is an excellent birding area.

Area Economy

Quivira NWR lies in central Kansas, northwest of Wichita. Table 6-20 shows some statistics that characterize the area economy. The area population decreased by 3.3 percent from 1997 to 2007, led by Stafford County. The area unemployment rate in 2007 is low compared with national rates. Per capita personal income in the area increased by 7.2 percent during the 1997-2007 period. Barton County has a higher income level than the rest of the area and fastest growing income.

Table 6-20. Quivira NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Barton, KS	27.8	-4.1%	3.3%	\$34,447	25.6%
Stafford, KS	4.4	-12.0%	3.6%	\$28,495	-2.4%
Reno, KS	63.1	-1.5%	4.1%	\$28,878	1.0%
Rice, KS	10.0	-8.0%	3.7%	\$24,435	-0.1%
Area Total	105.3	-3.3%	3.8%	\$29,907	7.2%

Kansas	2,777	5.4%	4.4%	\$36,525	17.6%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Quivira NWR spent \$1.1 million on operations and maintenance in FY2009. More than two-thirds of this funding (70%) is spent on salaries to 8 permanent and 3 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$168,600 in benefit amounts are not counted in local spending.

Table 6-21. Quivira NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	736,930	69.5%
Transportation of People	2,022	0.2%
Transportation of Things	24,607	2.3%
Communications	11,630	1.1%
Utilities	11,751	1.1%
Contracts	75	0.0%
Building Repairs	84,815	8.0%
Equipment Maintenance	24,685	2.3%
Supplies and Materials	31,150	2.9%
Motor Vehicle Fuel	32,621	3.1%
Equipment-Capitalized	3,330	0.3%
Equipment-Non-capitalized	96,426	9.1%
Local Sub-Total	1,060,043	100.0%
Non-Local Expenditures		
Employee Benefits	168,642	
Air Travel	15,902	
Non-Expense Item		
Real Property	107,636	
Grants	21,360	
Organization Total	1,373,583	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

In FY2009, Quivira NWR received an ARRA grant for road building and recorded a \$107,600 improvement of real property. This is also not included in local expenditures.

Quivira NWR has 22,000 acres of fee lands valued at \$9.9 million. Under the 0.75 percent of valuation formula, the full RRS payment would be \$74,295. Typically, the FY2008 RRS payment after pro-rating would be \$24,012 but the refuge paid out \$33,975 in FY1977 so that establishes a floor amount that the RRS payment cannot fall below. Stafford County received \$31,810 in RRS payments for FY2008 while Reno County and Rice County divided the remainder. The refuge does not include land reserved from the federal domain and did contribute earnings to the RRS fund.

Table 6-22 shows \$730,600 of the \$1.1 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$204,500 became compensation for local workers in 7.6 jobs. As this spending flowed through the economy, it generated \$968,000 in total output and 10.0 jobs.

Table 6-22. Quivira NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,100	2,300	100	100	0.0	0.0
Utilities	15,600	22,900	3,000	4,400	0.0	0.0
Construction	0	5,200	0	1,900	0.0	0.0
Manufacturing	91,900	95,700	18,600	19,200	0.5	0.5
Trade	201,800	240,700	71,700	86,000	3.0	3.5
Transportation	28,400	36,400	9,100	11,900	0.2	0.3
Information	18,700	33,900	2,900	5,800	0.1	0.1
Finance	109,500	165,200	5,800	13,300	0.2	0.4
Lodging	33,700	46,800	9,100	12,600	0.7	0.9
Government	14,900	25,700	4,300	8,200	0.1	0.1
Other	215,100	293,300	79,900	111,600	3.0	4.1
Area Total	730,600	968,000	204,500	275,100	7.6	10.0

Multipliers	1.32	1.35	1.32
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Most of the increased output and employment occurs in the Finance, Trade and Other Services industries. The Other sector includes upkeep for buildings and payments for capital equipment.

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Rainwater Basin Wetland Management District

Description

The Rainwater Basin Wetland Management District (WMD) staff manages 61 tracts of wetlands, totaling 23,059 acres scattered over more than 14 counties in southeastern Nebraska. All of the WMD is located in the Rainwater Basin. The name "Rainwater Basin" originates from the geologic formation of large, wind-blown shallow depressions, which become flooded after rain and snow melt.

Area Economy

The Rainwater Basin WMD is in southern Nebraska. Table 6-23 shows the counties making up the area economy. The more urbanized areas of the region are growing. Adams County and Hall County near Grand Island and Hastings grew at about by 5.2 percent in the 1997 to 2007 period. Seward County and Saline County near Lincoln also grew slightly. The remainder of the area lost population. Overall, the area population remained almost unchanged from 1997 to 2007, compared with a 4.9 percent increase for the state of Nebraska and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was slightly lower than Nebraska as a whole. Per capita personal income in the area is lower and growing more slowly than the State average.

Table 6-23. Rainwater Basin WMD: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Gosper, NE	2.0	-8.7%	3.2%	\$28,771	3.1%
Phelps, NE	9.1	-7.6%	2.4%	\$34,413	2.4%
Kearney, NE	6.6	-2.5%	2.7%	\$33,384	-2.2%
Franklin, NE	3.2	-17.3%	3.0%	\$28,393	13.2%
Adams, NE	32.9	5.9%	3.0%	\$29,371	5.7%
Hall, NE	55.4	4.9%	3.1%	\$33,223	17.2%
Hamilton, NE	9.3	-1.1%	2.4%	\$30,294	6.4%
Clay, NE	6.3	-11.7%	3.2%	\$29,337	-1.0%
Fillmore, NE	6.0	-11.1%	3.0%	\$33,949	-2.8%

York, NE	14.3	-3.5%	3.7%	\$32,536	7.2%
Seward, NE	16.5	1.6%	3.3%	\$33,486	8.9%
Saline, NE	13.8	1.8%	3.4%	\$30,142	11.8%
Area Total	175.4	0.5%	3.1%	\$31,888	9.1%
Nebraska	1,769	4.9%	3.3%	\$36,372	17.0%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Rainwater Basin WMD spent \$846,400 in operations and maintenance in FY2009. Almost two-thirds (65%) of this funding is spent on salaries to 9 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$147,600 in benefit amounts are not counted in local spending.

Table 6-24. Rainwater Basin WMD: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	546,729	64.6%
Transportation of People	2,016	0.2%
Transportation of Things	-	0.0%
Communications	14,666	1.7%
Utilities	27,313	3.2%
Contracts	329	0.0%
Building Repairs	50,702	6.0%
Equipment Maintenance	46,776	5.5%
Supplies and Materials	8,029	0.9%
Motor Vehicle Fuel	68,422	8.1%
Equipment-Capitalized	61,677	7.3%
Equipment-Non-capitalized	19,767	2.3%
Local Sub-Total	846,426	100.0%
Non-Local Expenditures		
Employee Benefits	147,592	
Air Travel	15,275	
Non-Expense Item		
Real Property	1,211,425	

Grants	56,810
Organization Total	2,277,529

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Rainwater Basin WMD spent \$1.2 million for real property improvements. The WMD has been upgrading its water management systems by converting open trenches for transporting water to underground pipes and substituting submersible pumps for surface pumps.

[Not in RRS data] The appraised value for Rainwater Basin's land was \$xxx million in 2008. RRS payments of \$88,800 were made to the 7 counties. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 6-25 shows \$611,400 of the \$846,400 spent by the WMD had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$136,400 became compensation for new local workers in 5.9 jobs. As this spending flowed through the economy, it generated \$816,500 in total output and 7.9 jobs.

Table 6-25. Rainwater Basin WMD: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,500	2,500	100	100	0.0	0.0
Utilities	300	600	100	100	0.0	0.0
Construction	0	5,400	0	1,900	0.0	0.1
Manufacturing	79,300	84,000	5,900	6,600	0.2	0.2
Trade	167,100	199,200	51,500	62,900	2.5	2.9
Transportation	8,700	16,800	2,400	5,600	0.1	0.1
Information	15,700	37,500	2,200	4,300	0.0	0.1
Finance	132,000	187,000	9,700	18,200	0.5	0.8
Lodging	27,500	37,900	7,000	9,600	0.5	0.8
Government	47,500	61,400	10,500	14,600	0.1	0.2
Other	131,800	184,400	47,100	66,900	1.9	2.8
Total	611,400	816,500	136,400	190,900	5.9	7.9

Multipliers	1.34	1.40	1.34
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Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Region 7

Region 7 consists of the State of Alaska. Sample refuges selected within the region include:

Alaska Maritime NWR

Kenai NWR

Kodiak NWR

Tetlin NWR

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Alaska Maritime National Wildlife Refuge

Description

Alaska Maritime National Wildlife Refuge is a place of great distances and greater dramas. Here winds whip through the grasses of rugged, wave-pounded islands; and active volcanoes simmer, venting steam above collars of fog. It is a place of contrasts, where relics of a past war slowly rust in deserted valleys, while, nearby, great forests of kelp team with life. It is, and has long been, a place of refuge, and has seen some of the most dramatic wildlife conservation stories in our nation's history.

Containing some of the first conservation-unit areas to be established in America, Alaska Maritime National Wildlife Refuge includes lands that were formerly parts of ten previously established refuges. Many of these units are still represented among the ten distinct congressionally-designated wilderness areas included in Alaska Maritime, which range in size from the approximately 1.3 million acre Aleutian Islands Wilderness to the 32 acre Hazy Islands Wilderness. Because it is spread out along most of Alaska's coastline, the sheer span of this refuge is difficult to grasp. Its more than 2,500 islands, islets, spires, rocks, reefs, waters and headlands extend from Forrester Island, in the southeast panhandle of the state, to the westernmost tip of the Aleutians, and north to Cape Lisburne on the Arctic Ocean. Traveling between its farthest-flung points would be the equivalent of taking a trip from Georgia to California.

No other maritime National Wildlife Refuge in America is as large or as productive. Alaska Maritime's seashore lands provide nesting habitat for approximately 40 million seabirds, or about 80 percent of Alaska's nesting seabird population.

Area Economy

Alaska Maritime NWR contains units around the entire State of Alaska. Much of the refuge is extremely remote wilderness. Table 7-1 shows some statistics that characterize the area economy. The area population increased by 3.0 percent from 1997 to 2007. There is a wide range of population change among the constituent regions. Four regions lost about one-eighth of their population while one gained more than 10 percent. The area unemployment rate in 2007 is high when compared with state and national rates. Per capita personal income in the area increased by 19.6 percent during the 1997-2007 period. The North Slope area has extremely high average income and very fast income growth.

Table 7-1. Alaska Maritime NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County-equivalents	Population		Unemployment Rate	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Aleutians East, AK	2.8	1.3%	8.8%	\$28,942	10.0%
Aleutians West, AK	4.7	-13.1%	6.0%	\$33,318	21.6%
Kodiak Island, AK	13.0	-8.4%	7.0%	\$37,951	23.8%
Lake & Peninsula, AK	1.5	-16.4%	7.2%	\$32,331	52.5%
Kenai Peninsula, AK	53.1	9.4%	8.2%	\$35,415	13.0%
Sitka, AK	8.8	-1.0%	5.8%	\$36,696	13.9%
Bethel, AK	17.1	11.3%	14.1%	\$26,990	17.7%
North Slope, AK	6.5	-11.7%	4.3%	\$58,912	67.5%
Area Total	107.6	3.0%	8.1%	\$35,610	19.6%
Alaska	681	11.1%	6.5%	\$40,042	15.8%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Alaska Maritime NWR spent \$2.4 million on operations and maintenance in FY2009. More than two-thirds of this funding (72%) is spent on salaries to 19 permanent and 10 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$755,200 in benefit amounts are not counted in local spending.

Table 7-2. Alaska Maritime NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,731,433	71.6%
Transportation of People	17,703	0.7%
Transportation of Things	49,926	2.1%
Communications	62,733	2.6%
Utilities	(30,041)	-1.2%
Contracts	-	0.0%

Building Repairs	57,345	2.4%
Equipment Maintenance	33,561	1.4%
Supplies and Materials	188,078	7.8%
Motor Vehicle Fuel	121,571	5.0%
Equipment-Capitalized	29,114	1.2%
Equipment-Non-capitalized	156,542	6.5%
Local Sub-Total	2,417,964	100.0%
Non-Local Expenditures		
Employee Benefits	755,203	
Air Travel	290,039	
Non-Expense Item		
Real Property	-	
Grants	225,794	
Organization Total	3,689,000	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. Alaska Maritime NWR relies to a greater extent than most refuges on air transportation so this line item is very high. Much air travel in this case is within the refuge region but it is considered non-local to be consistent with the rest of the report. A late adjusting entry is responsible for the negative utility expense.

[FY2008 data doesn't jibe with FY2007 RRS data] The appraised value of Alaska Maritime's land was \$xxx million in 2008. RRS payments of \$88,800 were made to the 7 counties. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 7-3 shows \$1.47 million of the \$2.4 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$368,000 became compensation for local workers in 12.4 jobs. As this spending flowed through the economy, it generated \$1.84 million in total output and 15.0 jobs.

Table 7-3. Alaska Maritime NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	400	600	0	100	0.0	0.0
Utilities	12,800	23,900	2,500	4,600	0.0	0.0
Construction	2,700	22,900	600	5,600	0.0	0.1
Manufacturing	62,800	88,000	10,500	11,500	0.3	0.3
Trade	512,900	548,200	170,900	183,100	5.9	6.3
Transportation	72,700	87,100	21,300	26,600	0.5	0.7
Information	52,700	80,900	8,400	13,600	0.1	0.3
Finance	296,500	394,600	13,100	21,700	0.5	0.9
Lodging	87,300	111,900	24,300	31,000	1.3	1.7
Government	46,200	69,800	18,300	25,700	0.2	0.3
Other	326,000	411,300	98,200	130,800	3.4	4.4
Total	1,472,900	1,839,200	368,100	454,200	12.4	15.0
Multipliers		1.25		1.23		1.21

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Kenai National Wildlife Refuge

Description

Alaska's Kenai Peninsula is, in geologic terms, still quite "young," since its entire land mass was covered by glacial ice as recently as 10,000 years ago. Much of that frozen blanket still exists today, in the form of the more than 800-square mile Harding Ice Field, which the refuge "shares" with Kenai Fjords National Park.

The grudging withdrawal of the Harding Ice Field has helped to make the lands of the Kenai National Wildlife Refuge a "miniature Alaska." Today, the refuge includes examples of every major Alaska habitat type. The refuge is an Alaska in miniature in its diversity of wildlife, as well. Sportfish bring hundreds of thousands of visitors to the peninsula each year. Eager anglers can pursue chinook, sockeye, coho and pink salmon; as well as Dolly Varden char, rainbow trout, and arctic grayling. The refuge is also home to brown and black bears, caribou, Dall sheep, mountain goats, wolves, lynx, wolverines, eagles and thousands of shorebirds and waterfowl, not to mention the mighty Alaska-Yukon moose that the refuge was originally established (as the Kenai National Moose Range) to protect.

Area Economy

The Kenai Peninsula is more densely populated than many areas of Alaska. Table 7-4 shows some statistics that characterize the coastal area economy. The area population increased by 9.4 percent from 1997 to 2007. The area unemployment rate in 2007 was higher than state and national rates. Per capita personal income in the area increased by 13 percent during the 1997-2007 period but remains below state and national averages.

Table 7-4. Kenai NWR: Summary of Area Economy, 2007
(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007	Percent	Rate	2007	Percent
	(,000)	change	Percent	(\$2007)	change
	2007	1997-2007	(2007)	(2007)	1997-2007
Kenai Peninsula, AK	53.1	9.4%	8.2%	\$35,415	13.0%
Alaska	681	11.1%	6.5%	\$40,042	15.8%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Kenai NWR spent \$3.86 million on operations and maintenance in FY2009. More than two-thirds of this funding (66.8%) is spent on salaries to 34 permanent and 8 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$1.1 million in benefit amounts are not counted in local spending.

Table 7-5. Kenai NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	2,577,119	66.8%
Transportation of People	14,709	0.4%
Transportation of Things	63,175	1.6%
Communications	107,113	2.8%
Utilities	90,158	2.3%
Contracts	3,286	0.1%
Building Repairs	498,394	12.9%
Equipment Maintenance	104,429	2.7%
Supplies and Materials	117,173	3.0%
Motor Vehicle Fuel	90,960	2.4%
Equipment-Capitalized	305	0.0%
Equipment-Non-capitalized	192,275	5.0%
Local Sub-Total	3,859,096	100.0%
Non-Local Expenditures		
Employee Benefits	1,138,519	
Air Travel	322,721	
Non-Expense Item		
Real Property	123,463	
Grants	311,789	
Organization Total	5,755,589	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Kenai recorded a \$123,500 improvement of real property. This is also not included in local expenditures.

[FY2008 data doesn't jibe with FY2007 RRS data] The appraised value of Kenai's land was \$xxx million in 2008. RRS payments of \$88,800 were made to the 7 counties. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 7-6 shows \$2.7 million of the \$3.8 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$600,600 became compensation for local workers in 28.2 jobs. As this spending flowed through the economy, it generated \$3.8 million in total output and 35.9 jobs.

Table 7-6. Kenai NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	900	1,800	100	200	0.0	0.1
Utilities	109,000	148,500	21,700	29,200	0.2	0.2
Construction	900	64,800	200	16,000	0.0	0.3
Manufacturing	76,700	263,800	8,200	13,900	0.2	0.2
Trade	575,900	682,000	196,100	233,700	7.1	8.4
Transportation	218,900	255,000	52,500	64,800	1.3	1.6
Information	121,700	196,100	19,500	33,000	0.3	0.6
Finance	437,000	696,100	18,000	38,600	0.9	2.1
Lodging	156,500	232,600	43,200	63,700	2.4	3.7
Government	74,600	120,600	27,200	42,600	0.3	0.5
Other	939,100	1,148,400	213,900	272,200	15.5	18.3
Total	2,711,200	3,809,700	600,600	807,900	28.2	35.9
Multipliers		1.41		1.35		1.27

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Kodiak National Wildlife Refuge

Description

Kodiak is a rugged, beautiful island on the coast of southwestern Alaska. Established in 1941, the refuge provides habitat for brown bear, salmon and other wildlife. Kodiak's scenery is magnificent- rugged mountains, hundreds of miles of shoreline, lakes, marshes, bogs, and meadows. Four-thousand-foot mountains rise from the sea accented with fjord like inlets. Lush vegetation blankets the mountains ranging from sedges, alders, and spruce to colorful wildflowers and berries.

The 1.9 million-acre Kodiak National Wildlife Refuge roughly encompasses the southwestern two-thirds of Kodiak Island, Uganik Island, the Red Peaks area on northwestern Afognak Island, and all of Ban Island. No place on the refuge is more than 15 miles from the Pacific Ocean. Without roads, the refuge provides a wilderness setting for fish, wildlife, and humans alike.

The refuge is home to an estimated 2,300 brown bears, and at least 600 nesting pairs of bald eagles. More than 250 species of birds live upon or visit the refuge, while more than 1.5 million seabirds overwinter in nearshore waters surrounding Kodiak Island.

The refuge also provides spawning and rearing habitat for all five North American species of Pacific salmon. Salmon produced on the refuge make up approximately 65 percent of the total commercial harvest in the Kodiak Archipelago.

Area Economy

Kodiak NWR is on an island so almost all goods must be imported from other areas. Kodiak Island's economy is closely tied with the mainland economy in Anchorage. Table 7-7 shows some statistics that characterize the two economies. Anchorage population increased by 9.8 percent from 1997 to 2007 while Kodiak Island's fell 8.4 percent. Island unemployment in 2007 was high when compared with Anchorage, state, and national rates. Per capita personal income in the area increased by 17.7 percent during the 1997-2007 period.

Table 7-7. Kodiak NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

Population	Unemployment Rate	Per Capita Personal Income
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County	2007 (,000)	Percent change 1997- 2007	Percent (2007)	2007 (\$2007)	Percent change 1997-2007
Anchorage, AK	277.5	9.8%	5.3%	\$46,243	17.5%
Kodiak Island, AK	13.0	-8.4%	7.0%	\$37,951	23.8%
Area Total	290.5	8.9%	5.4%	\$45,873	17.7%
Alaska	681	11.1%	6.5%	\$40,042	15.8%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Kodiak NWR spent \$1.86 million on operations and maintenance in FY2009. More than half of this funding (61%) is spent on salaries to 17 permanent and 3 temporary employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$534,900 in benefit amounts are not counted in local spending.

Table 7-8. Kodiak NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	1,133,978	61.1%
Transportation of People	9,292	0.5%
Transportation of Things	57,145	3.1%
Communications	29,529	1.6%
Utilities	32,306	1.7%
Contracts	851	0.0%
Building Repairs	87,328	4.7%
Equipment Maintenance	17,267	0.9%
Supplies and Materials	142,139	7.7%
Motor Vehicle Fuel	100,136	5.4%
Equipment-Capitalized	89,506	4.8%
Equipment-Non-capitalized	157,022	8.5%
Local Sub-Total	1,856,500	100.0%
Non-Local Expenditures		
Employee Benefits	534,909	

Air Travel	264,314
Non-Expense Item	
Real Property	-
Grants	55,470
Organization Total	2,711,193

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

[FY2008 data doesn't jibe with FY2007 RRS data] The appraised value of Alaska Maritime's land was \$xxx million in 2008. RRS payments of \$88,800 were made to the 7 counties. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 7-9 shows \$1.55 million of the \$1.8 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$438,100 became compensation for local workers in 11.3 jobs. As this spending flowed through the economy, it generated \$2.29 million in total output and 16.3 jobs.

Table 7-9. Kodiak NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	500	1,500	100	300	0.0	0.0
Utilities	23,500	34,000	4,400	6,100	0.0	0.1
Construction	2,900	44,000	600	10,500	0.0	0.1
Manufacturing	92,800	133,900	13,700	16,700	0.5	0.5
Trade	371,300	444,000	131,100	158,000	3.7	4.5
Transportation	238,000	280,000	79,200	98,000	1.0	1.3
Information	51,800	103,500	8,600	18,200	0.1	0.3
Finance	210,500	414,300	18,900	43,600	0.6	1.6
Lodging	68,300	113,500	20,000	33,400	0.9	1.6
Government	36,100	58,900	11,300	19,600	0.1	0.2
Other	456,200	658,000	150,200	222,600	4.3	6.2
Total	1,551,700	2,285,500	438,100	627,000	11.3	16.3

Multipliers	1.47	1.43	1.44
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Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Tetlin National Wildlife Refuge

Description

Tetlin National Wildlife Refuge is a dynamic landscape made up of forests, wetlands, tundra, lakes, mountains and glacial rivers bounded by the snowy peaks of the Alaska Range. This upper Tanana River valley has been called the "Tetlin Passage," because it serves as a major migratory route for birds traveling to and from Canada, the lower 48 and both Central and South America. Many of these birds breed and nest on the refuge. Others pass through on their way to breeding and nesting grounds elsewhere in the state. Migrants, including ducks, geese, swans, cranes, raptors and songbirds, begin arriving in the valley in April, and continue into early June. An estimated 116 species breed on Tetlin during the short summer, when long days and warm temperatures accelerate the growth of plants, insects and other invertebrates, providing a ready source of rich foods for nesting birds.

Tetlin Refuge also supports a variety of large mammals. Dall sheep dot the higher slopes while moose feed upon the tender new growth that springs up in the wake of frequent lightning caused fires. Wolves, grizzly and black bears and members of three different caribou herds range over the refuge. Two of the six known humpback whitefish spawning areas in the Yukon River drainage are located within the refuge. Along with caribou and moose, these fish are important subsistence resources for area residents. Arctic grayling, northern pike and burbot are also found in the refuge's many streams and lakes.

Area Economy

Tetlin NWR is on the inland eastern border of Alaska. Table 7-10 shows some statistics that characterize the area economy. The economy is dominated by Anchorage which continues to grow. The area population increased by 9.2 percent from 1997 to 2007 even though the immediate area lost population and had high unemployment. The total area unemployment rate in 2007 is low when compared with state and national rates. Per capita personal income in the area increased by 17.4 percent during the 1997-2007 period.

Table 7-10. Tetlin NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change	Rate	2007 (\$2007)	Percent change
		1997- 2007	Percent (2007)		1997-2007

Valdez-Cordova, AK	9.5	-7.5%	8.4%	\$40,472	14.8%
Anchorage, AK	277.5	9.8%	5.3%	\$46,243	17.5%
Area Total	287.0	9.2%	5.4%	\$46,052	17.4%
Alaska	681	11.1%	6.5%	\$40,042	15.8%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Tetlin NWR spent \$1.2 million on operations and maintenance in FY2009. More than three-quarters of this funding (77%) is spent on salaries to 15 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$479,400 in benefit amounts are not counted in local spending.

Table 7-11. Tetlin NWR Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	949,403	76.8%
Transportation of People	5,214	0.4%
Transportation of Things	15,119	1.2%
Communications	15,975	1.3%
Utilities	38,384	3.1%
Contracts	563	0.0%
Building Repairs	58,251	4.7%
Equipment Maintenance	7,710	0.6%
Supplies and Materials	85,159	6.9%
Motor Vehicle Fuel	31,095	2.5%
Equipment-Capitalized	17,126	1.4%
Equipment-Non-capitalized	12,289	1.0%
Local Sub-Total	1,236,287	100.0%
Non-Local Expenditures		
Employee Benefits	479,424	
Air Travel	138,471	
Non-Expense Item		
Real Property	11,508	
Grants	66,449	
Organization Total	1,932,139	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study.

[FY2008 data doesn't jibe with FY2007 RRS data] The appraised value of Tetlin's land was \$xxx million in 2008. RRS payments of \$88,800 were made to the 7 counties. This unit has no lands reserved from the public domain and does not generate revenue for the RRS fund.

Table 7-12 shows \$969,900 of the \$1.2 million spent by the refuge had a direct effect on local output. Typical purchasing patterns for households in this region suggest the difference flowed to suppliers outside the area. About \$262,300 became compensation for local workers in 6.8 jobs. As this spending flowed through the economy, it generated \$1.4 million in total output and 9.9 jobs.

Table 7-12. Tetlin NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	400	900	100	200	0.0	0.0
Utilities	27,300	35,100	5,000	6,300	0.0	0.1
Construction	2,300	29,400	400	7,100	0.0	0.1
Manufacturing	23,500	48,500	2,400	4,100	0.1	0.1
Trade	242,300	284,800	88,900	104,500	2.5	2.9
Transportation	105,200	130,000	34,600	45,800	0.4	0.6
Information	21,300	50,500	3,600	9,100	0.1	0.2
Finance	215,300	347,500	17,000	33,100	0.8	1.5
Lodging	59,000	85,900	17,200	25,200	0.8	1.2
Government	45,600	60,400	18,600	23,800	0.2	0.2
Other	227,800	346,500	74,500	117,500	1.9	3.0
Total	969,900	1,419,700	262,300	376,700	6.8	9.9
Multipliers		1.46		1.44		1.46

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Region 8

Region 8 includes California and Nevada. Sample refuges selected within the region include:

Kern NWR (California)
Modoc NWR (California)
Stone Lakes NWR (California)

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Kern National Wildlife Refuge

Description

Kern National Wildlife Refuge is located in the southern portion of California's San Joaquin Valley, 20 miles west of the city of Delano. Situated on the southern margin of what was once the largest freshwater wetland complex in the western United States, Kern Refuge provides optimum wintering habitat for migratory birds with an emphasis on waterfowl and water birds.

Through restoration and maintenance of native habitat diversity, the refuge also provides suitable habitat for several endangered species as well as preserving a remnant example of the historic valley uplands in the San Joaquin Desert.

Area Economy

Kern NWR is located in the agricultural region of the southern San Joaquin Valley. Table 8-1 shows some indicative statistics for Kern County which makes up the area economy. Bakersfield, the largest city in the County, is among the fastest growing in California. The area population increased by 24 percent from 1997 to 2007, compared with a 12 percent increase for the state of California and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was higher than the state and the U.S. as a whole. Average per capita personal income in the area is well below the state and national averages and increased at a slower rate over the 1997-2007 period .

Table 8-1. Kern NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Kern, CA	787.2	24.0%	9.8%	\$27,090	10.9%
Area Total					
California	36,378	12.0%	7.2%	\$41,805	22.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Kern NWR spent \$1.0 million in operations and maintenance in FY2009. About half (53%) of this funding is spent on salaries to the refuge's 8 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$160,500 in benefit amounts are not counted in local spending.

Table 8-2. Kern NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	538,847	53.1%
Transportation of People	1,147	0.1%
Transportation of Things	14,444	1.4%
Communications	16,281	1.6%
Utilities	26,602	2.6%
Contracts	682	0.1%
Building Repairs	240,552	23.7%
Equipment Maintenance	25,659	2.5%
Supplies and Materials	73,971	7.3%
Motor Vehicle Fuel	12,661	1.2%
Equipment-Capitalized	17,908	1.8%
Equipment-Non-capitalized	45,274	4.5%
Local Sub-Total	1,014,026	100.0%
Non-Local Expenditures		
Employee Benefits	160,500	
Air Travel	13,202	
Non-Expense Item		
Real Property	50,234	
Grants	89,438	
Organization Total	1,327,400	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Kern recorded a \$50,200 improvement of real property. This is also not included in local expenditures. An additional \$240,600 was spent on repairs and maintenance of other facilities on the refuge in FY2009. This amount was coded as an ongoing expense so it is included in local spending.

The appraised value for Kern NWR fee lands was \$2.9 million in 2008. This would have garnered a \$7,066 payment for RRS but the 1977 floor amount resulted in a \$7,329 RRS payment to Kern County. None of Kern's lands were taken from the public domain.

Table 8-3 shows \$733,200 had a direct effect on local output. Typical purchasing patterns for industries in the region for these items suggest the remainder of the \$1.0 million in spending flowed to suppliers outside the area. About \$195,200 became compensation for local workers in 7.4 jobs. The iteration of refuge spending through the local economy generated \$929,000 in total output and 8.9 jobs.

Table 8-3. Kern NWR Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,400	2,300	200	400	0.0	0.0
Utilities	26,200	30,400	3,500	4,000	0.0	0.0
Construction	100	5,200	0	1,600	0.0	0.0
Manufacturing	39,000	46,100	7,300	7,700	0.1	0.1
Trade	102,000	125,300	35,700	44,500	1.1	1.4
Transportation	17,100	22,700	5,000	6,700	0.1	0.2
Information	11,300	23,000	1,800	4,000	0.0	0.1
Finance	96,100	156,200	7,200	14,200	0.2	0.3
Lodging	18,500	28,500	5,700	8,700	0.3	0.5
Government	10,200	15,800	2,900	5,300	0.0	0.1
Other	411,100	473,400	126,000	149,100	5.4	6.2
Total	733,200	929,000	195,200	246,300	7.4	8.9
Multipliers		1.27		1.26		1.20

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

Modoc National Wildlife Refuge

Description

Modoc National Wildlife Refuge is home to more than 250 species of birds and a variety of other wildlife. Located in a high-altitude desert valley on the western edge of the Great Basin in Modoc County, California, the refuge is part of a large complex of mid-altitude wetlands and lakes in northeastern California.

Strategically situated just 60 miles east of the Klamath Basin marshes, the refuge acts as a migration hub and staging area for ducks, geese, and other wetland birds during their spring and fall migrations. The refuge's habitats are also important nesting areas for 76 species of ducks, geese, greater sandhill cranes, and other marsh and upland birds.

Area Economy

Modoc NWR is located in the rural northwest corner of California. Table 8-4 shows some indicative statistics for Modoc County which makes up the area economy. The area population decreased by 7 percent from 1997 to 2007, compared with a 12 percent increase for the state of California and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was higher than the state and the U.S. as a whole. Average per capita personal income in the area is well below the state and national averages and increased at a slower rate over the 1997-2007 period.

Table 8-4. Modoc NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Modoc, CA	9.2	-7.0%	9.7%	\$27,842	12.6%
Area Total					
California	36,378	12.0%	7.2%	\$41,805	22.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Modoc NWR spent \$911,000 in operations and maintenance in FY2009. Almost half (47%) of this funding is spent on salaries to the refuge's 7 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$122,300 in benefit amounts are not counted in local spending.

Table 8-5. Modoc NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	427,505	46.9%
Transportation of People	268	0.0%
Transportation of Things	47	0.0%
Communications	7,314	0.8%
Utilities	22,566	2.5%
Contracts	-	0.0%
Building Repairs	31,688	3.5%
Equipment Maintenance	18,153	2.0%
Supplies and Materials	16,546	1.8%
Motor Vehicle Fuel	26,105	2.9%
Equipment-Capitalized	235,391	25.8%
Equipment-Non-capitalized	125,465	13.8%
Local Sub-Total	911,049	100.0%
Non-Local Expenditures		
Employee Benefits	122,274	
Air Travel	16,483	
Non-Expense Item		
Real Property	24,087	
Grants	247,809	
Organization Total	1,321,702	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Modoc recorded a \$24,100 improvement of real property. This is also not included in local expenditures. An additional \$360,800 was spent on equipment for the refuge in FY2009. This amount was coded as an ongoing expense so it is included in local spending.

The appraised value for Modoc NWR fee lands was \$5.8 million in 2008. This would have garnered a \$14,059 payment for RRS but the 1977 floor amount resulted in a \$14,784 RRS payment to Modoc County. The refuge fee lands earned \$76,000 which was contributed to the RRS fund. The refuge has 40 acres of land reserved from the public domain so it did not contribute significantly to PILT payments.

Table 8-6 shows \$390,000 had a direct effect on local output. Typical purchasing patterns for industries in the region for these items suggest the remainder of the \$911,000 in spending flowed to suppliers outside the area. About \$79,400 became compensation for new local workers in 3.7 jobs. The iteration of refuge spending through the local economy generated \$462,000 in total output and 4.3 jobs. The low multipliers are indicative of a small regional economy highly dependent on imports.

Table 8-6. Modoc NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	1,200	1,500	200	300	0.0	0.0
Utilities	28,200	32,800	5,300	6,100	0.1	0.1
Construction	0	3,500	0	900	0.0	0.0
Manufacturing	0	0	0	0	0.0	0.0
Trade	133,800	147,200	40,300	45,200	1.4	1.5
Transportation	1,000	2,400	100	300	0.0	0.0
Information	7,000	8,700	400	600	0.0	0.0
Finance	55,600	79,500	1,400	3,600	0.0	0.1
Lodging	12,200	16,700	2,100	2,900	0.2	0.3
Government	7,200	12,100	2,700	4,600	0.1	0.1
Other	143,900	158,400	26,900	31,600	1.9	2.1
Total	390,000	462,800	79,400	96,000	3.7	4.3
Multipliers		1.19		1.21		1.16

Most of the increased output and employment occurs in the Trade and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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Stone Lakes National Wildlife Refuge

Description

The Stone Lakes National Wildlife Refuge, located south of Sacramento, California, lies within the Sacramento-San Joaquin delta, the destination of thousands of migrating waterfowl, shorebirds, and other water birds. The refuge was established in 1994 and is one of the few urban refuges that have the potential to attract and educate thousands of visitors in a region that is becoming the new Silicon Valley of California.

Through a number of innovative partnerships, the refuge is protecting scarce natural habitats and agricultural resources in an area threatened by urban sprawl and agricultural changes. Stone Lakes NWR contains both seasonal and permanent wetlands, riparian forest, and grasslands, as well as some of the last remaining freshwater lakes in the central valley.

These habitats support large populations of migratory water birds, a major rookery for several colonial nesting species such as great blue herons, and a warm water fishery. Several endangered, threatened, and special-status species benefit from these habitats: the valley elderberry longhorn beetle, Swainson's hawk, and greater sandhill crane.

Area Economy

Stone Lakes NWR is located in the Sacramento metropolitan area of central California. Table 8-7 shows some indicative statistics for Sacramento County which makes up the area economy. The area population increased by 18 percent from 1997 to 2007, compared with a 12 percent increase for the state of California and a 10.5 percent increase for the U.S. as a whole. The average unemployment rate in the area was the same as the state rate which was higher than the U.S. as a whole. Average per capita personal income in the area is below the state and national averages and increased at a slower rate over the 1997-2007 period.

Table 8-7. Stone Lakes NWR: Summary of Area Economy, 2007

(Population in 000's; Per Capita Income in 2007 dollars)

County	Population		Unemployment	Per Capita Personal Income	
	2007 (,000)	Percent change 1997-2007	Rate	2007 (\$2007)	Percent change 1997-2007
			Percent (2007)		
Sacramento, CA	1,380.2	18.0%	7.2%	\$36,340	17.3%

California	36,378	12.0%	7.2%	\$41,805	22.2%
United States	301,290	10.5%	5.8%	\$38,615	18.0%

Source: U.S. Department of Commerce 2007.

Refuge Expenditures

Stone Lakes NWR spent \$635,100 in operations and maintenance in FY2009. More than half (60%) of this funding is spent on salaries to the refuge's 6 employees who live in the area. Employee benefits for these people are paid to the Social Security administration, insurance companies and other entities outside the refuge area so \$98,600 in benefit amounts are not counted in local spending.

Table 8-8. Stone Lakes NWR: Expenditures for fiscal year 2009.

	Dollars	Percent
Local Expenditures		
Personnel Compensation	381,447	60.1%
Transportation of People	1,212	0.2%
Transportation of Things	(3,077)	-0.5%
Communications	13,133	2.1%
Utilities	18,137	2.9%
Contracts	2,840	0.4%
Building Repairs	22,522	3.5%
Equipment Maintenance	6,537	1.0%
Supplies and Materials	71,276	11.2%
Motor Vehicle Fuel	7,299	1.1%
Equipment-Capitalized	7,468	1.2%
Equipment-Non-capitalized	106,300	16.7%
Local Sub-Total	635,094	100.0%
Non-Local Expenditures		
Employee Benefits	98,620	
Air Travel	6,946	
Non-Expense Item		
Real Property	217,000	
Grants	38,718	
Organization Total	996,378	

Grants for research efforts at refuges often go to nearby research institutions to study significant wildlife issues. Although much of this funding may return to the local economy as researchers work in the area, much leaves the immediate area and so grant funding is not counted as local spending in this study. In FY2009, Stone Lakes recorded a \$217,000 improvement of real property. This is also not included in local expenditures.

The appraised value for Stone Lakes NWR fee lands was \$11.8 million in 2008. This resulted in a \$28,600 RRS payment to Sacramento County. This refuge has no land reserved from the public domain and does not contribute to the RRS fund.

Table 8-9 shows \$526,500 had a direct effect on local output. Typical purchasing patterns for industries in the region for these items suggest the remainder of the \$635,100 in spending flowed to suppliers outside the area. About \$140,500 became compensation for local workers in 3.5 jobs. The iteration of refuge spending through the local economy generated \$853,100 in total output and 5.8 jobs.

Table 8-9. Stone Lakes NWR: Economic Impacts of Refuge Expenditures

Sector	Output (\$ 2010)		Employee Compensation (\$ 2010)		Employment (Number of Jobs)	
	Direct	Total	Direct	Total	Direct	Total
Agriculture	700	2,000	100	200	0.0	0.0
Utilities	14,900	18,700	3,100	3,800	0.0	0.0
Construction	100	6,200	0	1,800	0.0	0.0
Manufacturing	70,400	81,000	17,300	19,000	0.3	0.3
Trade	153,600	188,700	56,200	69,000	1.6	2.0
Transportation	2,800	11,800	800	4,200	0.0	0.1
Information	20,100	50,300	3,300	9,300	0.0	0.1
Finance	88,900	198,900	8,600	26,000	0.2	0.6
Lodging	23,100	38,300	7,000	11,800	0.3	0.6
Government	9,700	14,800	3,300	5,800	0.0	0.1
Other	142,200	242,500	40,900	85,000	0.9	1.9
Total	526,500	853,100	140,500	235,700	3.5	5.8
Multipliers		1.62		1.68		1.66

Most of the increased output and employment occurs in the Finance, Trade, and Other Services industries. The Other sector includes upkeep for buildings and payments for planning services.

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State-Level Impacts

This section steps back from the local level to consider the contribution of National Wildlife Refuges at the state level. As refuge spending stimulates the local economy, it also stimulates each state's economy. State economies usually have larger multipliers than smaller regions so impacts are larger. In addition, most States have more than one Refuge so Service spending is greater.

The first section below discusses the contribution of Refuge operation and maintenance spending. The analysis uses the same techniques discussed in the introduction but applies them to IMPLAN models of the State economy rather than a regional economy. Few Refuges cross state boundaries. When they do, all of the spending has been assigned to the state containing the Refuge headquarters.

The second section below focuses on the 8 appropriated construction projects carried out on refuges in FY2009. As shown in Table 0-5, these projects totaled \$11 million and cost from \$300,000 to \$4 million.

State-Level Contribution of Operations and Maintenance Spending

[little description and tables here]

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State-Level Contribution of NWR Construction Spending

Construction spending stimulates state economies just as it does smaller regional economies. Large projects in Maryland and California are anticipated to add more than 50 jobs to each state's economy. State multipliers are also higher than regional model multipliers. Table 9-2 shows Maryland's output multiplier, 2.34, is well above any of the regional figures. A national model has a higher multiplier effect because there is less "leakage" from the nation as a whole than from any individual state. Thus, the ultimate increase in output attributable to Refuge construction using a nationwide model is \$33.1 million. The spending also generates 208.2 jobs. The output of the US model is half again as large as the sum of the state models.

Table 9-2. Contribution of National Wildlife Refuge FY2009 Construction Projects to the State where they took place.

State	Refuge	Output			Employment	
		Direct	Total	Multiplier	Direct	Total
Alabama	Cahaba River NWR	300,000	501,000	1.67	2.0	3.6
California	Don Edwards SF Bay NWR	4,000,000	8,894,000	2.22	23.6	51.0
Hawaii	Kealia Pond NWR	750,000	1,287,000	1.72	4.1	8.0
Maryland	Patuxent Research Refuge	3,000,000	7,033,000	2.34	31.9	53.1
Mississippi	Theodore Roosevelt NWR	600,000	934,000	1.56	4.3	7.0
Tennessee	Tennessee NWR	800,000	1,440,000	1.80	5.4	9.9
Washington	Nisqually NWR	750,000	1,501,000	2.00	5.9	10.7
West Virginia	Ohio River Islands NWR	800,000	1,183,000	1.48	3.4	6.7
Total		11,000,000	22,773,000	Avg 2.07	80.6	150.0
US Model		11,000,000	33,082,000	3.01	82.1	208.2

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