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# Summer 2015 Internship: Enterprise GIS Support for the National Audubon Society

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# SUMMER 2015 INTERNSHIP:
# ENTERPRISE GIS SUPPORT
# FOR THE
# NATIONAL AUDUBON SOCIETY

MONICA NOON

MAY 2016

A MASTER'S PROJECT

Submitted to the faculty of Clark University, Worcester, Massachusetts, in partial fulfillment of the requirements for the degree of Master of Science in the department of International Development, Community, and Environment

And accepted on the recommendation of

Jie Tian, PhD
Coordinator of the Graduate Program in GIS for Development and Environment

# ABSTRACT

## PROVIDING ENTERPRISE GIS SUPPORT
## FOR THE NATIONAL AUDUBON SOCIETY

### MONICA NOON

From May to August 2015, I worked with the National Audubon Society as an Enterprise GIS Support Intern, under the supervision of Doreen Whitley Rogers. I assisted the department with the GIS help desk requests and supported ArcGIS users with project assistance and training. This report summarizes the structure of the organization, my role as an Enterprise GIS Support Intern and my assessment and reflection of my experience.

_____

Jie Tian, PhD

Coordinator of the Graduate Program in GIS for Development and Environment

## ACADEMIC HISTORY

Name:                                                      Date:

Monica Lynne Noon                                          May 2016


Baccalaureate Degree:

B.S. Environmental Science


Source:                                                    Date:

The Ohio State University                                  March 2008


Occupation and Academic Connection since date of baccalaureate degree:

GIS Specialist - Haiti Field School, Clark University, Worcester, MA (2015)

Project Manager - Kasanka Trust Limited , Kasanka National Park, Zambia (2013-2014)

Forestry Extension Agent - U.S. Peace Corps Zambia (2011-2013)

National Audubon Society - Grange Insurance Audubon Center, Columbus, OH (2010)

BBC&M Engineering, Inc. Dublin, OH  (2008-2010)

# DEDICATION

This paper is dedicated to my family and friends for all of their support throughout my life. Especially my mother and father for their encouragement, even in times of my continued absence while in I was in Africa. I also want to thank my boyfriend, Pawan, who has provided love and devotion through my most trying times. I could not go without thanking my fellow peers at Clark University who have assisted with my transition back into a rigorous program. They have made my time in Worcester an unforgettable experience.

# ACKNOWLEDGEMENTS

# TABLE OF CONTENTS

**LIST OF FIGURES**

# GLOSSARY

AGOL              ArcGIS Online

Audubon           reference to the National Audubon Society

DDT               Dichlorodiphenyltrichloroethane

EPA               Environmental Protection Agency

ES&P              Environmental Science and Policy

ESRI              Environmental Systems Research Institute

GIO               Geographic Information Officer

GIS               Geographic Information Science

GISDE             Geographic Information Science for Development and Environment

IDCE              International Development, Community and Environment

IDSC              International Development for Social Change

NAS               National Audubon Society

SDE               Spatial Database Engine

USFWS             United States Fish and Wildlife Service

# CHAPTER 1: INTRODUCTION

I was interested in various scientific curriculums throughout my undergraduate studies at The Ohio State University. I always assumed that I would take a path gravitating towards the medical field, however, nothing ever seemed completely in line with my varied interests. I graduated with a Bachelor of Science degree in Environmental Science, once realizing the coursework had a rigorous science focus covering courses such as ecology, organic chemistry and biology. I developed an interest in wetland science, when I began working with Dr. William J. Mitsch at the Wilma H. Schiermeier Olentangy River Wetland Research Park. I also worked with the Ohio Environmental Protection Agency and developed an understanding of government environmental regulations and operations.

After gaining valuable experience in the public sector, I worked at BBC&M Engineering, Inc. as an environmental consultant. I utilized my knowledge and experience acquired while working in the public sector to bridge the gap between private companies and environmental regulations. I worked in this position for two years, and although I found it challenging, did not see myself continuing to work in the field. There were no opportunities to make changes within environmental policies as I was responsible for following those already existing with little room for innovation. This left a lot to be desired as my passion for progressive action and advocacy was not met in the public or private sector.

This encouraged me to join the U.S. Peace Corps in Africa. I was offered a position as a forestry extension agent in Northern Zambia. It is nearly impossible to describe the twenty-seven months experience. It was particularly challenging because I had to adapt to a completely new culture and learn the local language. I was offered the opportunity to extend my contract for an additional year, where I worked with a non-profit organization focused on conservation. The roles that people in rural Zambia played in conservation were essential to the success or at times collapse of species. There could be no conservation without support from communities and there could be no communities without the natural resources that supported them. My leading path was to connect communities based in proximity to protected areas with the services provided by the government so that all can benefit and thrive.

As I sat, hand drawing maps of a protected forest in a grass-thatched hut, I began thinking about the layers I was creating. In community meetings, we were mapping important features and uses

of the forest. Through participatory management tools, we identified the threats to sustainable use of the forest. At that time, I knew I had to return to school to gain knowledge in GIS and the software used to create maps. It always came down to GIS, and my lack of knowledge in the subject limited my work, whether as an employee at the Ohio EPA, an environmental consultant or as a project manager. I understood that in order to fulfill my career goals, I needed a master's degree and recognized that GIS was an important tool that would bolster my knowledge within the environment and conservation fields. I decided to pursue the Geographic Information Science for Development and Environment (GISDE) Master's of Science program at Clark University to learn geospatial skills. The program is closely linked to the Environmental Science and Policy (ES&P) and International Development for Social Change (IDSC) programs within the department of International Development for Community and Environment (IDCE). This gave me the opportunity to explore those fields which are important to me while learning geospatial technologies.

As part of the requirements for the GISDE program, I started an internship at the National Audubon Society to gain work experience in the GIS field. The internship spanned between the months of May to August, 2015. It gave me the opportunity to work with the renowned conservation non-profit organization which recently won the President's Award at the Annual ESRI User Conference (UC). I gained skills in Enterprise GIS Support, database management, and online mapping platforms.

This internship paper is organized into multiple chapters which includes an introduction to the National Audubon Society, its projects and an assessment of my experience with the organization. I was able to create web applications to portray information reaching the audience of the Society, which provides science, policy and education outreach in nearly 500 locations nationwide and GIS assistance to over 800 users. Chapter 2 focuses on the background and mission of the organization, as well as the main areas of work and structure of the GIS department. Chapter 3 highlights my responsibilities throughout different projects and how these relate to the mission of the organization. Chapter 4 summarizes my observations of required skills for the position and those acquired. I discuss how this internship relates to my academic and career goals.

**CHAPTER 2: DESCRIPTION OF THE ORGANIZATION**

## 2.1 Background and Mission

The mission of the National Audubon Society (NAS) is "to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats for the benefit of humanity and the earth's biological diversity" (NAS 2015[2]). The first Audubon Society was formed in 1896 in Massachusetts, dedicating its name to John James Audubon, a Franco-American artist who produced several books and illustrations depicting North American birds (NAS 2015[3]). The founders fought the commercialized killing of birds which were used at that time for women's fashion. Within two years, there were over a dozen state organizations devoted to the conservation of wild birds. By 1901, an informal national organization was formed (NAS 2015[2]).

In 1905 Audubon created the first organized group that rapidly grew and evolved with pressing issues affecting birds. From the Migratory Bird Conservation Act to legislation banning DDT (dichlorodiphenyltrichloroethane) pesticides to climate science, NAS has backed several scientific and advocacy movements since its founding (NAS 2015[2]).

## 2.2 Work and Expertise

The National Audubon Society network consists of twenty-two state offices, sixty-four Audubon centers and sanctuaries and more than 450 local chapters. The NAS provides support to millions of avid birders, conservationists, advocacy programs and educational outreach (NAS 2015[1]). The headquarters are located in New York and Washington DC. This entire network supports citizens' science initiatives, climate science research, conservation advocacy and environmental education across the United States. Furthermore it is expanding its network into the Caribbean, Central and South America as part of the Audubon International program which builds partners and ensures that birds of North America can travel safely along their annual migration routes.

## 2.3 Organizational Structure

The National Audubon Society has local chapters, state and national offices as well as Audubon centers. Local chapters are created by conservationists and avid birders. The state and national offices provide means of organizing statewide events and advocacy within state and local policies. The national offices in Washington DC and New York coordinate policies and oversees

national and international efforts. They are capable of lobbying against large scale opponents to the Migratory Bird Treaty and other important conservation legislation nationwide. The Migratory Bird Treaty Act of 1918 is one of the first federal environmental laws passed within the United States which ensures protection of migratory birds between the U.S. and Great Britain (at this time acting on behalf of Canada). This legislation exists today and requires permitting for any possession or killing of migratory birds from the U.S. Fish and Wildlife Service (USFWS 2013).

## 2.4 GIS and Mapping within the Organization

The Enterprise GIS Team supports the Audubon network listed above within the organizational structure. The Geographic Information Officer and the Enterprise GIS Specialist serve the entire Audubon community and falls within the Conservation and Business Planning Department (Figure 1). This is part of the National Audubon Society reporting to the headquarters in New York. The help desk lies within the computer help system and specializes in GIS problem-solving, project assistance, and software requests. All members of the Enterprise GIS Team assist work from home offices, meeting periodically at one of the National Audubon Centers throughout the country.

This team is not the only personnel responsible for using GIS as their predominant job task within the Audubon Network. There are Spatial Analysts and GIS technicians assisting the Audubon Science team and other field researchers. Their positions are project and region specific and require a high level of GIS knowledge to assist scientific research for state and national offices. The analysts are generally self-sufficient in their GIS tasks but request support at times for programming and hosting data on the GIS servers.

## 2.5 Strength and Weaknesses

The notable weakness of the GIS Team is its size. Response times are delayed on some occasions and prioritized based on scale of project and urgency since there are only three staff members serving over 800 users. Should a project arise with a close deadline, the team must dedicate time solely towards it. This may jeopardize attention given to new users and smaller projects. Another concern is the lack of budgeting going towards the team. The team would be able to adequately serve the entire GIS user network of the NAS if it had additional staff.

The strengths of the team lie within the strong leadership of Doreen Whitley, qualified team members and the support they receive from the Environmental Systems Research Institute (ESRI) who is the software provider. This was acknowledged when the team received the President's Award from the CEO/President of ESRI, Jack Dangermond, at the ESRI User Conference in July 2015 (Figure 2). This is the highest award from ESRI and is an immense recognition of the GIS team's ability to support the non-profit conservation organization. ESRI and NAS have built a close relationship and they recognize each other's accomplishments in environmental and geospatial technological advances.

## 2.6 Accomplishing the Mission

The department continues to work towards the NAS's mission by supporting a strong network of supporters that relays sound scientific research using GIS. Its effective leadership has successfully negotiated the continuation of the Enterprise GIS Support Technician position to work part-time throughout the year. This allows an enrolled graduate student to build skills in Enterprise GIS while strengthening the team's ability. The additional position allows the GIO and Enterprise GIS Support Specialist to assist in higher priority tasks while the graduate student can answer simple technical issues and short-term project requests. Since the team worked remotely, they were given the opportunity to meet at different locations to interact and build relations that are essential for a well-functioning team.

The Enterprise GIS Support Intern position was organized through the organization's Wings Internship Program. I was given the opportunity to meet with the team at the Aullwood Audubon Center in Dayton, Ohio, the National Audubon Convention in Leesburg, Virginia, the ESRI User Conference in San Diego, California and the Society for Conservation GIS in Monterey, California. The team collaborated on a presentation to highlight ongoing work with scientific research throughout the country and introduced new useful tools in ArcGIS Online such as the Collector App. With the support of the department, these meetings encouraged interaction within the team and among other GIS users of the Audubon's network. It also gained recognition of the department by emphasizing the value of the technology towards NAS's mission. An important publication released by the New York Times (Lai 2014) demonstrated the Audubon Science department's use of GIS to depict the range of North American birds in 2080. The findings of this report shows that avian species range will shift, possibly leading to a reduction which

endangers species or pushes them near extinction. The incorporation of GIS into the Audubon's practices reached significant milestones and assisted the National Audubon Society to work towards their mission.

## CHAPTER 3: INTERNSHIP RESPONSIBILITIES

The Enterprise GIS Support Team offers assistance to the entire Audubon Network through an online work request system. One of my responsibilities as an intern was to report to the GIO and my Wings mentor. This involved answering GIS Help Desk requests, delivering and creating training materials, and creating metadata and documentation of system work-flows (SDE data storage, permissions and system mapping). I was given a great deal of independence since the internship could be fulfilled remotely. In addition to my direct responsibilities, my supervisor ensured that I was introduced to the Audubon's extensive network through meetings and conferences. I met the GIO and Wings mentor in Dayton, Ohio to prepare for future presentations and workshops. I attended the Audubon Convention in Leesburg, Virginia in order to meet employees and volunteers within the National Audubon Society national and state offices as well as many local chapter members and leaders. The GIO also provided networking opportunities to advance my personal career through attendance at the ESRI User Conference in San Diego, CA and the Society for Conservation GIS in Monterey, CA. This allowed me to make connections for future employment possibilities, and provided an insight on the organizations.

### 3.1 Overall Responsibilities

My responsibilities as an intern were to design new projects, assist with existing ones and help others with their use of GIS software. My work assisted in the fulfillment of the organization's mission by spatially visualizing the data and work of its members. This entailed making simple maps, managing data, creating online applications and training others within the Audubon network throughout the process. The nature of the work required knowledge of ArcGIS Online (AGOL). As this technology changes rapidly, it does not fall under many school curriculums. The GIO understood that my knowledge of ArcGIS for Desktop edition was adequate to quickly learn the AGOL format. She also recognized the value of gaining these skills as they would make me more marketable when seeking employment in the future.

The Audubon's main mission is the conservation of birds and their habitats. They engage new conservationists to build a growing network of educators, scientists and community activists with the intention to maintain its influence as the largest and most influential conservation organization within the United States. The training component of my internship supported this mission. I provided support to those actively working to measure and record bird's in their habitat throughout the country by visualizing the spatial scale of the organization's influence and extent. NAS utilizes technology to streamline data collection and translation using Geoforms and Collector Apps to collect, store, share and display data simultaneously. This assistance supports the network and continues to show our supporters and donors what is being accomplished every minute of every day.

### 3.2 Interdepartmental Coordination

The nature of my internship was based around interdepartmental coordination. By building GIS support for such a large network, I was able to work on new projects every week while meeting staff and volunteers throughout every levels of the organization. The National Audubon Convention was imperative for my introduction to this network. As I had volunteered for the Grange Insurance Audubon Center in Columbus Ohio, I was knowledgeable about the organization but it was limited to that specific state (Ohio). In order to support the entire network, I had to understand the department's activities and involvement across the different states, and at the national and international context. At the National Audubon Convention (Leesburg, VA in July 2015), the GIS Team gave a presentation for the GIS services offered by NAS. We explained the purpose and goals of the department. We also provided a basic background of GIS and demonstrated some projects utilizing GIS. After the presentation we offered several workshops to GIS users by providing AGOL accounts and tutorials which also served as a forum to answer project specific questions in person. The team often travels to train and support users of mobile technology and web applications. Projects throughout the country have been streamlined by the use of AGOL's data collection services.

### 3.2 New Projects

At times, I made simple maps for state office websites displaying local chapters, centers and state offices (Figures 3 and 4) or maps highlighting features for project proposals or reports

(Figures 5 and 6). While these maps do not use intensive GIS analysis, they are essential for many reasons. They show the extent of the Audubon network and identify the gaps that exist within the national efforts for climate change litigation, education and research. These maps were sent to many donors to show project locations, to policy makers in support of the expansion of conservation areas or in reporting the progress of a project.

One major project that I created for the Climate Team was a Geoform to record information about climate-based events (Figures 7 and 8). A Geoform is a web application template which is provided by ESRI through AGOL. The Geoform collects data from conferences, meetings and events targeting discussion around climate change and its impacts on birds. For instance, the data collection ranges from meeting and events by top level governmental and inter-organizational meetings targeted towards major policy changes to simple trainings targeting individuals with regards to bird protection. They are recorded on a web mapping application located on the Audubon's Climate Change website: http://www.audubon.org/content/climate-change. Photos and supporting articles can accompany the points collected to document the event. The map encourages gap areas (areas without prior work) to host events focusing on climate adaptability in their region of the country.

### 3.3 Project Assistance

The National Audubon Society employs many researchers in the science department who have made large strides in climate research,  forecasting the range of birds in the future.  A team from the science department of the NAS released an article in the New York Times in 2014 with these predictions. With this article came a large amount of data which consisted of 617 folders for each bird species found in North America.  They concluded that 314 of these species may be at severe risk by 2080. Using on the ground observations and climate change estimates from leading scientists, the team was able to spatially analyze data to map current and predicted range of these species. Each species had ten to twenty raster files on an external hard drive. While the Science team was publishing their findings, the data needed to be openly accessible in order to create a replicable experiment. Therefore, I compressed the files into raster mosaics and loaded each file onto Science Base which is a government server used to house research data (USGS, 2015). In order to upload them, I accessed the Audubon's GIS server and uploaded each file to the website by the time the article was published. With the assistance of my mentor, I wrote a Python script

that would load all raster images of a bird species and rename the title to the species name. I had to make careful considerations since a long script with all of the species may fail and had to be worked on in pieces to prevent our server from crashing.

I also worked on another project called the Lights Out North Carolina Campaign. The Lights Out Campaign sought to reduce bird mortality by turning off the lights of high rise buildings in North Carolina at night during spring and fall migration seasons (March 15-May 30 and September 10-November 30, respectively). The lights of high rise buildings affect the flights of birds between the hours of 11pm to 5 am. Bird can be blinded and disoriented by the lights of these buildings with which they collide during migration seasons. The story map journal that I created in Arc GIS Online served as a means of reaching NAS's audience. By selecting the buildings on government owned parcels and recording collisions with these buildings using a Collector App, NAS advocated for the removal of light pollution at night during migration periods. Each page of the journal shows where bird collisions occurred and overlays the parcel ownership to encourage change of practices throughout the city (Figures 9 and 10).

Another part of the same project was to develop a web application that could be used on smartphones or tablets for data collection in real time. State and chapter volunteers walked the same path every morning to record bird collisions. Using mobile technology, the bird type and location were marked using a GPS point. Volunteers took photos to record the incident. This was added instantly on a daily basis to a web map so that the Audubon network had data to back their argument: the tallest building that refused to darken the skies had the highest incident occurrences. The Enterprise GIS Team developed this application and others to facilitate the storage and sharing of data. These projects were presented at the Audubon Convention in 2015 in order to encourage more projects to utilize the online organizational account and capabilities.

**3.4 Training**

I supported the Audubon network in their GIS work. Project consulting was a major part of my internship as some users had little GIS knowledge yet conveyed interest. Therefore, I worked to train people in basic skills such as creating layers, map formation, and filtering for existing layers. Empowering local member in these skills reduced the load on the GIS team and as an intern I was available to answer these questions in a timely manner which allowed the GIO to focus on other important issues.

I helped to plan workshop trainings at the Audubon Convention and launched a webinar series to train new users of the technology. Whenever I consulted on a project, I sent instructions on how I solved their issue or addressed their requests. In this way, staff were better prepared for their GIS work and this contributed to capacity-building within the National Audubon Society's extensive network.

## CHAPTER 4: INTERNSHIP ASSESSMENT

My time as a Wings intern with the National Audubon Society gave me the opportunity to apply my recently gained skills in GIS in the field of conservation GIS. Although I had prior experience working with conservation non-profit organizations, I never utilized GIS technology towards this discipline. I learned new techniques that lie outside of many current GIS curriculums within four year accredited universities. Skills managing ArcGIS Server, Arc Spatial Database Engine (ArcSDE), and online GIS mapping and application platforms are not generally taught in a university setting as the technology evolves so quickly that educators would constantly need to develop new framework for courses.

As the first student from Clark University to work in the GIS department within the National Audubon Society, I had the chance to showcase skills that are unique to Clark GISDE masters students. Although, I gained many skills using IDRSI-Selva and TerrSet software developed at Clark Labs throughout my first year at Clark University, the National Audubon Society's GIS software runs solely on the ESRI platform. The courses that became most relevant to the skills needed for the internship were Introduction to GIS and Advanced Vector. This along with Introduction to Remote Sensing and Advanced Raster provided conceptual understanding of the more complex raster-based work under the NAS Science program. The statistical methods taught in the Intermediate Quantitative Methods course are essential to comprehend the backing of GIS software. It should be a requirement for the GISDE program. Throughout these courses, I was introduced to Arc GIS for Desktop, however have not learned online versions required for the position of Enterprise GIS Support Intern. Knowledge of ArcGIS for Desktop was deemed substantial enough to secure the intern position with NAS.

An understanding of both Python programming and Remote Sensing were useful in assisting some of the scientific work of the Science Team at NAS. Many researchers have knowledge of

these methods within the organization, but mostly fell short when large data needed to be shared or openly available for publishing purposes. I had not taken Python programming and this slightly limited my work on one project. If I had prioritized programming in my first year, I would have been better prepared for the skill set expected of me during this position. I recommend students to take this course in the first year of their studies in GISDE. While doing my internship, I realized that having web programming knowledge would have supplemented the skills and filled a gap that I had to quickly bridge over the summer. I would recommend prioritizing Python Programming, Computer Programming for GIS and Web Mapping within the first year of the GISDE coursework.

The course Spatial Database Management offered at Clark University provides an introduction to Spatial Database Engine (SDE). There are no courses offered in Server. These skills certainly improve the strength of an applicant on the job market and provide substantial increases in salary. Many training requests came from the need to organize and manage data. Being new to GIS technology, this is a skill that is best learned early on so that data is properly managed, stored and easily shared.

As both my supervisor and mentor offered different skills sets to the team, I had the chance to gain additional skills not offered at Clark University by learning from them. Within Enterprise GIS, we are responsible for data management and administrative duties not taught in temporary university curriculum. My job required mainly administrative duties within ArcGIS Online. I gained these skills through online resources supplemented by the knowledge of my colleagues at Audubon. As the technology changes so rapidly, users of Arc products must constantly keep updated. This can create complications when developing and testing a syllabus for course work. Learning other technologies within ESRI's platform including Web App Builder, and ArcGIS Collector were the useful skills I gained through this internship.

As I had previously volunteered with the GIO, I built a professional relationship with the team lead and developed a network within Audubon that secured a position for me regardless of the lack of some essential job skills. This demonstrates the importance of building a professional network with strong leaders within your field. It can provide room to gain skills necessary to a position. Many employers are looking for people who can grow within the organization while fulfilling necessary job tasks. I am pleased to say that the National Audubon Society has

extended my contract and created a part-time position to continue the work initiated throughout this internship.

I would recommend this internship to other students at Clark University. The GIO and I are currently working to build a stronger Enterprise GIS department within the National Audubon Society which can potentially increase the number of positions available both as part of an internship and full time staff. We are building a stronger network that utilizes improved GIS technology to remain at the cutting edge of conservation GIS which will help maintain NAS' status as the strongest and most influential conservation organization in the country. The opportunities gained from working at the National Audubon Society were immeasurable and I recommend this internship to future GISDE students as it represents a platform that will give them several benefits in terms of skills and career advancement by working with this organization.

## CHAPTER 5: CONCLUSION

My internship with the National Audubon Society as a Wings intern under the Enterprise GIS Team greatly complements my education at Clark University within the GISDE program. The environment provided by my colleagues within the team gave me the support and independence that created a comfortable work environment. My current and prior education and work experience in public, private and non-profit sectors provided a great insight into the applicability of GIS skills within the field of conservation. I was able to meet high level staff and leaders within the organization including Vice-President of Conservation at NAS and the President, David Yarnold. Mr. Yarnold held meetings with the Wings interns to discuss about his progress to become the president of the "most influential conservation organization in the country" (NAS 2015). This gave excellent insight into the direction of the organization based on his experiences over the past five years as its leader.

The conferences I attended provided the platform to network with other non-profit organizations and to meet our contact personnel working at ESRI. One representative from ESRI, who provides non-profit software assistance for non-profit organizations began discussing a complicated project. I described my experiences in Peace Corps encountering similar problems which influenced my decision to study at Clark University. I saw how GIS could assist in

environmental consulting, government work and how hand drawing simple maps could engage community member in natural resource planning. This conversation helped to gain my recognition throughout the organization, which ensured a position following the internship. Throughout the course of my internship with the National Audubon Society in the summer of 2015, I learned many skills and met an extensive network of GIS users. This experience created a favorable environment for my return to the work force within the United States and introduction to the applications of GIS in conservation.

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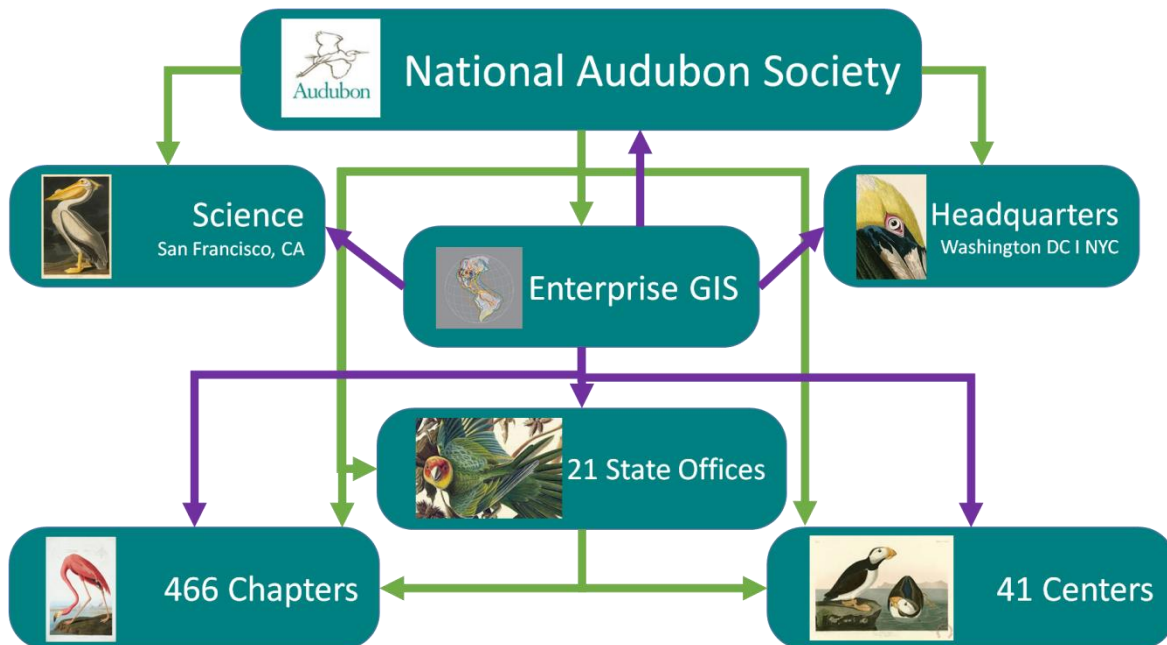
**FIGURES**



*Figure 1. Enterprise GIS relation to the other sections and departments within NAS.*



*Figure 2. Enterprise GIS Team holding the President's award at the National Audubon Society's booth at the ESRI User Conference, July 2015.*
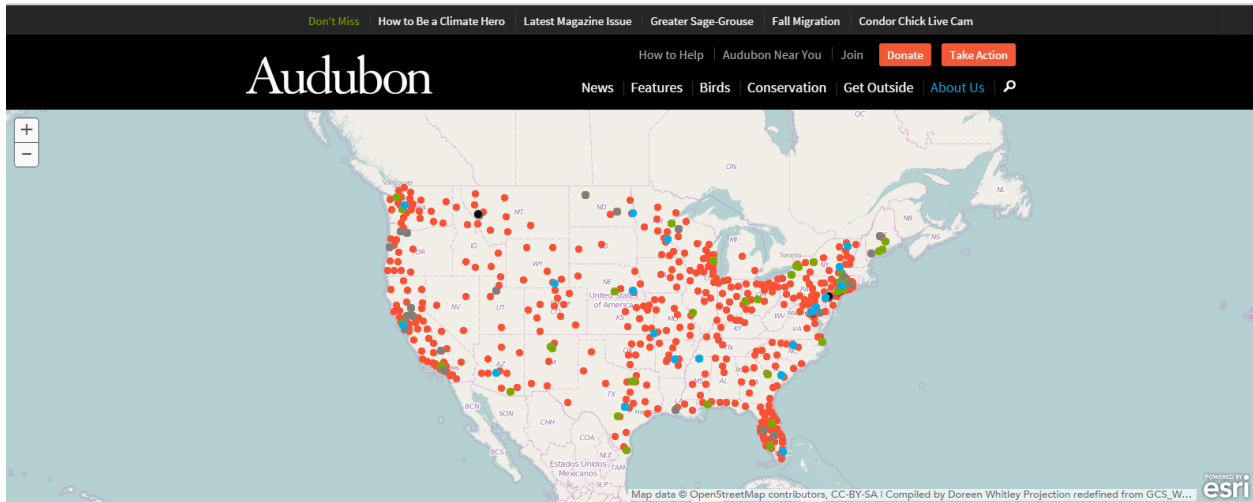
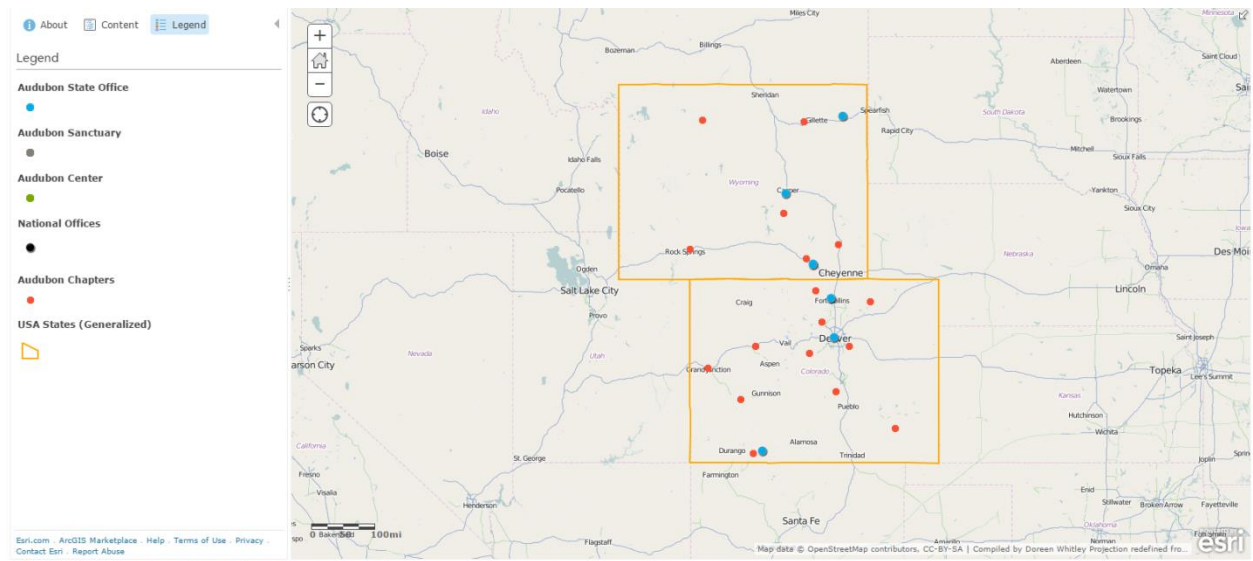*Figure 3. Chapter, State and National Offices map.* <u>http://www.audubon.org/audubon-near-you</u>



*Figure 4. Chapter, State and National Offices map for Audubon Rockies.* <u>http://arcg.is/1LI4BQs</u>
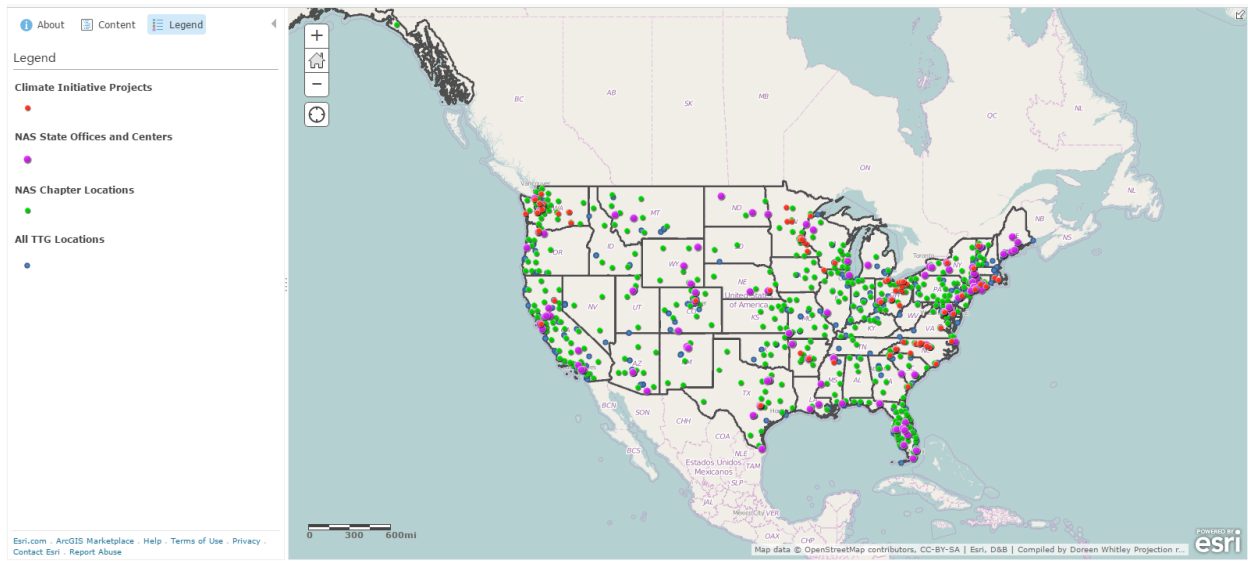
*Figure 5. Climate, TTG, Chapters and State Offices for a Donor. http://arcg.is/1LI4Jzo*
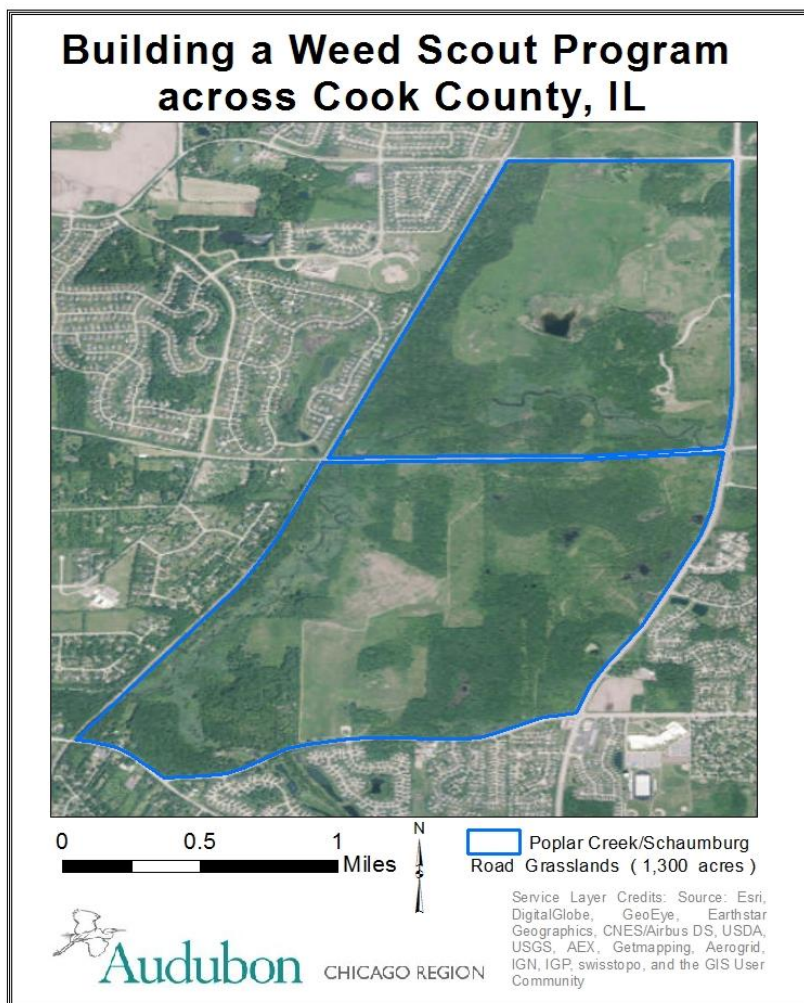


*Figure 6. Map for a Chicago area site in preparation for a grant proposal (Audubon Chicago).*
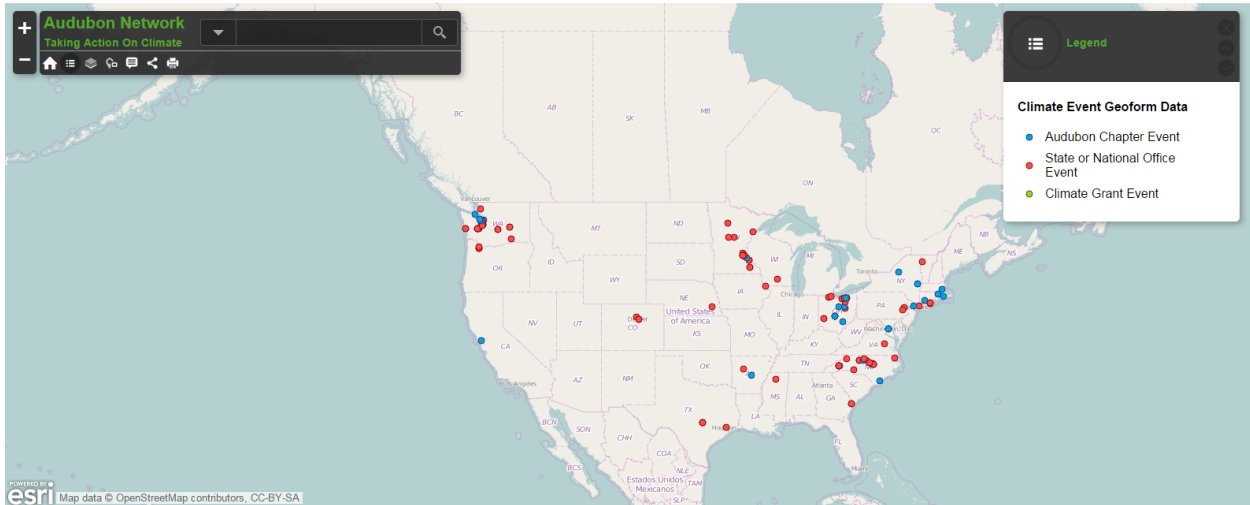
*Figure 7. Climate Events Web Map http://www.audubon.org/content/climate-change*



# Climate Initiative Events Geoform

Please fill in all fields that apply to your event and attach photos and documents where indicated. For all questions or concerns about this form, please contact Sarah Friedman, Climate Program Coordinator (sfriedman@audubon.org). If you have stories, feedback or best practices to share with the network, please contact Liz Bergstrom, Climate Content Manager (ebergstrom@audubon.org).

## 1. Enter Information

**1) First Name**

**2) Last Name**

**3) Email**

**4) Which of the following most accurately describes your role at Audubon?**

Select...

**5) Which of the following Audubon entities sponsored the event?**

Select...

*Figure 8. Geoform for the Climate Initiative Events http://arcg.is/1iSt0Yq*

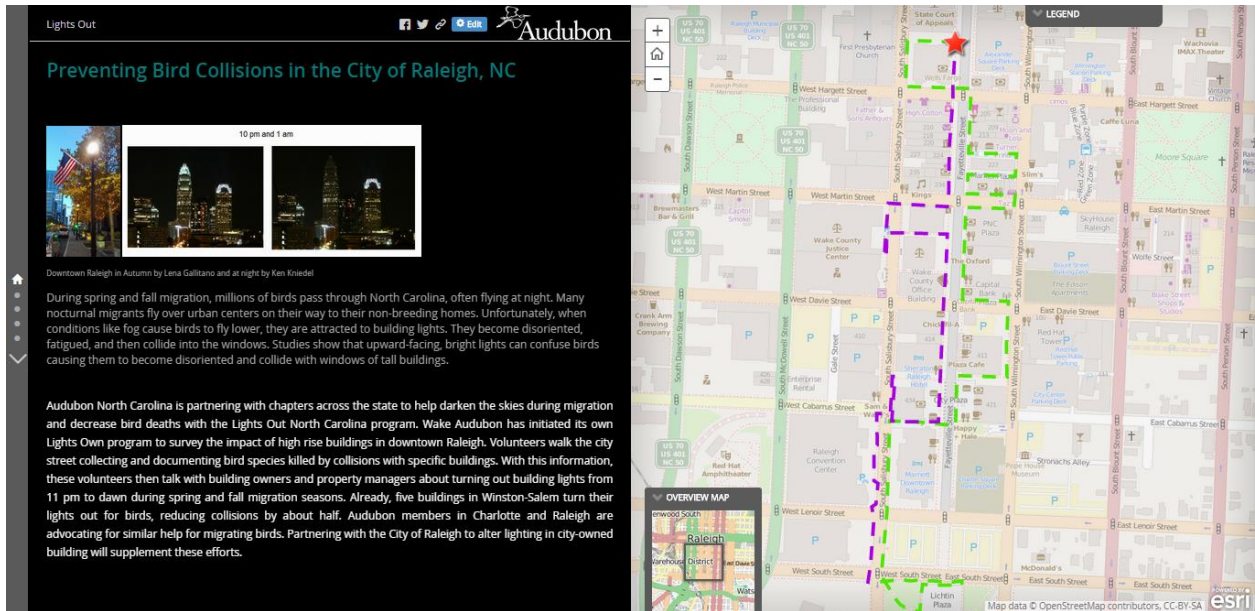*Figure 9. Story map journal for Lights Out Raleigh program.* *http://arcg.is/1dzCx3o*
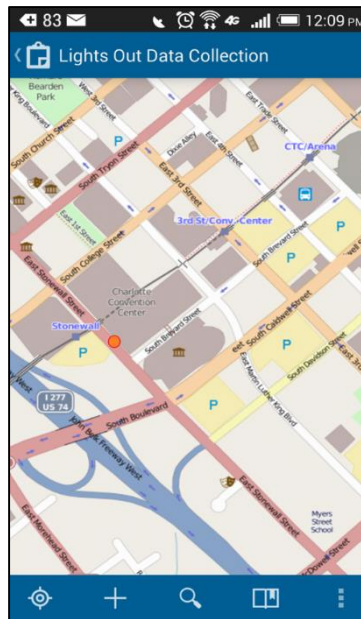


*Figure 10. Example of how web map would be used in Collector for ArcGIS Online.*