

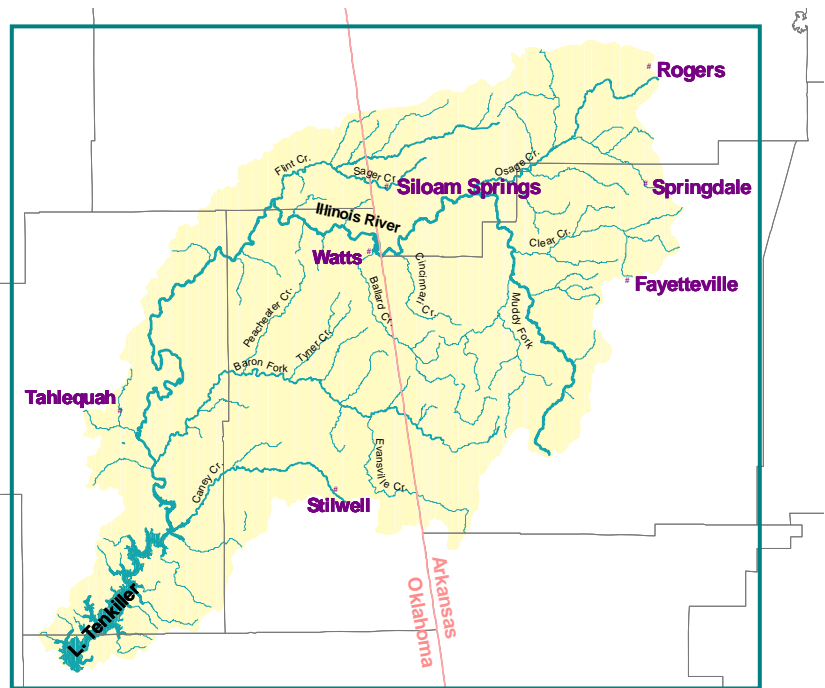
**Agency:** Oklahoma Conservation Commission

**Title:** Illinois River Watershed Riparian Protection Program

**Task:** 12

**Project Location:**

The Illinois River watershed is one of Oklahoma's highest priority watersheds. It straddles the Oklahoma/Arkansas border and of its 1,069,530 total acres, 576,030 (approximately 54% of the total basin area) are located in Oklahoma (USDA 1992). The basin is located in Delaware, Adair, Cherokee, and Sequoyah counties in northeastern Oklahoma.



The major tributaries of the Illinois River in Oklahoma are the Baron Fork River, Caney Creek, and Flint Creek. The river is classified as a state scenic river from the remains of the Lake Frances Dam (near the OK/AR border) up to its confluence with the Baron Fork, a distance of approximately 70 miles. A 35 mile segment of the Baron Fork River and a 12 mile segment of Flint Creek are classified as scenic rivers upstream from their confluence with the Illinois River. The river continues below the Lake Tenkiller dam, supporting an important sport fishery before it reaches the Arkansas River less than 10 miles downstream.

**Problem Statement:**

Lake Tenkiller is a large multipurpose reservoir operated by the Army Corps of Engineers. The lake is one of the most popular recreation destinations in the state and there is a sizeable associated tourism industry. The lake was once popular with SCUBA divers, but declining water clarity has dramatically reduced that activity. Tenkiller has recently been classified as impaired due to anoxia. The Illinois River and its two major tributaries, Flint Creek and Baron Fork River, are Scenic Rivers, considered by Oklahomans to be among the finest rivers in the state. They support a very large recreational industry including canoeing, rafting, and camping. The Illinois River, Flint Creek and the Baron Fork River are all violating water quality standards for phosphorus and the State Attorney General has filed a lawsuit against five poultry integrator companies for their role in polluting these rivers.

Oklahoma and Arkansas initially agreed to a load reduction goal of at least 40%, following the recommendations of the Lake Tenkiller Clean Lakes Study in 1996. Numerous studies have suggested that a significant portion of this load reduction is derived from nonpoint sources. As such, significant reduction in nonpoint source loading will be required to improve water quality in the Illinois River and Lake Tenkiller. .

Oklahoma has adopted a 0.037 mg/L phosphorus standard for the Illinois Rivers. Arkansas, in a show of good faith to help meet the standard, agreed to upgrade sewage treatment for the cities of Siloam Springs, Springdale, Fayetteville, Bentonville, and Rogers to meet 1 milligram per liter (or less) phosphorus limits. The two states are working cooperatively to develop a joint monitoring strategy and Watershed Based Plans<sup>1</sup> for the Illinois River watershed. As a result of these efforts, significant improvements have been made to point sources in the watershed and additional efforts must focus on reduction of nonpoint source pollution.

In addition to the phosphorus pollution, the scenic rivers are impaired by pathogenic bacteria, much of which washes into the streams from agricultural livestock in the watershed including poultry litter applied to pastures or cow manure deposited on floodplains or in streams. Additional potential sources of bacteria include septic systems, river users, and wildlife. The Clean Water Act demands that the state take action to remove this impairment and the state strongly wishes to do so by voluntary means.

The States of Arkansas and Oklahoma continue to work cooperatively to seek solutions to nonpoint source pollution problems in the watershed by funding programs including poultry litter transfer out of the watershed, riparian protection, watershed education, streambank stabilization, and alternative uses or more effective uses of poultry litter such as litter to energy, litter composting, or litter conversion to more appropriately formulated fertilizer formulas.

Both Arkansas and Oklahoma have worked with the USDA Farm Services Agency to fund Conservation Reserve Enhancement Program (CREP) Riparian Restoration in the watershed. Oklahoma is seeking additional matching funding to expand the size of its CREP program beyond approximately 4500 acres. In addition, Oklahoma recognizes that some limitations of the USDA may result in less than optimal placement of riparian protection unless the State can secure non-USDA funding to help supplement these areas.

Arkansas and Oklahoma have cooperated on a promising project to convert poultry litter to energy and liquid fertilizer. The EPA-supported phase of the project would demonstrate a water-efficient method to convert poultry-litter to a more appropriately formulated liquid fertilizer that can allow excess phosphorus to be transferred out of the

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<sup>1</sup> Oklahoma and Arkansas are currently working on separate watershed based plans for each State's portion of the watershed. Oklahoma will review the Arkansas plan, once it has been developed, and will incorporate goals and strategies, as appropriate, into the Oklahoma plan. Arkansas has also stated that it will consult the Oklahoma plan to help with development of their own plan.

watershed while nitrogen can be reapplied in the watershed at levels that are environmentally sound to meet the needs of livestock growers in the watershed. However, delays in the project, coinciding with rapidly increasing costs of raw materials for construction of the facilities have caused the project to require additional funds in order to complete its demonstration phase. Once the demonstration phase is complete, the existing plant will be turned over to a cooperative of poultry growers who will support expansion of the plant to nearly ten times the capacity of the demonstration program and will also build in energy generation as a component of the program.

Through poultry litter transfer programs, the states have worked cooperatively with the poultry industry to fund approximately \$1.6 million (approx. \$960,000 federal) worth of poultry litter transfer out of the Illinois and neighboring Eucha/Spavinaw watersheds. Many new users in non-nutrient threatened areas of Oklahoma and Arkansas are realizing the value of litter as a fertilizer; however the market could be expanded with additional subsidies.

Both states recognize the impacts of streambank erosion and sedimentation in streams of the Illinois River watershed. Arkansas is working through the Illinois River Watershed Partnership and local communities to educate citizens of the watershed about water quality and to promote principles of low-impact development. Northwestern Arkansas is one of the most rapidly developing parts of the country and unchecked growth may release nutrient rich soils into the watershed unless proper controls are put in place. Oklahoma has demonstrated several streambank stabilization projects in the watershed to reduce streambank erosion and improve aquatic habitat.

### **Project Objectives:**

The intent of this project is to extend and compliment ongoing programs in the Illinois River Watershed to reduce nonpoint source pollution and restore beneficial use support to waterbodies of the Illinois River Watershed. Objectives of the project are to:

- Implement practices in the Illinois River Watershed that will reduce nutrient loading to help meet load reduction goals set out in the watershed based plans currently under development. The draft Oklahoma plan sets an interim goal of 40% phosphorus load reduction (132,000 kg), followed by a long-term load reduction goal of 70 – 80%,
- support the Oklahoma CREP to protect riparian areas with the greatest potential to reduce nutrient loading,
- provide technical assistance to producers in the development of total resource conservation plans, and
- determine the effectiveness of the project through water quality monitoring and computer modeling to document current changes and predict the long-term effects of the best management practice implementation.

To achieve the list of objectives, this project will require the participation by many different groups. Those that will participate in this project, in addition to Commission

staff, include Delaware County Conservation District, Adair County Conservation District, Cherokee County Conservation District, Oklahoma Department of Wildlife Conservation, Oklahoma State University Cooperative Extension Service, Oklahoma Scenic River Commission, NRCS, FSA, local producers, poultry integrators, and animal waste marketers. The success of this program will also be dependent upon actions in the state of Arkansas and effective coordination of activities between the two states.

### **Project Tasks:**

Task 1. On-Site Project Coordinator and program administration.

The program will employ an on-site coordinator to work with the various groups identified above to eliminate duplication of effort. The Coordinator will be a local person, familiar with the watershed and its people. A local person can more easily gain the trust and respect of citizens than someone from the outside. This trust and respect are necessary to convince people to participate in a voluntary program. The Coordinator will :

- work with the four conservation districts in the watershed to keep them updated on progress of the project and to identify project problems and identify solutions,
- identify and schedule producers in need of conservation planning,
- assist with local producer and other meetings held in the watershed,
- coordinate tracking conservation plans and practices recommended with OCC GIS,
- work with NRCS and FSA to ensure that water quality concerns are addressed,
- hold periodic meetings with the various groups working in the watersheds,
- direct eligible landowners toward the correct personnel to begin the CREP application process,
- identify and coordinate programs between Arkansas and Oklahoma as appropriate.

The position will be a full-time position and will run for a period of 2 years from the beginning of the project period<sup>2</sup>. The person intended to fill this position will have experience working with NRCS and in preparing conservation plans. The Adair and Cherokee County Conservation Districts will provide substantial support for the implementation of this project. Each will provide secretarial and other support services for coordination of the watershed advisory group. They will provide essential services to facilitate the state cost share funding. The conservation districts will also provide office and telephone service for the project. Appendix A to this workplan is a job description for the Watershed Coordinator Position.

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<sup>2</sup> The position will be funded for two years of a three year project. Most of the enrollment in the program will be completed in the first two years. Any subsequent enrollment will be handled by additional OCC personnel who are working on the CREP Program.

In addition to the support from the conservation districts, the Office of the Secretary (OSE) of Environment provides substantial support in the form of grant administration. The total grant amount exceeds Oklahoma's normal annual allocation and therefore, OSE will require additional support to administer this program.

Task Milestones/Outputs

Subtask #	Milestone Description	Completion Date
12.1.1	Hire Project Coordinator	October 2007
12.1.2	Project Coordinator Completes NRCS Conservation Certification Training	October 2007

Position	Salary+ fringe	Contractual	Supplies	Federal	State	Total
On-site Coordinator	\$130,000	Lease Vehicle \$14,400	\$15,600	\$160,000		\$160,000
OSE Oversight				\$60,000	\$40,000	\$100,000

**Task 2. Expand the Conservation Reserve Enhancement Program (CREP) to Critical Areas**

In April 2007, Oklahoma and the Farm Services Agency (FSA) signed an agreement for a \$20,652,500 CREP program to protect 9500 acres of riparian area for at least 15 years in the Illinois River and Eucha/Spavinaw Watersheds. The FSA monies, which constitute approximately 80% of the program, can only be used for implementation of riparian practices and must be available on a first-come, first-served basis. In addition, the FSA monies must be utilized according to NRCS specifications. In this case, first-come, first-served and NRCS specifications may result in the program missing some of the most critical riparian areas in the watershed. NRCS specifications pay a lower rental rate for intermittent streams which will likely limit enrollment in these areas. Analysis of predicted loading rates from watershed models often indicates that areas with intermittent streams play a critical role in load delivery to streams and that failure to sign these areas will limit effectiveness of the program.

First-come, first served will limit the program to not necessarily the most critical areas simply because a 4200 acre goal is only approximately 8% of the degraded riparian area in the watershed. Demand is high for the program; after only a month, at least ten percent of the goal for the Illinois River has already been enrolled in the program. Expansion of the program through this mechanism could add another 5600 acres to the program by increasing the FSA dollars the program was eligible for in addition to focusing EPA dollars on riparian areas of the watershed in greatest need of protection. This would increase the program to cover almost 20% of the degraded riparian areas in the watershed.

The goal of this task will be to target riparian protection of the most critical riparian areas in the watershed either by extending the intermittent stream rate to the level of perennial streams or by enrolling non-CREP eligible land in a fifteen year protection agreement. The focus of the practices to be promoted will be to implement the 40% reduction goal for total phosphorus load in the Illinois River entering Tenkiller Ferry Lake in accord with the TMDL under development and to implement the objectives of the Watershed Based Plan (in development).

The project coordinator will work with the State CREP Coordinator to include landowners in the most critical areas of the watershed in the program. These may include ag-producers along intermittent streams or non-CREP eligible land in critical areas. Once those landowners in critical areas have been afforded the opportunity to participate, remaining available monies will be available for non-CREP eligible who are not necessarily in areas that are currently critical, but riparian areas that may be in danger of development during the next fifteen years.

Sign-up for the CREP program began in June 2007. Interest in the program in the Illinois River Watershed is strong and indications suggest that currently available monies will not be sufficient to allow all interested producers to participate. Implementation of this CREP expansion program will allow additional producers and landowners to participate in riparian protection in the most critical areas of the watershed, but will also allow the state to receive approximately \$11.0 million additional FSA dollars for the program. More importantly, implementation of this program, plus the expansion that this program would allow for the CREP program could result in a 9% reduction in phosphorus loading (21% of the watershed based plan reduction goal) and a 10% reduction in nitrogen loading to the watershed.

**Table 1. CREP Program Expansion Possible Through this Project.**

	Acreage Covered	% Degraded Riparian Area Improved	Implementation Funding Amount	Expected Load Reduction (kg P/yr)	% of 40% Load Reduction Goal
319(h) Implementation Project	584 acres	1.08 %	\$1,406,667 (\$740,000 federal)	1,068 kg P/yr	0.8%
Current CREP	4,256 acres	7.89%	\$9,113,500 <sup>3</sup>	7,787 kg P/yr	5.9%
Extension of CREP due to this project	2,336 acres	4.32%	\$5,626,668	4,274 kg P/yr	3.2%
Additional Extension of CREP due to new monies	4,853 acres	9.00%	\$10,250,482	8,879 kg P/yr	6.7%
<b>Total Resulting</b>	<b>12,029</b>	<b>22.30%</b>	<b>\$26,397,317</b>	<b>22,008 kg</b>	<b>16.66%</b>

<sup>3</sup> Oklahoma's Total CREP program is currently a \$20.6 million program of which approximately \$9.1 million is targeted towards the Illinois River Watershed.

from this Project	acres			P/yr	
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### Task 2.1 Targeting

In Task 2.2, several practices are outlined that are expected to be implemented in the Illinois River watersheds. These practices were approved by the Watershed Advisory Group (WAG) established under the 1999 319 project in the watershed and are included in the CREP program approved by FSA.

This project will target those practices towards the critical areas identified through a watershed SWAT model developed by Oklahoma State University Department of Biosystems and Agricultural Engineering. This model will consider landuse, soil type and nutrient characteristics, distance to stream and other factors to determine the most critical areas of the watershed to establish riparian areas.

This targeting is funded under the “*FY 2007 - 2008 319(h) Project 2 Oklahoma Conservation Commission Implementation of the NPS Management Program July 2007 – June 2008*” and will not require funding under this project. The targeting is anticipated to be completed by late summer, and will be available to use when signup begins under this program in early fall.

### Task 2.2 BMP Demonstration

This sub-task describes the implementation of practices projected for the Illinois River watershed. Practices will include riparian re-establishment, soil testing, fencing, off-site watering, streambank stabilization, stream crossings, and animal waste/winter feeding facilities. These practices were approved by the 1999 319 project WAG and are included in the CREP program.

Total riparian protection funds available	319 funds	State of Oklahoma Match <sup>4</sup>	Estimated land owner contribution
\$1,406,667	\$780,000	\$376,667	\$250,000

Contracts for riparian protection will require the practice to be maintained for at least fifteen years; otherwise the landowner will be responsible for repayment of all benefits paid plus a penalty to be in agreement with the CREP program.

### Task 2.3. Tracking Of BMP Implementation and Estimation of Load Reduction

A GIS data layer of farm plans will be created. BMP's as planned and implemented will be tracked. OCC will coordinate with OSU Biosystems and Agricultural Engineering to insure that electronic records of BMP implementation are maintained in such a manner

<sup>4</sup> As available, Oklahoma will seek priority watershed matching dollars from the State legislature to implement these practices in the watershed. The state will most likely be unable to secure the entire \$376,667 in a single year, but will likely require two years to obtain all necessary matching funds.

to maximize the ability to integrate BMP tracking into watershed models to monitor and evaluate effectiveness of the program.

Water quality monitoring is a required component of the Conservation Reserve Enhancement Program and therefore a network of automated samplers is being installed in the Illinois River Watershed to track water quality changes over the fifteen year program. These samplers will monitor water quality at the border and downstream sites along the Illinois River and Baron Fork. In addition, sites will be located on Flint Creek and Caney Creek. This monitoring will follow the models established by the Peacheater National Monitoring Program and the Beaty Creek 319 project to develop a paired or nested watershed intensive monitoring program to evaluate changes in key parameters over time.

However, in three years, riparian areas will not be fully-matured and the complete effect of those established under this program is not expected to be fully-apparent. In addition, the monitoring network established will not be able to differentiate between the effectiveness of riparian protection implemented through this program or the larger CREP program, nor to distinguish effects of other ongoing efforts in the watershed such as litter transfer, state regulations on litter spreading, EQIP implementation or even the recently completed 319 Illinois River/Baron Fork Watershed Implementation project.

Therefore, the SWAT model, updated with landuse changes and BMP implementation will be used to estimate potential load reduction due to this project.

The CREP program is a substantial undertaking for the State and is ongoing in one of the State's most important watersheds. As a result, OSU Biosystems and Agricultural Engineering is seeking funding to help more completely monitor and evaluate the impacts of the riparian restoration effort. Although funding has not yet been secured and will not be a portion of this project, its results will help to more completely evaluate the effects of this program.

#### Task Milestones/Outputs

Subtask #	Milestone Description	Completion Date
12.2.1.a	QAPP (Funded under separate Project): Deliverable	October 2007
12.2.1.b	Complete Project Targeting	October 2007
12.2.1.c	Develop Project Implementation Plan: Deliverable	November 2007
12.2.2.a	Begin Sign-up- (advertise program to targeted areas)	December 2007
12.2.2.b	Continue Implementation of Practices	December 2007 – August 2010
12.2.3.a	Track BMP Implementation through use of NRCS Toolkit software and/or ArcView GIS software	December 2007 – August 2010
12.2.3.b	Estimate load reductions due to Implementation of BMPs through the use of computer modeling.	January of 2008, 2009, 2010 to be entered in GRTS

**Measures of Success:**

The overall measure of success for activities in the Illinois River Watershed is reversal of the eutrophication and restoration of beneficial use support for the Illinois River, the Baron Fork, and Lake Tenkiller. Much of these results are likely beyond the scope of this three-year project. More attainable measures of success specific to the activities in this Work plan are:

- Implementation of sufficient best management practices through this project and supporting programs such as CREP to ultimately result in a 10% load reduction from the Oklahoma portion of the watershed. Allow expansion of the CREP program to cover at least 20% of the degraded riparian area in the watershed.

**Project Management:**

This project will be managed by the Oklahoma Conservation Commission in cooperation with the Office of the Secretary of Environment. The Oklahoma Conservation Commission will provide oversight for all project activities.

**Project Deliverables:**

Output #	Description	Person Responsible	Due Date
12.1	Semi-annual Reports	Project Coordinator	January and July
12.2a	QAPP	OCC tech writers	October 2007
12.2b	Pre-implementation Plan-document to specify practices and cost-share rates eligible for the program, along with definition of the targeted area.	OCC tech writers	November 2007
12.3	Final Report to include summary of project implementation activities as well as a record of water quality monitoring results as part of the larger CREP program	OCC Tech Writers	December 2010

**Project Budget:**

<b>Expenses</b>	<b>On-Site Coordinator</b>	<b>OSE Oversight</b>	<b>Riparian Implementation</b>	<b>Total</b>	<b>Federal</b>	<b>State</b>
<b>Salary</b>	\$90,000	\$72,901	\$0	<b>\$162,901</b>	\$133,741	\$29,160
<b>Fringe</b>	\$40,000	\$22,599	\$0	<b>\$62,599</b>	\$53,559	\$9,040
<b>Travel</b>	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
<b>Supplies</b>	\$15,600	\$2,000	\$0	<b>\$17,600</b>	\$16,800	\$800
<b>Implement BMPs (other)</b>	\$0	\$0	\$1,406,667	<b>\$1,406,667</b>	\$780,000	\$626,667
<b>Contract other</b>	\$14,400	\$2,500	\$0	<b>\$16,900</b>	\$15,900	\$1,000
<b>Equipment</b>	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
<b>Total Direct Costs</b>	\$160,000	\$100,000	\$1,406,667	<b>\$1,666,667</b>	\$1,000,000	\$666,667
<b>Indirect Costs</b>	\$0	\$0	\$0	<b>\$0</b>	\$0	\$0
<b>Total Project Costs</b>	\$160,000	\$100,000	\$1,406,667	<b>\$1,666,667</b>	\$1,000,000	\$666,667

## Literature Cited:

Storm, D.E., M.J. White, and M.D. Smolen. 2006. Illinois River Upland and In-stream Phosphorus Modeling. Final Report. OSU Department of Biosystems and Agricultural Engineering. Stillwater, Oklahoma.

## Appendix A: Watershed Coordinator Position Description

### **Watershed Project Coordinator**

#### Job Description

The Watershed Project Coordinator is the lead Oklahoma Conservation Commission (OCC) Water Quality representative in the designated 319 Non Point Source Demonstration Watershed Projects. The job requires leadership skills, environmental skills, written and oral communication skills, ability to design and write farm conservation plans, attention to detail and ability to keep accurate records and an overall knowledge of the goals and responsibilities of the OCC Water Quality Division.

#### Duties and Responsibilities

The coordinator's job duties include the following:

- (1) Coordinate the activities of the project with the local Conservation Districts, to include:
  - a) Schedule and set up meetings with concurrence of OCC Water Quality Director or his designee to communicate with district boards on an "as needed" basis, keeping them informed on such items as: correct status of planning, funds expenditure, correspondence from OCC/WQ staff and OCC on items concerning the Project.
  - e) Coordinate, plan and set up any public meetings and tours that are needed as stated in the EPA Grant. This will be accomplished in cooperation with all sponsors, to include: Conservation Districts, NRCS, Cooperative Extension Service, other agencies.
  - f) Will attend monthly board meetings and make updates, to the conservation districts and to OCC Water Quality.
- (2) Conservation/Animal Waste Planning Responsibilities:
  - a) Become proficient in writing plans and contracts according to NRCS standards and specifications.
  - b) Coordinate planning activities with the conservation districts and NRCS planner, to include: scheduling his assistance in the county which has the most need; keep the OCC/WQ Director or his designee updated on the planning process; keep running totals of funds obligated and the amounts spent in each county; make monthly reports to OCC/WQ office on progress of planning and funds.
  - c) Coordinate tracking of conservation plans and practices, to insure that the targeted areas are being addressed, and working with NRCS to insure that water quality concerns are addressed.
  - d) Coordinate and work with the Conservation District to conduct annual status reviews on all cooperators under the 319 cost share program. This review will include:
    - (1) progress of BMP installation schedule,

- (2) dollars obligated,
  - (3) dollars spent,
  - (4) developing and implementing any needed revisions to the Schedule of Operations. Also, with concurrence of the district boards, send any needed correspondence to cooperators to encourage them to implement any overdue BMP installations.
  - e) Furnish the Oklahoma Conservation Commission water quality staff with copies of all plans and agreements written for the 319 program.
  - f) Will coordinate, with the local Conservation District employees, the payments to cooperators – to include: submitting of claims to OCC for funding.
  - g) Will become well informed about the details of the CREP program and will work through the State's CREP coordinator to insure that the two programs operate with maximum efficiency.
- (4) Other duties as assigned.

#### Educational Requirements

A minimum of a bachelor's degree in an agricultural, biological or environmental science is required. A minimum of one year of experience in conservation planning is also required.