



FE 357. GIS and Forest Engineering Applications

Week 9



Week 9

- Last week:
 - Chapter 12: Synthesis of Techniques Applied to Advanced Topics
 - Chapter 10: Updating GIS Databases
- Questions?



Week 9 Topics

- Lab final
- Final project
 - Schedule
- Contemporary GIS issues
 - Chapter 15: Trends in GIS Technology
 - Chapter 16: Institutional Challenges and Opportunities Related to GIS
 - Chapter 17: Certification and Licensing of GIS users

Lab final

- During your lab time next week
- Will have most of lab period (1 hour, 50 minutes)
- Open book

Final Project

- Written report due on Friday, December 2
- Result should include a spatial summary or comparison of some natural resource area

Final Project Guidelines

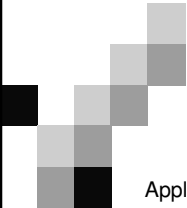
- Three to five double-spaced, typed pages
 - Grammar, punctuation, spelling
 - Make sure you proof read
- Minimum of two 8.5 x 11 inch maps (location & results)
- What you intend to do and why it's important (Introduction)
 - Set the stage for your project
 - Why are you looking into this issue?
 - Why should others care about this topic?

Final Project Guidelines

- How you did it (Methods)
 - Describe your data
 - Scale, quality
- What you found (Results)
- Relevance and implications (Discussion)
 - Usefulness of your study
 - Problems and/or successes with methods

Next week

- No lecture
- Time for your project
- Lab final



Geographic Information Systems
Applications in Natural Resource Management

Chapter 15
Trends in GIS Technology

Michael G. Wing & Pete Bettinger

High-resolution databases

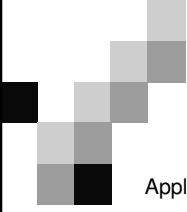
- Precision forestry and precision agriculture have become recognized disciplines
- Applications seek to use digital technologies for improving or making more efficient natural resource management activities
- The term “precision agriculture” has been in use for over ten years while precision forestry has recently gained popular usage
 - The first formal recognition was at the 2001 UW Precision Forestry Symposium

Precision forestry applications

- Using electronic distance measuring tools to capture precise spatial positions of forest landscape features
- Capturing precise and timely satellite imagery to assist in monitoring threats to forest health (fire, disease, floods)
- Developing precise, fine-scale DEMs to identify steep forested areas that may be susceptible to landslide activity

Challenges for precision forestry


- In contrast to precision agriculture applications, forestry landscapes have dense canopy cover and typically mountainous terrain
- This limits the use of technologies such as GPS or airborne remote sensing technologies
 - With GPS, scheduling data collection during “leaf-off” periods or times of strong satellite geometry can improve reception



Geographic Information Systems
Applications in Natural Resource Management


Chapter 16
Institutional Challenges and Opportunities Related to GIS

Michael G. Wing & Pete Bettinger



Successful GIS implementation

- The costs of implementing and managing a GIS will vary from one organization to the next
- Perhaps the strongest factor contributing to success is an organizational commitment from within the upper levels of management
- This commitment needs to view implementing GIS as a long-term process
 - There are likely to be failures and unexpected challenges, particularly during the initial stages of implementation
- GIS users should communicate their support for GIS to management
 - When technical difficulties arise, communication may also help managers understand that sometimes changes are needed to implementation processes

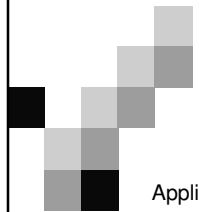


Being realistic about GIS

- GIS projects and analysis will typically require more time, effort, and other resources than initially estimated
 - Can be tough on expectations for rapid success
- User training must continue
 - Workshops, continuing education

Being realistic about GIS

- Project objectives, rather than other measures, should be emphasized and can keep personnel focused when setbacks occur
 - Objectives can provide standards to judge project success
 - Achievement benchmarks can also bolster support when the going is tough
 - Involving GIS users, in addition to management, in the planning process may also increase effectiveness
 - Users are probably the best qualified to assess whether tasks can be completed



Geographic Information Systems
Applications in Natural Resource Management

Chapter 17
Certification and Licensing of GIS users

Michael G. Wing & Pete Bettinger

GIS certification and licensing...

- Is the most contentious issue facing GIS today
- Has no clear answer in immediate sight
- Must be resolved
- Is fascinating as it is an acknowledgement that GIS has “arrived” and has an important role in contemporary society
- How did we get to this point?

GIS licensing and certification?

- Disputes have arisen between the surveying, photogrammetry, and GIS professions
 - Initially over non-surveyors using GPS equipment and claiming accuracies
 - Most states have legislation stating that only surveyors and/or engineers are qualified to record and report measurements of earth's features
 - Have initiated legal challenges in several states
 - Generally, these challenges have been successful: don't collect data unless you're licensed to do so
 - Who is trained to collect, process, and map spatial data?
 - In what capacity?

GIS community

- Has never required certification or licensing
- Very loosely organized in terms of a legislative presence
 - Can't compete with land surveying and engineering boards
- ASPRS was the first organization to offer a nationally recognized certification program
 - Few enrollees (n = 64 in Nov 2010, 59 in Nov 2009)
- URISA has built an experience-based certification program (2003)
 - No exams
 - Become a "GISP" after portfolio and payment submitted (n = 4716 in Nov 2010, 4,600 in Nov 2009)

NCEES

- The National Council of Examiners for Engineering and Surveying (NCEES) has drafted a "Model Law" that identifies surveying activities:
 - Using GIS to:
 - Determine earth's features
 - Subdividing land
 - Locating control points, reference points, property
 - Survey license required!

How do you become a professional land surveyor?

1. Graduate from a four year ABET-accredited land surveying or engineering curriculum
2. Take and pass eight-hour Fundamentals of Land Surveying exam (50% average passing rate)
3. Accumulate four years of land surveying experience under the guidance of a professional land surveyor
4. Successfully pass a six-hour national exam (70% passing rate)
5. Successfully pass a four-hour state (in Oregon) essay exam (40% passing rate)
 1. Most states require a two-hour exam

The need for licensing

- Most professions have licensing
 - Defines standards necessary for competence
 - Education
 - Internship
 - Exams
 - Protects public welfare and safety
 - It is this quality that many proponents of licensing point make reference to
 - Fire hydrants
 - Emergency route mapping
 - Facility locations
 - Control and enforcement
 - Who makes sure that competency exists?

Is licensing/certification necessary for the GIS community?

- It depends but...
- Until a national certification program is recognized and respected, GIS users will find themselves struggling with state and federal regulatory groups, other professions, and with each other for control of GIS activities
