CMI Bulletin

News from the Conservation Management Institute

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Good Natural Resource Management Must be Grounded in Good Science.

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Virginia Tech

VIRGINA POLYTECHNIC INSTIUTE AND STATE UNIVERSITY

— Project Highlight —

Nuisance Wildlife Coordination Meeting

by Andy Rosenberger, CMI

An increasingly important component of the natural resource management system in Virginia and elsewhere around the world is the management of nuisance wildlife. A wildlife population or even an individual animal can become a nuisance when it causes damage, distress, or a health hazard to humans. As the human population grows, the probability of nuisance wildlife problems also grows.

The Conservation Management Institute (CMI) and the Virginia Extension Service realize that municipalities, along with state and federal agencies that work with nuisance species in Virginia, are often limited in personnel and resources to deal with nuisance wildlife. We hope to help address this need by forming a stronger collaboration between the many agencies, organizations, and localities in the state in order to better manage nuisance species in Virginia. In an effort to formulate the collaboration, CMI and Virginia Extension Service organized the first nuisance wild animal symposium in Virginia. In an effort to promote attendance by all 489 municipalities in the Commonwealth, invitations and a survey pertaining to

Nuisance Wildlife continued on page 2

White-tailed Deer in Suburbia.

Nuisance Wildlife continued from page 2

nuisance species in Virginia were sent to potentially interested individuals in 96 counties, 40 cities, and 114 towns. Many of the municipalities received multiple invitations to ensure that the administrators, managers, and planners were all aware of the symposium. Included in the mailing was a five question survey to help us better understand the nuisance wild animal situation within each political subdivision. Of the 489 surveys sent, responses were received from 31 counties, 16 cities and 18 towns for a total of 67 responses.

Domestic cats, deer, and domestic dogs were at the top of the list for complaints. While coyotes were reported less frequently than the other animals, they posed a greater nuisance when they were reported. Coyotes were only considered a nuisance by 9 municipalities out of the 67 that returned their survey, making coyotes the ninth most reported species. However, when all species reported were evaluated based on their order of importance, coyotes became the number two species for the municipalities that reported them. This leads to the conclusion that although coyotes are not as frequent a problem in the Commonwealth of Virginia, in comparison to cats, deer and dogs, when they are present they are considered a major nuisance.

The survey also revealed that a majority (56.4%) of the municipalities have not sought outside help in dealing with their nuisance species problems. When asked if they could benefit from a service that provided information and help in developing/ implementing management plans for nuisance animals, 90.9% of respondents indicated that they could benefit from such a service.

On June 1st and 2nd, 2004 the Conservation Management Institute, in conjunction with the Virginia Extension Service, organized the first nuisance wild animal symposium in Charlottesville. The goal of the symposium was to bring administrators, managers, and planners of the political subdivisions in Virginia together with the state and federal wild animal regulating authorities to address nuisance wild animal problems and to identify alternative approaches to managing these animals. The intent when organizing the symposium was to invite the administrators, managers, and planners of the political subdivisions in the Commonwealth of Virginia. These individuals were identified as our target group since they are the persons involved with the daily decisions and planning for their respective municipality. The objectives of the symposium were set at the macro scale so that the administrators, managers, and planners could get an overview of available tools and resources, and to look at the methods that other municipalities have incorporated in dealing with nuisance species problems. Upon leaving the symposium, the managers should now have a better understanding of all the components necessary to take into consideration when formulating a nuisance species plan.

Speakers at the symposium addressed the differing perspectives on nuisance wild animal management and the legal issues to consider in developing a nuisance animal management plan. A panel discussion was held on agency responsibilities in developing a nuisance animal management plan for a political subdivision. Other speakers highlighted the human dimension issues in developing nuisance animal management plans.

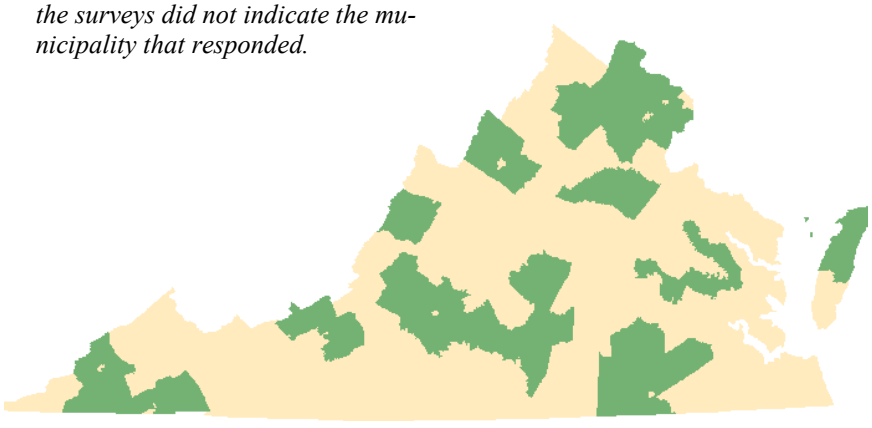
The second day was devoted to discussing case studies from three Commonwealth political subdivisions addressing the questions:

- How did they get started?
- What legal issues did they face?
- What organizations and individuals were involved?
- What public relations problems did they face?
- What were the costs?
- Has their program worked?
- What were the problems and lessons learned?

Our plans for follow up are still being formulated, but at a minimum we will continue to foster a discussion between the agencies and municipalities. We have developed a web site and will be speaking to interested organizations and individuals throughout the Commonwealth over the coming year and preparing recommendations for the agencies and the Secretary of Natural Resources this winter.

For more information on the symposium visit www.cmiweb.org/oe/nuisanceanimal.html.

Areas in green represent counties that responded to the survey. Two of the surveys did not indicate the municipality that responded.



News at CMI —

MARIS Moves Into The World of Flowing Waters

by Andy Loftus, CMI

The Multi-State Aquatic Resources Information System (MARIS), which is coordinated through CMI, has made significant progress during the past year.

Since the late 1990s, the Multi-State Aquatic Resources Information System (MARIS) has been facilitating, through a common Internet interface, the transfer of information on aquatic species surveys that is supplied by six states in the Midwest region. Until recently, this information was restricted to lake-based fisheries data that could be utilized to assess status and trends of fish populations over time (Loftus and Flather 2000). One obvious shortcoming of this information was the lack of stream-based data pertaining to aquatic species.

In early 2001, CMI convened experts from state, federal, and nongovernmental organizations with experience in a diversity of stream data types and formats and developed the concept for a stream component to MARIS. While funds were secured to implement this component on the Internet, no funding was available at that time to input actual data from a state so that the system could be evaluated and modified.

However, with funding from the U.S. Natural Resources Conservation Service and the U.S. Fish and Wildlife Service, the Internet stream component was developed in the past year and populated with test data from the State of Wyoming. The Wyoming database contains records of fish sampling events for streams around the state for several decades. The addition of streams data expands the type of waterbodies represented in MARIS from lakes and impoundments alone. Because stream sampling sites and methods differ from lakes and impoundments, a separate set of query forms were created. These are accessible from the MARIS web site under the Queries form.

The Wyoming database contains fish sampling data for 815 streams throughout the state. There are a total of 23,184 fish sampling events and 795 water quality observations contained in the records. The fish sampling events include 1,960 distinct dates ranging from 1954 to 2001. There are 483 distinct dates for water quality sampling ranging from 1967 to 1998. Water quality observations were recorded for 267 streams. The Wyoming database contains sampling information for 77 distinct species.

Water body information includes items such as stream name, sampling dates, location, and physical descriptions of the stream including average width, depth, and bed slope. Water quality information includes temperature, hardness, alkalinity, and pH. Fish sampling data includes species, total number, total weight, gear type used, population estimates, and estimate methodology. Supplemental tables link species codes to common and scientific names and other classification information; various watershed codes to county and other locational information, and others. The queries support the answering of questions that span data tables such as the number of a particular species sampled from streams in a particular geographic region with specific water quality conditions.

FUTURE DIRECTIONS

In May of this year, the MARIS coordination group convened in Las Vegas, Nevada to critique the revised system. The newly-developed stream component and Wyoming streams database were deemed to have significant potential to answer specific questions regarding fisheries and aquatic resources. Such queries of interest include: compiling data to evaluate status and trends over long periods of time and large geographic regions and the ability of stream data to be assimilated into other data systems, including land use/land cover, stream barriers, etc. As resources are available, additional data from other state agencies will be added to the system and improvements will be made to increase the system's overall utility to managers and researchers. Based on the input received, refinements will be made to the system to improve its functionality and applicability to these research needs.

For more information, contact Andy Loftus (ALoftus501@aol.com).

LITERATURE CITED

Loftus, A.J. and C.H. Flather. 2000. Fish and other aquatic resource trends in the United States: A technical document supporting the 2000 USDA Forest Service RPA Assessment. Gen. Tech. Rep RMRS-GTR-53. Ft. Collins, CO: U.S. Dept. of Agriculture, Forest Service, Rocky Mountain Research Station. 50 p.

State of the CMI...

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The Conservation Management Institute is a part of the College of Natural Resources at Virginia Tech. While in many ways, we operate independently, our institute still supports all three components of the land-grant university mission, education, research, and outreach. Each year, we make a concerted effort to devise a work plan for the coming year, and in 2003, we determined that CMI should include more students, both undergraduate and graduate, to give them an opportunity to work on real-life conservation and natural resource projects. This summer has resulted in the largest group of CMI student hires ever (24+). While many will return to full time student status this fall, several will continue working part-time with us throughout the year. We are also employing 7 graduate students and helping with their graduate programs in some way.

Our staff also directly address the education mission by occasionally assisting with teaching classes, and by offering continuing education classes and conferences to professionals. In this newsletter you'll read about our efforts to assist the Department of Fisheries and Wildlife Sciences with their Wildlife Field Course, and about our recent Symposium on Nuisance Wildlife Management in Virginia.

The breadth of research projects underway at CMI continues to expand. We are conducting or soon will begin projects on bird habitat relationships in Arkansas, endangered species in Texas, small mammals in Tennessee, bats in Virginia, species monitoring protocols in the National Capitol region, horseshoe crab monitoring methods in Delaware, chimpanzees in Tanzania, fish consumption advisories around the Chesapeake Bay, and angler/boater attitudes and ethics.

The most exciting new outreach project underway in the information technology area is with the USGS National Biological Information Infrastructure (NBII). We have been awarded the Mid-Atlantic Information Node of the NBII. Although we have worked closely with NBII from it's inception, this is the first time we will receive major funding on an annual basis from that program.

This program will allow us to work more closely with important constituents throughout the Mid-Atlantic Region on natural resource data and information availability issues. We are already assisting with web sites on invasive species issues, and will soon address decision support systems for land trusts, geospatial data availability, and most importantly a strategic plan for the new node.

Virginia Tech has made a bold commitment to becoming a Top-30 research university. CMI is contributing to that goal in a variety of unique ways by supporting the education enterprise, dramatically expanding research activities, and increasing outreach to new constituencies.

— News at CMI —

CMI Staff Assist With Wildlife Field Course

by Ken Convery and Scott Klopfer, CMI

This spring, CMI personnel Ken Convery, Scott Klopfer and Mike St. Germain assisted Virginia Tech Assistant Professor Dr. Marcella Kelly with her newly revamped Wildlife Techniques course at Mountain Lake Biological Station. Twenty five students enjoyed two weeks of intensive training, covering mammalian, avian, and herpetological survey techniques, habitat sampling, orienteering, wildlife law enforcement, and other research techniques.

Ken and Mike led the avian techniques portion of the course. Students learned basic birding skills, including the use of mist nets, bird handling, ageing and sexing, safety, and ethics. Students also learned survey techniques such as point and line transect counts, and several students used these techniques for their final project examining the abundance of red-eyed vireos and ovenbirds at several sites around the biological station. Students particularly enjoyed using mist nets, and they were treated with some very special birds, including scarlet tanagers, red-eyed vireos, chestnut-sided warblers and black-and-white warblers.

Scott Klopfer taught amphibian and reptile survey techniques. In this section, students learned some commonly used survey and sampling techniques as well as habitat measurements. Some students elected to use these techniques in their final project that examined the differences in salamander abundance, morphology, and daytime/nighttime availability between 3 sites.

This field course was very well run, and more importantly was very well received by the students. Mountain Lake Biological Station was a great venue for the course. The staff of CMI is looking forward to future opportunities to work in similar field-based class situations.

Contact Ken Convery (540-231-9587 or kconvery@vt.edu) for more information.

— Project Highlight —

Mid-Atlantic Information Node Gets Started in '04

by Jeff Waldon, CMI

Background

The National Biological Information Infrastructure (NBII, http://www.nbii.gov), is an effort to coordinate and make available biological resource information for both professionals and the public. The ultimate product of the NBII will be an electronic network of accessible databases, maps, web sites, and other materials. The network is under development on both a regional and thematic basis through the discovery of new sources of information, the development and promotion of standards for biological resource information, and the publication of that information through the world-wide-web.

Mid-Atlantic Information Node (MAIN)

The Mid-Atlantic Region is unique in it's ecological breadth, the range of biological resource problems and stressors found in the region, and the large and rapidly growing human population of the region. The region is dominated by the Chesapeake Bay watershed, but it also includes unique features such as the Dismal Swamp, Fraser Fir forests in the central Appalachians, and everything in between. Pollution, endangered species, overabundant species, invasive species, acid precipitation, fragmentation, urbanization, sprawl, prime farmland loss, water supply, and a host of other issues are daily topics of public debate throughout the region.

The response from the scientific and management community in the region has been tremendous and resulted in an astounding number and variety of data sets that are typically computerized, but not coordinated in such a way that they can easily be integrated into the public decision-making process. The MAIN philosophy for addressing the problem focuses heavily upon coordination, cooperation, and communication among the community of professionals that deal with data collection and management in the region. The primary funding source for information collection in the region is public agencies, and due diligence on the part of public agency data managers requires that the public receive the greatest possible value from their investment. Each data manager has a vested interest in making data as valuable and useful as possible, and the best way to do that is to insure that it can be used by the greatest number of people through adherence to standards that facilitate data sharing and the publication of the information through a widely available, low-cost mechanism such as the world-wide-web.

Current Initiatives

While the MAIN is just beginning to form in the spring of 2004, we have already identified several initial projects.

Strategic Planning

The first, largest, and most important effort to be undertaken by the MAIN is to develop a strategic plan. We will be preparing a strategic plan that should help us prioritize projects for the next several years, and identify potential partners that can help in the effort. The strategic plan will include an Internet survey, focus group meetings, and establishment of an advisory committee. We will also cosponsor two major meetings, one on data management for large river restoration in the Mid-Atlantic, and another on data management for restoration efforts in the Central Appalachians.

Urban Biodiversity Information

This project will focus on dissemination of biological resource information through the development of web resources for teachers in urban settings. It will also involve the sponsorship of Watershed Education Days in urban areas where teachers and students can find out about how to access the wealth of materials and resources available from public and private sources in their locality.

Land Trust Decision Support

This project addresses the need for support to local land trusts in their efforts to conserve land through easements, conservation buyer programs, and purchase-of-development-rights programs. Private land trusts in the region are doing the most work of any class of organization to prevent urban sprawl, and yet most do not have a data-driven methodology for prioritizing their efforts on the landscape. This pilot project is an attempt to develop a web accessible system for prioritizing land based on a variety of user-defined conservation values.

Regional Data Infrastructure Acquisition

This project is designed to prepare the MAIN for working with a variety of organizations and agencies throughout the region by gathering base data region-wide. This data will be available to users, but more importantly it will be used to organize and manage data and links developed in the future by the MAIN and our partners.

For More Information

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Division Reports

For more information about CMI or any of the projects discussed below, visit http://www.cmiweb.org.

FISH AND WILDLIFE INFORMATION EXCHANGE

The Fish and Wildlife Information Exchange (FWIE) is the information technology section of the CMI, and includes web hosting and development, database development, and internet-based technologies. The FWIE is presently involved in short-term as well as long-term efforts with state and federal agencies and private non-profit organizations. In looking forward to the coming year, we hope to add several new data management and information technology projects.

One exciting project that FWIE is working on is developing a tool for the VA Department of Game and Inland Fisheries to use in their VA Comprehensive Wildlife Conservation Strategy (CWCS) planning process. The tool will foster communications and planning amongst department staff, as well as the public using a website, listserver, and document dissemination. The site will be primarily for distributing static information and maps, and provide tools to receive public involvement in this process. The site will be functional in September, 2004.

FWIE continues existing projects including 1) Virginia Fish and Wildlife Information Service database re-engineering and gap integration effort; 2) Cooperative Fish Tagging Registry; 3) Database and GIS Development for the NJ Division of Fish and Wildlife; 4) Re-engineering of the Biota Information System of New Mexico (BISON-M); 5) NBII Mid-Atlantic Node development and various related projects (see page5); 6) Database development for the Northwest Habitat Institute; and 7) Project Coordination with CENTAUR (Center for Animal Human Relationships) at the VA-MD Regional College of Veterinary Medicine.

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GIS & REMOTE SENSING

The Spring and early Summer seasons remain busy for the GIS and Remote Sensing Division. We are continuing our project work on several fronts, and always looking to expand our project base.

Our horseshoe crab field work commenced in May and continued on the Delaware Bay for 5 weeks. Our field crew, headed up by Ken Convery and Peter Laver, did an excellent job counting breeding horseshoe crabs at 2 beaches in Delaware near Dover. This work was part of our larger effort to develop and assess a low-cost remote sensing technique for developing a horseshoe crab breeding index from the aerial surveys. Peter, along with 5 other field techs, counted horseshoe crabs at each high tide over the 5 week period to provide a better picture of how breeding is distributed between daytime and nighttime, and throughout the season. With this information, we hope to determine when the breeding horseshoe crabs will be susceptible to aerial photography.

We also completed field work photography capturing crab targets on the beach for evaluating our ability to accurately count crabs via aerial photography. Ken, Christine Blinn, Adam Wilson, and Amanda DeJong used available dead crabs as targets, placing them within 2 meter quadrats for photographing. The number of crabs in the target box was recorded, and these values will be used to assess accuracy in the lab. Much of this work is on-going.

We have also been working to complete several projects including the Upper Tennessee Aquatic Gap Analysis Project, a Comprehensive Reference and Collections Database for the Central Pine Barrens of Long Island, and models of brook trout response to climate change.

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HUMAN DIMENSIONS

It's been a busy spring and early summer for the Human Dimensions Division (HDD)! A crew of 6 interviewers was out in the field from June 1 through August 18 interviewing anglers along the Chesapeake Bay about their fish consumption patterns. It's been a highly successful project, with over 850 interviews collected. The primary objective of these interviews was to identify populations within the watershed at risk for consuming contaminated fish. With these data, we hope to be able to provide recommendations for the development and dissemination of more effective fish consumption advisories. This summer's interview effort will be followed up next winter by a series of regional focus group meetings involving local fishery mangers, health officials, and local leaders.

On other fronts, we've been busy in the office pre-testing a large national mail survey for the Recreational Boating and Fishing Foundation. The survey tests the assumed relationship between participation in aquatic recreation and the development and expression of a stewardship ethic. The draft survey was sent out to 300 people in June, and a small focus group was held to talk, face-to-face, with boaters and anglers about the survey instrument. We are currently analyzing the results of this pretest and compiling a

final draft to be mailed out in October to 22,000 households across the country. With the results, we hope to provide recommendations for outreach programs to more effectively deliver the stewardship message to the public.

We are currently launching a strategic planning process for the Mid-Atlantic Information Node (MAIN) of the USGS National Biological Information Infrastructure. MAIN is currently in its first year, and this strategic planning process - which includes a survey of natural resource professionals in the Mid-Atlantic region and a series of focus group meetings regarding information needs - is a critical part of the start-up.

Finally, the HDD would like to welcome Josh Gibson, who joined our staff this spring as a graduate student. He's been working as the field crew leader for the Chesapeake Bay Program project and will be working on various projects, including his master's thesis, this fall. Welcome Josh!

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MILITARY LANDS

We at the Military Lands Division (MLD) are finally coming to an end of a very busy summer. Personnel with the MLD have traveled extensively performing field work in a variety of locations. Our field season began in late spring with a project that examined the habitat structure of the federally endangered golden cheeked warbler (*Dendroica chrysoparia*) at Fort Hood, Texas and continued with field work examining the spatial and temporal distribution of military-derived disturbance at Fort Chaffee, Arkansas. We also continued our work on the bird communities and their habitat relationships at Fort Chaffee. During midsummer we shifted our focus to Fort Pickett, Virginia and began work on a survey of the Nottoway River for Roanoke logperch (*Percina rex*) habitat. In addition we searched for the presence of cerulean warbler (*Dendroica cerulea*) in potential habitat at Fort Pickett. We continued our long term monitoring effort of the federally endangered Michaux's sumac (*Rhus michauxii*) at Fort Pickett by examining the structure of its habitat at Fort Pickett. At the end of the summer, we embarked on a new project at Tinker Air Force Base to map the distribution and occurrence of vegetative communities.

During the latter part of the summer, several MLD personnel presented papers at professional conferences. Verl Emrick and Jessica Dorr presented a paper entitled "Conceptual Approach to Examining the Spatial and Temporal Interactions of Disturbance on Military Training Lands" at the 47th Annual International association of Vegetation Science conference. In addition, a poster entitled "Geographic Quantification of the Interactions Between Military and Fire Disturbance: A Case Study" was presented at the same conference. At the 13th Annual Integrated Training Area Management Conference, Verl Emrick and Jessica Dorr presented the same poster and a paper entitled "Utilizing Spatial and Temporal Interaction of Military-Derived Disturbance as Strata for LCTA Plot Allocation". The authors received positive feedback at both conferences and will continue researching this topic.

The MLD would like to welcome two new members. Kathy Shipman is the new MLD administrative assistant and will attempt to keep us all in line and organized. Jim Pugh is the new ITAM GIS technician at Fort Pickett. Welcome!

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OUTREACH AND EDUCATION

The Outreach and Education division started off the summer organizing the Nuisance Wild Animal Symposium in Charlottesville, Virginia (see feature article).

After the completion of the symposium, the division then arranged materials for a condensed version of the course, Gap Analysis for Natural Resource Professionals. The short course was offered at the National Biological Information Infrastructure (NBII) All-Node Annual Meeting in Bozeman, Montana. The intent of the course was to provide node managers around the country familiarity with a USGS product that can be used by node partners. Immediately upon returning from the NBII All-Node Meeting, the division traveled to Richmond, Virginia to offer the Department of Game and Inland Fisheries their third installment of Introduction to GIS for biologists around the state. Once back in Blacksburg, work began on creating an advanced GIS course for the VDGIF. This year, the advanced course took a different path and focused on the components and skills required for creating a vegetation map. The course was designed so that, upon completion, the biologists could go back to their respective districts with the skills necessary to begin mapping vegetation for all the VDGIF owned Wildlife Management Areas in the state.

With the expansion of space at CMI (see State of CMI report, spring 2004), the Outreach and Education division acquired a training room facility. Starting this fall the division will now be able to offer training in Blacksburg. The past few years the division has focused on training organizations. With the addition of the classroom, we can now offer training to individuals that in the past could not take advantage of CMI training because they were not part of a group large enough to meet the minimum class number requirement.

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OFWIM Annual Meeting
September 23-26, 2004
San Diego, CA
at the Paradise Point Resort and Spa
http://paradisepoint.com

Details now available at:
http://www.ofwim.org

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