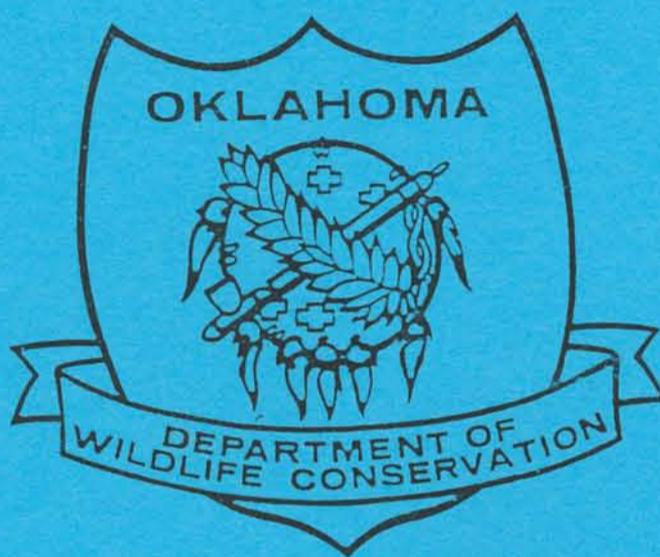


FINAL REPORT



FEDERAL AID PROJECT A-7-R-1

SEPTEMBER 20, 2000 - SEPTEMBER 19, 2001  
GEOGRAPHICAL INFORMATION SYSTEM CONSULTATION AND TRAINING

## Final Report

State: Oklahoma

Grant Number: A-7-R-1

Grant Title: Geographical Information System Consultation and Training

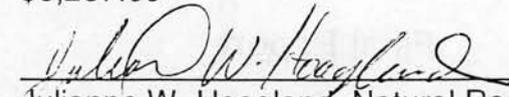
Project Period: September 20, 2000 - September 19, 2001

### I. Summary of Accomplishments

- A. An introductory ArcView Workshop was held January 29, through February 2, 2001, from 9:00 am to 5:00 pm each day. Fourteen Department of Wildlife Conservation employees, from three divisions and one section, attended the five-day workshop. Workshop participants learned the basic functionality of ESRI's ArcView 3.2a software, including how to analyze spatial relationships, make data queries, and conduct statistical analyses on map features. A second ArcView Workshop was held June 11-13, 2001. This 3-day workshop offered experienced ArcView users an opportunity to enhance their GIS skills by using a variety of advanced techniques. Participants moved beyond the basics of ArcView and performed spatial analysis by using the software's full functionality. Fourteen Department employees, from two divisions and one section, attended this advanced workshop.
- B. A GIS Committee was formed within the Department, composed of representation from each Division/Section. The Committee consulted with GIS experts to develop an ODWC Geographic Information System (GIS) Agency Plan. Through a two-day meeting with GIS consultants, a five page plan was developed with goals, objectives, strategies and action items. Four goals were designed to 1) develop and manage geo-referenced data related to fish and wildlife resources in Oklahoma; 2) promote and facilitate to agency personnel the collection and analysis of spatial data related to fish and wildlife resources in Oklahoma; 3) enhance the use and sharing of spatial data; and 4) annually assess the development, needs and use of spatial analysis systems in regard to agency goals.
- C. See attachments for workshop agendas and attendee lists as well as a copy of the agency GIS plan.

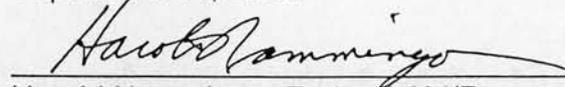
II. Grant Costs: \$8,267.00

III. Prepared by:

  
Julianne W. Hoagland, Natural Resources Biologist III

IV. Date: September 14, 2001

V. Approved by:

  
Harold Namminga, Federal Aid/Research Coordinator

## ArcView Workshop Syllabus

Jan 29-Feb 2, 2001, 9:00 a.m. - 5:00 p.m.

Moore-Norman Vo-tech, Room D118

### Day 1     What is a GIS?

Morning:     GIS defined  
                  The "Geography" in GIS  
                  Introduction to ArcView GIS Software  
                  The Language of ArcView  
                  Creating basic maps  
Afternoon:    Lab Exercises

### Day 2     How Does a GIS Work?

Morning:     Introduction to geographic databases  
                  Querying and selecting map features  
                  ArcView capabilities with databases  
                  Modifying and creating geographic databases  
Afternoon:    Lab Exercises

### Day 3     Asking Questions and Getting Answers from ArcView

Morning:     Analyzing spatial relationships  
                  Spatial queries and processes  
                  Conducting statistical analysis on map features  
Afternoon:    Lab Exercises

### Day 4     Making Information Presentable

Morning:     Symbolizing and classifying geographic data  
                  Labeling maps with text and graphics  
                  Creating map layouts  
Afternoon:    Lab Exercises

### Day 5     What You Need to Know About Geographic Data

Morning:     Sources and methods of acquiring geographic information  
                  The importance of Metadata  
                  Map Scales and projections  
Afternoon:    Final Project - students will create individual mapping projects in  
                  ArcView using data they create and acquire.

## ArcView Workshop

Jan 29-Feb 2, 2001, 9:00 a.m. - 5:00 p.m.  
Moore-Norman Vo-tech, Room D118

### Attendee List

Jerry Shaw	Wildlife Division
JD Ridge	Wildlife Division
Jack Waymire	Wildlife Division
John Skeen	Wildlife Division
Mike Sams	Wildlife Division
Jeff Pennington	Wildlife Division
Bill Wentroth	Fish Division
Jim Burroughs	Fish Division
David Routledge	Fish Division
Paul Watkins	Fish Division
Danny Bowen	Fish Division
Mark Howery	Natural Resources Section
Hank Jenks	Law Enforcement Division
Roy Roundtree	Law Enforcement Division

## Advanced ArcView GIS Workshop Syllabus

June 11-13, 2001, 9:00 a.m. - 5:00 p.m.  
Moore-Norman Vo-tech, Room D118

### Day 1      Increasing the Functionality of ArcView

Using scripts and extensions for ArcView  
ArcView's Geoprocessing tools

### Day 2      Advanced techniques for acquiring and using spatial data

Vector and raster data  
Processing digital imagery with spatial analyst  
Map scales and projections  
ArcView's Projection Wizard

### Day 3      Creating ArcView Shapefiles

Creating geographic features  
Importing GPS data into ArcView

Advanced ArcView GIS Workshop

June 11-13, 2001 9:00 a.m. - 5:00 p.m.  
Moore-Norman Vo-tech, Room D118

Attendee List

Jerry Shaw	Wildlife Division
JD Ridge	Wildlife Division
Jack Waymire	Wildlife Division
John Skeen	Wildlife Division
Mike Sams	Wildlife Division
Chris Deurmyer	Wildlife Division
Bill Wentroth	Fish Division
Jim Burroughs	Fish Division
Danny Bowen	Fish Division
Andrea Crews	Fish Division
Greg Summers	Fish Division
James Vincent	Fish Division
Kurt Kuklinski	Fish Division
Julianne Hoagland	Natural Resources Section

## ODWC Geographic Information System (GIS) Agency Plan

### **GIS Vision: GIS – mapping the legacy of Oklahoma's wildlife!**

GIS can help ODWC accomplish its long-term mission and perpetuate its heritage of conserving and enhancing Oklahoma's wildlife resources by:

- improving the agency's ability to efficiently collect, archive, interpret, and share data, resulting in more accurate data and sound decision making;
- improving customer service by offering the public access to more meaningful information, providing improved resource management, and strengthening constituent support.

### **Goal I: Develop and manage geo-referenced data related to fish and wildlife resources in Oklahoma.**

Concept: The ODWC has accumulated vast amounts of natural resource data collected and archived in varying formats and locations throughout the state. While our agency is "data rich", there are those that would consider us "information poor." A logical strategy is needed to facilitate the transition between data and information to us, our constituents and to other agencies and organizations. Most of our collected data has some spatial component, thereby making GIS the obvious template for efficient data management throughout the agency.

#### Objectives:

1. Link existing and future databases collected by ODWC to the GIS.

##### Strategies:

- Integrate data into relational databases. What are relational databases? They are data that can be linked by common attributes such as location, time of year, species, collectors, collection gear, etc. Someone looking at some piece of data can, therefore, see other data that have a common "relation." An example of this type of database is the ODWC license file.

##### Action Item:

- Hire or reassign personnel to integrate existing data
- Set standards for future data to be integrated

2. Establish long-term financial commitment for GIS

##### Strategies:

- Develop upgrade and maintenance budget for hardware, software and personnel

Action Item:

- Ensure support of administration by continually showing value of GIS
- Articulate vision of what GIS will be and can do and continue to communicate vision message to agency

***Goal II: Promote and facilitate to agency personnel the collection and analysis of spatial data related to fish and wildlife resources in Oklahoma.***

Concept: As with any new technology, it is important to educate agency personnel in the potential value of GIS. While not all personnel have a use for GIS, all personnel who collect any kind of data have a potential interest in GIS. All data occurs somewhere, thereby giving it a spatial component. Whether it's animal population data, arrest records, magazine subscription information, license data, manpower statistics or a wide myriad of other information, GIS can assist in managing and analyzing this type of information. The learning curve does not have to be steep nor do fellow employees have to be completely on their own in acquiring this knowledge. A logical progression of this type of knowledge acquisition, facilitated through this plan, would be to introduce the concept of GIS, explain the use and value of GIS, train interested personnel in GIS techniques and, finally, develop expertise through the use of GIS.

Objectives:

1. Introduce employees & administration to the concepts and capabilities of GIS.

*Strategies:*

- Technicians and above - Show-and-Tell sessions to show employees what can be done with GIS; hands-on trial with GPS/GIS
- Support staff – show how final product on our web page can make their jobs easier and help answer constituent questions

Action Item:

- Develop canned presentations for regional meetings, division meetings, district meetings, staff meetings, Wildlife Resource Professional class, commission meetings, etc.-Use W-O-G (employee newsletter) as another source for GIS information dissemination

2. Acquire and provide employees access to GIS software and hardware.

*Strategies:*

- Determine the best way to distribute software and hardware – which employees at which levels? Which locations?

Action Item:

-Committee will consult with a consultant and administration

3. Provide training & continuing education opportunities to employees on the use of GIS.

*Strategies:*

-Evaluate needs for training and continuing education throughout the Agency

Action Item:

-GIS Committee will recommend training opportunities to Human Resources Coordinator

-GIS Committee will facilitate additional continuing education opportunities through interactions with outside GIS professionals

***Goal III: Enhance the use and sharing of spatial databases.***

Concept: Just as the ODWC depends on other local, state and federal agencies for information under their domain, so do they depend on the ODWC as a source for accurate and timely data on our state's fish and wildlife resources. Non-governmental entities such as universities, NGO's and our customers also depend on us for information. It is our innate responsibility to efficiently share our findings with those not only in our own agency but also with those outside who can benefit from our data. However, some of the data that we maintain is from ecologically sensitive areas whose locations must be guarded under strict guidelines.

Objectives:

1. Develop ODWC GIS resource inventory as a shared-use archive for all natural resource managers, state and federal agencies and the public.

*Strategies:*

-Develop and implement an Internet Mapping Server (IMS). An IMS is an economical and efficient method to "serve" data and information to interested parties through the internet. It involves specialized, web-based software that provides a user-friendly platform for spatial data acquisition. Its capabilities can range from the simple, providing of maps of certain areas, to the more complex offering of Arc View shape files.

Action Items:

-Contract with a consultant on hardware, software, plan, etc.

-Decide who gets access to what (security issues –passwords, fire walls) after contracting with consultant and consulting with administration to determine access

-Determine priorities and schedule for when data get served (which

data get served first)

- Track access – who is using what and how often? Helps set priorities for what to serve and proves value of service
- Hire or reassign personnel to manage/administer IMS
- Periodically evaluate IMS for improvement

2. Develop and maintain a catalog of spatial data for Oklahoma. This will include not only ODWC data but could also include data from other sources or directions to other special data

*Strategies:*

- Determine what we will serve (our data, that of others) and what data we will just provide direction to (data road map)

*Action Items:*

- GIS committee look at needs assessment, prioritize data layer needs, find existing data, construct catalog and provide on-line access

3. Set standards and specifications for GIS data collected by ODWC. In order for a database to be usable by parties other than those that created it, certain specifications and standards must be maintained. Many of these are set forth as recommendations of the Oklahoma GIS Council.

*Strategies:*

- Use FGDC (Federal Geographic Data Committee) standards
- Decide scale, projection, quality, etc.
- Require metadata
- Protocol for updates/edits to data

Action Items:

- GIS committee will consult with consultant

4. Administer agency GIS plan.

*Strategies:*

- GIS committee will continue to work with agency's GIS specialist (to be assigned)

Action Item:

- Hire or reassign personnel to administer plan

***Goal IV: Annually assess the development, needs and use of spatial analysis systems in regard to agency goals.***

Concept: Most planning of this type is dynamic, i.e. it is, and should be,

constantly changing. This allows the plan to continually address new needs and abandon those items no longer pertinent. To this end the GIS Committee and the GIS Plan should continue providing direction to the ODWC. At the same time some measure of success is needed to evaluate whether the plan is providing that which it intended.

Objectives:

1. Maintain ODWC GIS Committee on an annual basis.

*Strategies:*

- Maintain informal and open committee structure

Action Item:

- Annually elect committee chair
- Put out call-for-participation to recruit interested employees
- Publicize meetings at South Central Arc Users Group, GIS Council, GIS Day at the capital, intra-agency communications, etc.
- Annually review committee goals and operations

2. Annually review ODWC GIS plan by GIS Committee.

*Strategies:*

- Set month for annual meeting to review plan and make revisions

Action Item:

- Hold a minimum of one annual planning meeting, in June
- Review plan, recommend changes
- Solicit and incorporate input on plan from other employees
- Post plan on website, direct employees to it, provide email comment form
- Distribute plan in monthly packet with announcement about website with links to examples

3. Annually review ODWC GIS endeavors regarding GIS.

*Strategies:*

- Set measures of success for GIS program

Action Items:

- Count hits on IMS website
- IMS site visitor survey
- Examine GIS budget
- Count new databases either located or created
- Count hardware/software purchases/upgrades
- Count proportion of employees trained
- Monitor IMS download tracking feature
- Survey GPS/GIS users about impact of program

-Monitor changes in population parameters that result from GIS applications where possible (e.g., deer regulation changes implemented in another area b/c GIS data allowed prediction of desired results – did it happen? Prairie dogs, other rare spp. where results can directly be seen, etc.)

