NATURAL RESOURCE TECHNICIAN

The Natural Resource Technician conducts inventories, implements plans, evaluates land potential, and manages for multiple use to meet natural resource management objectives.

General Areas of Competence (In Bold) and Specific Tasks

A. *Conducting natural resource inventories (i.e., timber, forest, wildlife, botanical, cultural, archeological, hydrological, recreational)

- A-1 Identify property ownerships
- A-2 Interpret aerial photos
- A-3 Review existing inventory information
- A-4 Develop preliminary map
- A-5 Perform sampling techniques & follow standards
- A-6 Collect and record data
- A-7 Interpret soil and water characteristics
- A-8 Identify insect and disease problems
- A-9 Summarize and report data with map

B. *Conducting land potential assessment activities

- B-1 Conduct ecological surveys
- B-2 Conduct natural resource inventories (see category A)
- B-3 Identify plants, soils, topography, aspect, and geology
- B-4 Record and enter field data
- B-5 Use field key results to develop prescriptions

C. *Delineating property boundaries

- C-1 Identify and comply with laws and regulations
- C-2 Identify property ownerships
- C-3 Read and interpret land survey records
- C-4 Locate existing survey markers
- C-5 Collect and record data
- C-6 Delineate and mark property lines
- C-7 Inform adjacent land owners
- C-8 Map property lines

D. Protecting natural resources from fire

- D-1 Implement fire prevention program
- D-2 Obtain required training and meet physical standards (e.g., S130190)
- D-3 Prepare and maintain equipment
- D-4 Monitor fuel/fire conditions
- D-5 Monitor weather patterns
- D-6 Assist in development and implementation of fire detection plan
- D-7 Respond to and suppress wildland fires
- D-8 Prepare fire report
- D-9 Rehabilitate fire-damaged area
- D-10 Document rehabilitation activities

E. Administering Contracts

- E-1 Identify and comply with environmental laws and regulations
- E-2 Become familiar with regulations and specifications of contract

ATEEC DACUMS

E-3 E-4 E-5 E-6 E-7 E-8 E-9 E-10 E-11	Interpret soil and water characteristics Identify desired outcomes Notify affected parties Communicate specifications with contractors Monitor compliance of contractors and record deviations from contract Document communications with contractors Resolve conflicts between contractors and administrator Recommend penalties for deviations from contract Authorize payment and/or close contract
F. Maintaining public relations	
F-1	Interact with public
F-2	Investigate complaints
F-3	Resolve conflicts with customers
F-4	Develop educational materials
F-5 F-6	Participate in and/or educate community groups Communicate with media
F-7	Communicate with media Communicate with public about environmental laws and regulations
G. Developing, managing, and maintaining recreational facilities and opportunities	
G-1	Assess recreational values and needs
G-2	Inventory facilities (see category A)
G-3	Identify maintenance needs
G-4	Maintain recreational facilities
G-5	Map and design recreational trails and basic facilities
G-6 G-7	Coordinate with various user groups and/or agencies Construct or contract for development of recreational facilities
G-8	Patrol, educate, and communicate with public
G-9	Enforce rules and regulations (see category L)
H. Ass	isting in preparation of timber harvest
H-1	Identify property ownerships
H-2	Coordinate activities with other disciplines
H-3	Examine existing inventories
H-4 H-5	Interpret aerial photos
п-э H-6	Develop preliminary map Delineate and mark property and sale lines (see category C)
H-7	Cruise timber
H-8	Appraise products and values
H-9	Identify harvest constraints
H-10	Interpret soil and water characteristics
H-11	Identify insect and disease problems
H-12	Incorporate wildlife habitat guidelines
H-13	Identify and comply with environmental laws, regulations, and guidelines
H-14 H-15	Develop silvicultural prescriptions
H-16	Develop timber sale contract specifications Administer contract (see category E)
I Aecid	sting in wildlife/fisheries management activities
1. Assi:	Conduct population surveys
l-2	Coordinate activities with other disciplines
I-3	Work with various user groups and/or agencies
I-4	Identify property ownerships
I-5	Identify habitat types and needs
I-6	Comply with environmental laws, regulations, and guidelines
I-7	Implement prescriptions

ATEEC DACUMS

- I-8 Administer contracts (see category E)
- I-9 Evaluate results
- I-10 Summarize and report results
- I-11 Update inventory records

J.Managing forest health

- J-1 Obtain and maintain certification for pesticide application
- J-2 Monitor timber stands for forest health problems
- J-3 Map problem areas
- J-4 Report problem to supervisor and to insect & disease specialist
- J-5 Comply with environmental laws and regulations
- J-6 Develop prescription to mitigate problem
- J-7 Implement prescription
- J-8 Monitor success of prescription

K. Conducting forest development activities

- K-1 Developing and maintaining roads:
 - a. Identify and comply with environmental laws, regulations, and guidelines
 - b. Monitor road conditions
 - c. Maintain roads
 - d. Lay out and design roads
 - e. Develop and administer contracts (see category E)
 - f. Deactivate and close roads
- K-2 Conducting reforestation activities:
 - a. Conduct site assessment
 - b. Identify and comply with environmental laws, regulations, and guidelines
 - c. Determine site preparation needs
 - d. Develop prescription
 - e. Determine stock requirements
 - f. Implement prescription
 - g. Administer contracts (see category E)
 - h. Evaluate results
 - i. Conduct survival surveys and record data
 - j. Summarize and report survey results
 - k. Update inventory records
- K-3 Conducting timber stand improvement activities:
 - a. Evaluate timber stand composition and structure
 - b. Comply with environmental laws, regulations, and guidelines
 - c. Develop prescription
 - d. Administer contracts (see category E)
 - e. Evaluate and report results
 - f. Update inventory records

L. Enforcing natural resource policies, laws, and regulations

- L-1 Research current policies, laws, and regulations
- L-2 Recognize violations
- L-3 Gather evidence
- L-4 Document violations
- L-5 Report violations to proper authority
- L-6 Write citations and appear in court, if necessary
- L-7 Verify that remedies were met

PANEL MEMBERS:

Cheryl J. Adams, Forest Ecologist, UPM-BlandinPaper Co., Grand Rapids, Minnesota

ATEEC DACUMS

Mike Aultman, Natural Resource Technician, DNR Forestry, Deer River, Minnesota Leanne Egeland, Biological Science Technician, North Central Research Station, Grand Rapids, Minnesota

Mike Gibbons, Staff Forester, Itasca County, Grand Rapids, Minnesota

Mark Jacobs, Assistant Land Commissioner, Aitkin County Land Department, Aitkin, Minnesota Beth Jacqmain, Forester, Rajala Companies, Grand Rapids, Minnesota

Brad Jones, District Forester, Itasca County Land Department, Grand Rapids, Minnesota

Christopher D. Kottke, Engine Captain, USDA Forest Service - Chippewa National Forest, Deer River, Minnesota

Greg Moritko, Labor Trades & Equipment, Minnesota DNR Trails & Waterways, Grand Rapids, Minnesota

Jay (Bart) Tobin, Wildlife Technician, U.S. Forest Service, Blackduck, Minnesota

CO-FACILITATORS

Cindy Lake Cary, Instructional Designer, The Advanced Technology Environmental Education Center (ATEEC), Bettendorf, Iowa

Gloria Hanne, Project Coordinator, The Advanced Technology Environmental Education Center (ATEEC), Bettendorf, Iowa

COORDINATOR:

Harry Hutchins, Natural Resource Instructor, Itasca Community College, Grand Rapids, Minnesota

SPONSORS:

Itasca Community College, Grand Rapids, Minnesota National Science Foundation

CRITICAL KNOWLEDGE AND SKILLS

Basic Orienteering, including:

- Reading maps/aerial photographs
- Using a compass
- Pacing/chaining
- Using Global Positioning System (GPS) receiver

Plant identification

Math Skills:

- Algebra
- Trigonometry

Computer Skills (ability to operate/use):

- Global Positioning System (GPS) receiver
- Global Information Systems (GIS)
- Database
- Data entry and editing
- Word processing
- Spreadsheets
- · Operating systems

Communication Skills:

- Good oral communication skills
- Technical writing

- Interpersonal communication
- Willingness to ask questions

Organizational Skills

Use Field Keys

Ability to Work Independently

Operating Specialized Equipment:

- Extensive training/practice in using basic measuring equipment (see equipment list)
- Extensive training/practice in using hand-held data recorders
- Chainsaw safety and operation
- Ability to back up trailers
- Operate ATVs (All Terrain Vehicles) and snowmobiles

DESIRED SKILLS

Operating heavy equipment
Operating fire suppression equipment
CPR and First Aid training/certification
Defensive driving training
Personnel management and supervising

OTHER DUTIES

Goals and targets are constant/ongoing

EQUIPMENT LIST

Commonly used (every day)

- Compass
- Stereoscope
- Clinometer
- Cruising prism or angle gauge
- Diameter tape
- Relascope

Frequently used (every week)

- Global Positioning System (GPS) receiver
- Hip chain and distance measuring tape/chain
- Log scale stick
- Increment borer
- All Terrain Vehicle (ATV) and snowmobile
- Biltmore stick

Occasionally used (monthly)

- Hand-held data logger
- Chainsaw
- Metal detector
- Soil auger
- Axe