



CMI BULLETIN

News from the Conservation Management Institute

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Summer
2002

*Good
Natural Resource
Management
Must be Grounded
in Good Science.*

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Introducing the CMI Bulletin

The Conservation Management Institute (CMI) is a relatively new research center organized by the College of Natural Resources at Virginia Tech. The CMI was established to address multidisciplinary research questions that affect conservation management effectiveness in Virginia, North America, and the world. Faculty from Virginia Tech and other research institutions work collaboratively to provide support to conservation and management agencies and organizations worldwide in their efforts to assess, monitor, protect, and manage the earth's renewable natural resources.

As a part of our efforts to inform our sponsors, collaborators, and colleagues about the activities at CMI, we are introducing the first issue of our quarterly newsletter which is available at <http://fwie.fw.vt.edu/bulletin>.

We view CMI as a collaborative effort by faculty, staff, and students at Virginia Tech, plus faculty, staff, students, and other

professionals working at other universities, government offices, businesses, and nongovernmental organizations around the world. We hope to include information from our affiliates and partners as well as CMI as time and space permit.

We hope you will find this newsletter useful. We know you are busy, so we will try to be succinct and provide linkages for further information on our web site or the web sites of our partners. Please feel free to forward announcements of the availability of new issues of the newsletter to friends and coworkers. If you do not wish to remain on the email list for the newsletter, please contact Julie McClafferty at jmclclaff@vt.edu.

Thanks, and enjoy.

Sincerely,
Brian R. Murphy,
Director
murphybr@vt.edu

Jeff Waldon,
Assistant Director
fwixchg@vt.edu

— Project Highlight —

Prescribed Fire Management at Fort Pickett-MTC

Fire historically played a significant role in shaping the vegetation and landscape in the southeast. In fact, there is ample evidence that humans have used fire as a management tool for >50,000 years. In the past two decades, prescribed fire has re-emerged as an ecologically appropriate and cost effective method of landscape manipulation in the southeast.

Since the initiation of military live fire training in 1942, periodic fires of all

intensities have become the norm on military training grounds across the nation. Training-caused wildfires are typically caused by operations in which heavy weapons fire, flares, and tracer rounds ignite surrounding vegetation.

Fort Pickett-Maneuver Training Center (FPMTC), located in southeastern Virginia, contracted with CMI in 2001 to develop a plan for its prescribed fire management

(Fire Management continued on page 2)



VIRGINIA POLYTECHNIC INSTITUTE
AND STATE UNIVERSITY

(Fire Management continued from page 1)

program. Effective implementation of prescribed fire is necessary to achieve many of the military training and natural resource management objectives. The primary objectives for the prescribed fire program at FPMTTC are:

- (1) rare & endangered species mgmt,
- (2) training land improvement & maintenance,
- (3) biodiversity,
- (4) fuel reduction, and
- (5) forestry.

The FPMTTC prescribed fire program is intended for use with other vegetation management tools (e.g., timber harvesting) to improve and maintain training land. Prescribed fire is the most cost effective alternative for controlling the encroachment of woody vegetation in open maneuver areas and in clearing downed woody debris and improving lines of sight - all important management objectives at FPMTTC. As a result, prescribed fire can significantly improve mobility and thus the usefulness of open and forested training land for infantry training. In addition, the use of prescribed fire is consistent with the FPMTTC's ecosystem management goals when it promotes native biodiversity, maintains and enhances habitat for rare and endangered species, and improves habitat for game and non-game species.

We created burn units during the

planning process at FPMTTC to accomplish these multiple objectives. To be successful, the prescribed fire must be performed in a particular manner. There are 3 critical aspects to the effectiveness of a prescribed fire program: frequency, timing, and intensity. The frequency and timing are defined by 3 "burn seasons"; winter (Jan15-Mar15), spring (Mar16-May1), and summer (Aug1-Sep15). The intensity of a prescribed fire is greatly influenced by the ignition strategy, determined by the fire's relation to the prevailing wind. A "heading fire" moves with the wind; a "backing fire" moves against the wind. In most instances, a

prescribed fire has an ignition strategy incorporating both fire types.

Fire impacts the flora of an ecosystem more than any other constituent does. Many aspects of the plant communities within a particular burn unit determine the overall impacts of a prescribed fire. As a result, the prescribed fires are often handled differently (i.e., different timing, frequency, and intensity) on different burn units to achieve desired results.

Even though prescribed fire is a valuable and necessary tool for natural resource management at FPMTTC, if applied in a careless manner, it can result in damage to natural resources, human injury and property loss. Therefore, it is important to carefully follow management guidelines to ensure human safety and to produce net positive effects on the natural resource. We believe that the implementation of this comprehensive prescribed fire program will result in a net benefit for the FPMTTC ecosystem and that temporary, small-scale degradation in air and water quality will be ameliorated with proper planning.

For more information on this or related projects, contact Verl Emrick (vemrick@vt.edu).



Rhus michauxii (Michaux's sumac), a federally endangered plant, is dependent on fire for survival at Fort Pickett. Photo taken by Verl Emrick of CMI.



Reservoir at Fort Pickett. Photo taken by Verl Emrick of CMI.

-- Project Highlight --

An Information Clearinghouse for Wildlife Capture, Handling and Transport Data

Wildlife capture and handling is a very small part of research, management, and conservation, yet these ventures are quite dependent on this essential component. Wildlife handling also is a very controversial aspect of the wildlife profession. As a result, wildlife professionals and the public are demanding dramatic growth and change in our equipment, our techniques, and at times even in our attitudes and approaches.

What is the ICH?

Mark Johnson, of Global Wildlife Resources (GWR), recently contacted CMI about working together on building a comprehensive database that builds upon the varied field experiences of wildlife professionals around the world. This Information Clearinghouse (ICH) would allow professionals to increase their options for research and management techniques and to share their own experiences with others.

Once complete, the ICH will be a collection of online, searchable, interactive, and perpetual databases on wildlife capture, handling, and transport techniques. It will allow biologists to quickly conduct a complete search through both published and unpublished literature, which can truly make a difference in field success and animal care.

Who would use it?

Initially, the ICH will focus on the needs of professionals working with free-ranging wildlife. This includes conservation biologists, researchers, and managers. State, federal, and private agencies could obtain space on the ICH to post their capture and handling protocols for their personnel and other professionals. This technical information may be especially and uniquely useful to wildlife professionals around the world. Other potential users include zookeepers, animal control officers, wildlife veterinarians, university

students, animal care committees, and wildlife rescue organizations.

How would it be used?

Here is an example. A biologist intends to research denning bears. He/she would probably want to find out how bears have been handled in other studies. With the ICH in place, this biologist could easily do this and much more. The results of an ICH search would allow the biologist to:

1. Compile a comprehensive list of relevant published material,
2. Compile a collection of field protocols describing equipment, techniques, and precautions for drugging hibernating adults and proper handling of cubs,
3. Locate professionals from around the world who have handled denning bears and discuss with them the refined procedures,
4. Identify the best equipment for the field conditions and either make the equipment (using provided diagrams) or contact appropriate vendors, and
5. After the project, contribute his/her knowledge back to the ICH.

What information will be available?

A Boolean search engine will create a unique page displaying the results of each search. Four key information types are proposed for the database:

1. Published Literature & Materials (peer reviewed publications)
2. Gray Literature (Non-peer reviewed publications)
 - Videos, proceedings
 - Biologists' field protocols and dialogue (from bulletin boards, forums, listserv participation)
 - Responses to GWR surveys
3. Equipment and Services
 - Contact info and specifications for vendors and distributors
 - Images and schematics (e.g., drug delivery systems, drop net construction)
3. Expert Database (Contact info for professionals with experience in

wildlife capture and handling; searchable by species or region.)

How will it be maintained?

An important mission of GWR and CMI will be to regularly update and maintain the ICH databases through several means:

1. A Scientific Advisory Board (SAB) will be established to guide ICH development and maintain scientific rigor.
2. Collaboration with a publishing firm to obtain the latest literature relevant to the scope of the ICH.
3. Purposeful investigations such as GWR's surveys of wolf capture, handling, and transport and non-invasive wildlife techniques.
4. Open forums, discussions, and bulletin boards.
5. Invited contributions from specialized organizations such as the International Bear Association or National Wild Turkey Federation.
6. Password accessible databases so contributors can update their content.
7. Bulletin board featuring event and resource announcements.

What is the current status?

GWR, with the help of an advisory team, has completed the Design Phase of ICH, which set up this project description and laid out a template. The ICH is now in the Development Phase in collaboration with the Conservation Management Institute. We currently are seeking individuals and organizations to join our team and help make the ICH a reality. Each collaborator can make valuable written, financial, or technical contributions and guide the design and construction of this valuable resource.

As funding grows, a full-time project leader will be hired, a beta-version website will be published, and an SAB will be assembled. For more information, contact Lila Borge Wills at lborge@vt.edu).

Division Reports

Each issue of the CMI Bulletin contains a brief report on the activities taking place within each division of CMI. In this first issue, we take advantage of this opportunity to introduce some of our divisions and provide you with some background on what we do. More information, can be found at <http://fwie.fw.vt.edu>.

The structure and breadth of CMI divisions affords us some unique opportunities. In fact, you will notice that many of our projects and services are interdisciplinary and involve the cooperation and combined expertise of several Divisions.

GIS & REMOTE SENSING

Geographic Information Systems (GIS) and remote sensing are important new technologies to better address habitat assessment and modeling. The GIS & Remote Sensing Division (GIS) provides assistance to natural resource agencies interested in applying these technologies. Services we provide include:

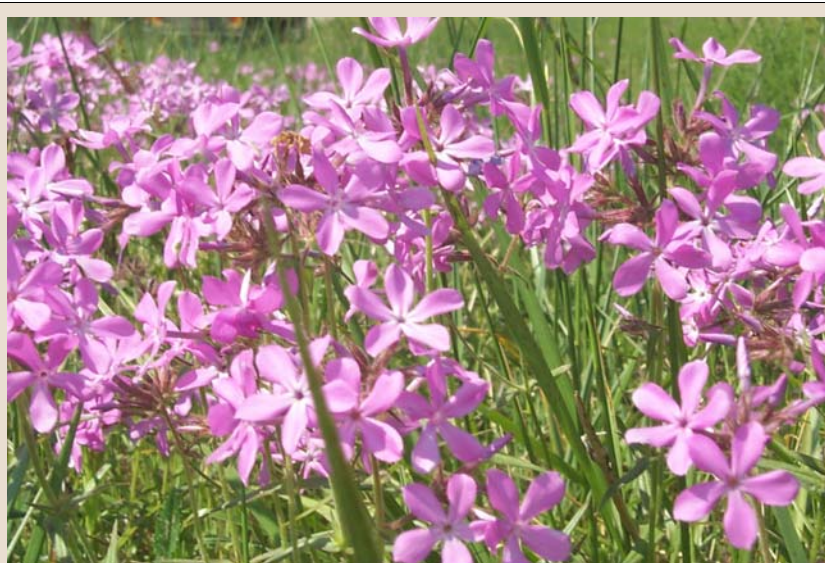
1. Vegetation mapping,
2. GIS building and applications,
3. Field support ,
4. Information gathering,
5. Aerial videography, and
6. Internet information delivery.

Recent projects include the Virginia Gap Analysis, vegetation mapping projects for the National Park Service and the Fish and Wildlife Service, a grassland bird survey and habitat assessment, a landscape scale assessment of Bobwhite quail habitat, aerial videography.

Contact: Scott Klopfer
(sklopfer@vt.edu)

FISH AND WILDLIFE INFORMATION EXCHANGE

The Fish and Wildlife Information Exchange (FWIE) is a technical assistance center and information



Phlox pilosa at Fort Pickett. Photo taken by Verl Emrick of CMI.

clearinghouse for fish, wildlife, and land management agencies and organizations. We also assist with the planning, development, implementation, and maintenance of information management and delivery systems. This division maintains and distributes information and offers training in computer applications, database management, metadata assistance, and use.

Since FWIE was established in 1984, we have helped dozens of agencies and organizations better manage their information resources and more effectively conserve wildlife, plants, and natural communities in North America. Web development applications are an important addition to our project base and staff skills. Some of our recent projects (summaries available online) include WAPITI, BISON-M, MARIS, Cooperative Fish Tagging Registry, and the Maryland Duck Blind License Issuing System (MD BLIS).

Contact: Lila Wills (lborge@vt.edu)

MILITARY LANDS

The Military Lands Division (MLD) is devoted to natural resource

research and support for United States Military Installations worldwide. MLD personnel are experienced with working on military installations, and are able to assist military land managers in a variety of land management issues.

The MLD mission is to provide research and natural resources technical support to all branches of the Department of Defense. The core mission is accomplished through :

1. Management plan preparation,
2. Planning level surveys,
3. Forest management & inventory,
4. Integrated Training Area Management,
5. GPS training & support,
6. GIS support, and
7. NEPA documentation.

Contact: Verl Emrick
(vemrick@vt.edu)

HUMAN DIMENSIONS

The Human Dimensions Division (HDD) focuses on the "human" aspects of natural resource management. We explore the relationships between the natural resource (fish, wildlife, habitats) and

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(Division Reports continued from page 4)

the human resource (the people who use them). Our mission is to examine and learn to use these relationships to improve conservation decision making capabilities.

The HDD brings together an array of skills, tools, and perspectives from social science disciplines as well as a solid background in natural resource management, GIS, and information technologies. Some tools we use include:

1. Mail and telephone surveys,
2. Focus group meetings,
3. Demographic analyses,
4. Natural resource economics,
5. Recreation management & planning,
6. GIS integration of human dimensions data,
7. Spatial & temporal modeling of socioeconomic issues, and
8. Risk assessment & prioritization.

Contact: Julie McClafferty
(jmccclaff@vt.edu)

OUTREACH & EDUCATION

The Outreach and Education Division (OE) realizes that many professionals rely on conferences and continuing education sessions to sharpen their skills and keep professional knowledge current. The OE was thus

created to provide quality, affordable continuing education opportunities for natural resource professionals.

We strive for flexibility in course offerings and a customized approach for each session. Current course offerings include instruction in GIS basics, aerial videography, computer applications, database management, and metadata management. In addition to the professional training opportunities we offer, we also take an active role in youth education.

Contact: Andy Rosenberger
(anrosenb@vt.edu)

INTERNATIONAL RESEARCH

The International Conservation Division's (ICD) mission is to take the overall CMI mission overseas and build up the capacity of developing nations for conservation action. We provide services for developing countries' agencies and organizations needing:

1. Biodiversity conservation
2. Environmental monitoring
3. GIS & remote sensing
4. Training for native researchers
5. Outreach & education
6. Data management
7. Protected areas capacity building

The ICD currently has alliances in

Afghanistan, Belize, Columbia, Egypt, Madagascar, Mexico, Morocco, Nicaragua, and the Ukraine.

Contact: Khaled Hassouna
(hassouna@vt.edu)

OTHER DIVISIONS

CMI also has 3 other divisions under development. The Ecological Restoration Division will focus its research on endangered species propagation, ecological processes, fire ecology, mined-land reclamation and acid mine drainage, global climate change, plant community restoration, erosion control, and other topics falling under the term "Restoration Ecology". The Conservation Genetics Division uses technological advances in genetics research to perform population viability analyses and biodiversity studies and to assist with population management. The Invertebrate Research Division examines invertebrate linkages to wildlife habitats, vector borne diseases, plant communities, aquatic habitats, biological control, and soil restoration.

Contact: Jeff Waldon
(fwiexchg@vt.edu)



Yellow-nosed albatross seen on the beach of Fire Island National Seashore (Long Island, NY) in May 2000. Photo taken by Scott Klopfer of CMI.

*— Affiliates Spotlight —**Organization of Fish and Wildlife Information Managers****Who is OFWIM?***

The Organization of Fish and Wildlife Information Managers (OFWIM), established in 1993, is a nonprofit organization whose goal is to promote the management and conservation of natural resources by facilitating technology and information exchange among fish and wildlife information managers.

In achieving its mission, OFWIM coordinates with other fish and wildlife agencies and professionals, participates in outreach activities, provides technical assistance to managers, and provides continuing education programs for wildlife professionals. Regular activities include publishing a newsletter (3 times each year), sponsoring annual national meetings (see announcement below), sponsoring regional meetings, providing and participating in training sessions, and maintaining

the FWIM-L list server. OFWIM members include:

- General Members (individuals),
- Government Members (state, federal, and international agencies), and
- Sponsoring Members (for-profit organizations)

How is CMI involved?

The CMI has been intricately involved in OFWIM since its inception. Numerous CMI personnel have served as officers and executive committee members in OFWIM including Amy Martin, Karen Reay, Jeff Smith, Lila Borge Wills and Jeff Waldon. CMI staff members have served on or are currently serving on various committees, including the Outreach Committee, Technology Trends Committee, Membership Committee, Communications Committee, Data Standards

Committee, and the Continuing Education Committee.

CMI regularly partners with OFWIM in coordinating projects with Federal and State sponsors. Recent projects include the Freshwater Fisheries Data Summit, State Biodiversity Database Survey, NBII Metadata Training, and the upcoming Fish and Wildlife Data Summit. With similar visions, OFWIM and CMI efforts compliment each other in a unique relationship, assisting fish and wildlife data managers to further share information and work together.

For more information about OFWIM, visit their web site (<http://www.ofwim.org>). For more information about CMI's involvement in data management projects, contact Lila Borge Wills (lborge@vt.edu).

— Conference Announcement —

Data managers and biologists from all conservation organizations are encouraged to attend the...

2002 National Fish and Wildlife Data Summit

November 1-5, 2002 at the Radisson Plaza Hotel in Baltimore, MD

Sponsored by:

The Organization of Fish and Wildlife Information Managers
National Biological Information Infrastructure

Summit Goals:

- Promote improved databases and access to databases
- Improve coordination & communication between database managers
- Obtain input about major issues confronting database development at the state and federal levels
- Discuss methods for enhancing collaboration and exchange of data among state and federal agencies;
- Explore how federal agencies and states can work together to advance fish and wildlife information systems.

**Includes the 2002 Annual Meeting of the Organization of Fish and Wildlife Information Managers.
Travel assistance for state fish and wildlife personnel available!**

*Want to see some of our work?
Check out the following websites!*

CMI, Home Page: <http://fwie.fw.vt.edu>

GIS & Remote Sensing Division

Virginia Gap Analysis: <http://fwie.fw.vt.edu/WWW/vagap/frames.html>

National Land Cover Pattern Database: <http://aegis.er.usgs.gov/nlpd/asp/index.htm>

Wertheim National Wildlife Refuge: <http://fwie.fw.vt.edu/WWW/CMIGIS/WertheimVegMap.html>

Fire Island Nat'l Seashore, NPS Vegetation Mapping: <http://fwie.fw.vt.edu/WWW/CMIGIS/FIISvegmapping.html>

Fish and Wildlife Information Exchange Division

Master Species Databases by State: <http://fwie.fw.vt.edu/WWW/spp.htm>

State Biodiversity Database Survey: <http://fwie.fw.vt.edu/WWW/nbs.htm>

Web Development Samples: <http://fwie.fw.vt.edu/WWW/nframes/develop.htm>

Cooperative Fish Tagging Registry: <http://fwie.fw.vt.edu/tagging/>

Conservation Management Institute
Virginia Polytechnic Institute and State University
Mail Code 0534
203 W Roanoke Street
Blacksburg, VA 24061