Forestry Core Curriculum Lab Style Manual

As natural resource professionals you will be responsible for communicating with a diverse group of individuals, from landowners to industry personnel to state and federal employees. The ability to clearly and concisely convey complex information in an interpretable and respectful manner will be important to your success in almost any career you choose.

To practice and further develop your written technical communication skills, reports in FOR 111: Introduction to Forestry, FOR 205: Forest Biometrics, FOR 209: Forest Ecology, FOR 240: Wood Science, FOR 251: Intro to Recreation and Human Dimensions, FOR 310/325: Field Silviculture / Timber Cruising, FOR 323: Land Management, FOR 329: Harvesting and Processing, FOR 347: Silviculture, FOR 409: Forest Hydrology, and GIS 390: GIS in Natural Resources may follow a number of common document formats that you will encounter in your career. The purpose of this manual is to give you guidance in proper formatting of these documents. Grading of reports in any of these courses may focus on improving your ability to communicate via writing to a number of different target audiences. This manual contains formats and examples for:

**Letter:** A letter is a signed document that can be used to communicate almost anything. Letters are often used by professionals to communicate with landowners or other non-professional audiences.

**Email:** Email represents the primary method of communication in the business-professional world. Formal emails are often preferred over snail mail due the reduced amount of time to receive a response.

**Memo:** A memo is a brief technical document that addresses a specific subject. Memos are often used by industry, university, and state and federal agency employees to communicate both within their organization and between organizations.

**Technical Report:** A technical report is an often lengthy document that more thoroughly analyzes and describes solutions to a specific problem based on data. Technical reports are used by industry, university, and state and federal agency employees to describe a problem, synthesize relevant background material, explain methods used to generate solutions, and explain proposed solutions. Technical reports are prepared to meet specific legal requirements by many agency personnel (e.g., NEPA EIS reports).

**Tables and Figures:** Natural resource professionals commonly need to communicate technical and spatial data. The ability to summarize and report such data within any of the above document formats can greatly improve your ability to communicate complex results concisely. This manual also includes formatting guidelines and examples of tables and figures (e.g., graphs, and maps).

**A word on page limits:** In your professional career you will find that there are often no hard and fast rules on page limits, or that page limits may vary depending on what type of document you are writing and its intended purpose. As a general rule, always try to be as clear and concise as possible. Professionals are busy, and don’t want to waste time reading unnecessary material. In your courses, always check with the professor to determine if there are specific page limits for assignments.
LETTER FORMAT

Your Name
Your Street Address
Your City, State Abbreviation  Zip Code

Date (Month Day, Year)

Name of person you are sending it to w/ title (Mrs./Ms./Mr./Dr.)
Business or Agency (if applicable)
Street Address
City, State Abbreviation  Zip Code

Dear Mr. / Mrs. / Ms. / Dr. Landowner,

Paragraph 1  content content content content content content content content content content content content content content content content content content content content content content content content content content content

Paragraph 2 if needed  content content content content content content content content content content content content content content content content content content content content content content content content content content content

Paragraph 3 if needed  content content content content content content content content content content content content content content content content content content content content content content content content content content content

Salutation (e.g., Sincerely,),

Your Signature

Your Name
Your Title

cc: Names of anyone your sending a copy to. Omit if none
Enclosure (include only if you are enclosing something else)
July 29, 2011

Mr. John Q. Landowner
123 FM 1000
Nacogdoches, TX 75965

Dear Mr. Landowner,

On July 18 a field crew from SFA cruised the timber on your property at 123 FM 1000 in Nacogdoches County as we previously discussed. Based on these data we created a silvicultural prescription designed to assist you in managing your forest. Please find this prescription including stand and stock tables for your timber enclosed.

I would recommend that you contact Mr. John Boyette at the Texas Forest Service to work with you on developing a forest stewardship plan. He can also assist you with obtaining Tree Farm Certification.

Please feel free to contact me if any questions arise regarding the prescription or cruise data.

Sincerely,

Jeremy Stovall, Ph.D.
Assistant Professor of Silviculture

cc: Mr. John Boyette, Texas Forest Service
Enclosure
Business Professional Emails

Emails sent to businesses, colleges, agencies, and, yes, your instructors at SFASU should be constructed in a professional manner. Maintaining a high-degree of professionalism can save you a lot of embarrassment. Thus, lingo/jargon commonly used among your peers in text messages and chat apps. should be avoided. It is recommended that you use your school email for all professional correspondence at this stage in your career. Avoid including security-sensitive information (e.g., social security #, student id #, grade or health information,…). Double-check spelling, grammar, and typos prior to sending.

Emails should follow a similar format to letters. A concise subject line should be used to inform the recipient of the content of your email. Emails should include an appropriate salutation with name and prefix of recipient, introduction of yourself, text body, closing, and your signature and contact information. If you attach a document be sure to either indicate in your email or list “Attachment” below your signature. If you copy the email to anyone, use “cc:” and list name and title (see example below).

Email Example 1: Student to Instructor

Dear Dr. Kidd,

I am in your Spring 2018 Forest Ecology class. I am contacting you to gain more information on joining the Student Chapter of the Society of American Foresters at Stephen F. Austin State University. I recall you mentioned an upcoming meeting in lecture last week after highlighting the importance of getting involved in a professional organization.

Thank you for your time and I look forward to hearing back from you.

Sincerely,

Cullen Smith

(FOR 209)

cc: Dr. Hans Williams, Dean of Arthur Temple College of Forestry & Agriculture (if needed)
Attachment (if needed)
Email Example 2: TFS Forester to Landowner

Dear Mr. Tolbert,

I am the District Forester for the Jacksonville District, which assists forest landowners in Cherokee County. We would be more than happy to meet with you and discuss management of your forested property. I noticed in the previous emails that Dr. Williams offered the services of SFA students to inventory and produce a management plan for you. Being a graduate of SFA myself, I remember writing forest management plans for landowners and the learning a great deal while gaining excellent experience.

Were you leaning towards having the SFA students complete your plan or would you like for us to write one for you? If you'd like for us to write one for you, it will be approximately 3 months before we are able to schedule a visit. If you ask SFA to complete the plan, we would still be available for consultation if you'd like.

Sincerely,

Robert Langford

Robert T. Langford, CF
District Forester II
Texas A&M Forest Service
Jacksonville District
MEMORANDUM

TO: Who is the report to, may include contact info
FROM: Your name here, sign your INITIALS
DATE: Today’s date here with month written out
SUBJECT: Brief description of content (a title basically)

The first paragraph is located here. The first sentence should be an introductory sentence, introducing the reader to what the memo covers. Each document written should use third-person and formal language. This means that words like “my” or “I” should not be included. Contractions such as “don’t” or “can’t” should also be avoided. The first paragraph is likely to be an introduction or explanation of the purpose of your memo. This might include the first topic that needs to be covered without an introduction.

The second paragraph is next. When a citation or reference to something else is needed you can add one by saying something like (Table 1) or the data are included in Table 2. Because a memo is a short document, then it could be as short as this or it could be longer depending on the purpose. If the memorandum goes more than one page, then page numbers should be included, except for the first page, at the bottom of each page. The length of a memo will be determined by the amount of material covered in lab. If there are tables or attachments then they should be attached to the back of the document and given a page number in line with the rest of the document.

There should be a conclusion paragraph here to summarize the document.
MEMORANDUM

TO: Dr. Jeremy Stovall, Ph.D.;
Assistant Professor of Silviculture, ATCoFA, Stephen F. Austin State University
FROM: Penny Whisenant, PW
Research Biologist, Timber Monkey Inc.
Office: (512) 965-9688; Email: whisenanpl@titan.sfasu.edu
DATE: March 4, 2011
SUBJECT: Intermediate Treatments: Herbicide and Thinning

Thinning and herbicide applications are important intermediate operations for maintaining the health of a forested stand. Thinning is used to capture mortality, increase the value of remaining trees, earn profits in between harvests, improve the overall health of the stand, and to reduce the risk of insects and disease. Herbicides are also used to maintain the health of a forested stand by providing site prep before a planting and reducing the amount of unwanted competing vegetation midrotation.

Timber companies like the Campbell Group use thinning to promote growth of remaining trees and reduce the number of less desirable trees in a stand. This creates more space and allocates site resources for the remaining trees, which often improves diameter growth rates versus unthinned stands. Thinning also can release trees from lower canopy classes and allows them to grow. Types of thinning include, low, crown, selection, geometric, and free. The Campbell group using selection thinning for bottomland hardwood stands. This type of thinning is usually used for stands with a high density of poorly formed trees and for stands with a mixture of desirable and undesirable species.

Herbicides are used to control weeds without disturbing soil, for the control of roots below the root collar, and to increase the growth of desirable species. Some different types of herbicide include but are not limited to, Velpar L, Accord XRT, and Arsenal AC. Herbicides may be applied over a large area through broadcast or banded applications, to an individual stem, through the soil, or by foliar application. Application of correct rates as described on the label is
MEMO EXAMPLE

critical to affordably obtain desired vegetation control and minimize any potential negative side
effects that can result from over or under application.

If applied correctly, thinning and herbicides can have a positive effect on a stand. There
are a variety of different methods possible for each technique. The silviculturalist should decide
which technique is most suitable for the stand according to stand density and other structural
characteristics.
TECHNICAL REPORT FORMAT

(Title of Report)

By

(Your Name)

Presented to (Instructor Name)
In Partial Fulfillment of the Requirements for
FOR (XXX)

(Date)

No page # on Cover Page (Insert Page # beginning on Second Page of Tech. Report)
TECHNICAL REPORT FORMAT

Introduction

The introduction should contain 1) relevant background material to give the reader context and justify the report and 2) any goals, objectives, or hypotheses that the report is addressing. Tell the reader why you are writing this report.

Methods

The methods section should contain enough information so that a reader familiar with the discipline could reproduce what was done. It also gives the reader all the necessary information to place the results in appropriate context. This includes information on where the work was completed, and the characteristics of the study sites. This might also include the forest cover types and soil series. Adequately describing locations (including latitude and longitude if available) and including relevant maps is important.

The writer should also include when the data were collected. Be specific. Many of the data foresters work with vary yearly, seasonally, and even diurnally. Also, the writer should include what was done. The reader needs just enough information to be able to reproduce the experiment / procedures. For example, stating that students measured a 1/100 acre plot is sufficient. It is not necessary to indicate the radius or how it was calculated, since the reader presumably is familiar with forestry and can do this.

The writer should be sure to include how the data were collected. Explain if there were there any specific methods used. The use of specific vocabulary and terminology is important. Reference any relevant publications that describe methods used.

Finally, the writer should include information about who did the work, including the size of the field crew who assisted with data collection.
Results

Describe what was learned, using data whenever possible. Use tables and figures (graphs) as appropriate. *All tables and figures should be placed at the END of the document, with each on a separate page.* The results section describes the data, but does not make any inferences based upon your data. Only include what the data actually say, not what they mean. What they mean goes in the discussion section.

See the style sheet for Figure and Table formatting. These are inserted into the technical report in FOR111 and referenced by noting their number (Table 1).

Discussion

Here you describe what the data mean and include any inferences or recommendations that emerge from your data. Put the results in the context of what has been done previously. Tell the reader why the results are important, and what parts of the results they should focus on the most.

Conclusion (optional)

Wrap it up in one or two paragraphs with a brief synopsis that highlights any key findings or recommendations.
Literature Cited

Use a modified APA format below to list any sources you cited in the text in alphabetical order.

Cite sources in the text as follows:

Sentence here (Oliver and Larson 1996).
According to Oliver and Larson, content content… (1996).
Sentence here (Sayer 2006).
Content content as described in Sayer (2006).
Sentence here (Adams et al. 1994).
This differs from descriptions in Adams et al. (1994).

Book Examples:

Journal Article Examples:
http://dx.doi.org/10.1017/S1464793105006846

Website Examples:
**Figure 1.** Include a complete caption with enough detail that the figure can stand alone. If someone picks up your figure and caption on a scrap of paper, they should have enough details to get a sense of what the figure means. Make sure that a figure, like this example, can be easily interpreted even if printed in black and white. Figure captions always go below the figure. Each figure always cited in the text in numbered order (i.e. figure 1 is mentioned before figure 2).
Table 1. Include a complete caption with enough detail that the table can stand alone. If someone picks up your table and caption on a scrap of paper, they should have enough details to get a sense of what the table means. Tables almost always include only 3 lines: one above the table, one below the table, and one beneath the header row(s). Do not add more lines except in the rare situation where doing so dramatically improves the clarity of the information presented in the table. Table captions always go above a table. Each table always cited in the text in numbered order (i.e. table 1 is cited before table 2).

<table>
<thead>
<tr>
<th>Sites</th>
<th>Variable 1 (Units)</th>
<th>Variable 2 (Units)</th>
<th>Variable 3 (Units)</th>
<th>Variable 4 (Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 1</td>
<td>w.www</td>
<td>x.xx</td>
<td>y.yy</td>
<td>z.z</td>
</tr>
<tr>
<td>Site 2</td>
<td>w.wwv</td>
<td>x.xx</td>
<td>y.yy</td>
<td>z.z</td>
</tr>
<tr>
<td>Site 3</td>
<td>w.www</td>
<td>x.xx</td>
<td>y.yy</td>
<td>z.z</td>
</tr>
</tbody>
</table>
Drift potential of herbicides and managing bottomland hardwoods

By

David Jamar

Presented to Dr. Stovall
In Partial Fulfillment of the Requirements for
FOR 347

March 8, 2011
Introduction

The previous two labs consisted of a lesson in herbicide drift and the field observation of a bottomland hardwood stand at various stages of intermediate thinning. Herbicide is an important tool for foresters to use in controlling undesirable or competing vegetation. When applied correctly, herbicides can provide a cost efficient, safe, and target specific means of controlling or encouraging advanced regeneration in hardwood and pine stands. Bottomland hardwoods require advanced regeneration which is achieved through the intermediate operation of thinning designed to allow more light to penetrate the canopy and reach young stems. This particular method of thinning can also be referred to as release operation and can be accomplished with many different techniques depending on the landowners’ objectives.

Methods

The herbicide lab took place on a small pine plantation northeast of Nacogdoches. The purpose was to demonstrate the importance of proper sprayer calibration as well as observe drift from the sprayers. For the calibration exercise, a 100 foot path was measured out and marked with flags. Each student attempted to walk the length of the path with a backpack sprayer in 34 seconds, which was the time needed to apply the desired rate over a given distance. The student was also applying water from the sprayer while walking so that the spraying pattern and drift could be observed by the other students.

The bottomland hardwoods observed were located southeast of Lufkin in the Shawnee Creek bottom and were managed by The Campbell Group LLC. Mr. Rob Hughes, the hardwood manager, explained the methods used when deciding how to manage bottomland hardwoods. The common guide used was the Management and Inventory of Southern Hardwoods by Putnam et al. (1960) and revised by Meadows (1996). There was a newer classification system by
Meadows and Skojac that was also being used with this management and inventory guide (2008). At the Shawnee creek site, hardwood stems between 1 and 3 feet high with a basal diameter of 0.5 to 1 inch were considered advanced regeneration. If no regeneration was present then thinning using a selection method may be needed to remove approximately 50% of the current basal area. The target DBH removed during thinning was between 6-10 inches which was completed over a period of about 3 years leaving desired species such as cherrybark oak (Quercus pagoda), ash (Fraxinus spp.), and sweetgum (Liquidambar styraciflua).

**Results**

The results of the 100 foot walk showed the difficulties in being consistent with a backpack sprayer, at least for beginners. The demonstration also showed, when applied to many acres, that inconsistencies could result in not applying enough herbicide or applying too much herbicide. This could lead to a loss of profit from using more chemicals than estimated or having to do another application from lack of sufficient coverage. Drift was noted from both of the sprayers which could cause damage to non-target species on the site and other landowners’ properties as well. However, less drift was noted from the sprayer using a larger spray tip with less pressure which created larger droplets that were less likely to be carried by the wind.

In the first hardwood stand observed, intermediate thinning was in the early stages of regeneration. Suckering was noticed on some small trees and would probably be removed in the next thinning. Some smaller suckering trees may also be left to shade the bole of desirable trees to prevent epicormic branching. The second stand showed how over 30 years of thinning resulted in an open stand with advanced regeneration, no mid-story, and hardwoods with large clear boles which is desired. Sweetgums were left as trainer trees to limit the spreading crowns and epicormic of the oak trees.
Discussion

Most problems with herbicide treatments occur in the form of hysteria on the part of the public, and heedlessness of complacent or ignorant users (Smith et al. 1997). Educating the public and applicators is important for having a successful herbicide program. Herbicide treatments are usually more effective and efficient when done during specific periods during a rotation such as at stand initiation or during a thinning operation (Smith et al. 1997). One should also know the target species, site conditions, and weather conditions when applying herbicides. This is just one of many silvicultural tools available for a landowner to use to help a plantation reach its full potential.

Hardwood management, including management of advanced regeneration, requires different expertise than managing a typical even-aged pine plantation. Spacing is not as important as in pine plantations as long as light penetration is adequate to achieve regeneration. After the first thinning, a clean-cut may be needed to help release the advanced regeneration. Stand quality often is compromised through the strict adherence to stand density management (Meadows and Skojac 2008). Guides for hardwood management are useful, but many times experience, field observations, weather, and the timber markets constrain the management of bottomland hardwoods.

Literature Cited


**Examples of Tables & Figures**

(*Note, if these were part of a technical report, each would be on a separate page at the end of the document)

**EVERY DATA TABLE** should have 1) **LABELED VARIABLES** and 2) **UNITS**.

**Table 1.** Include a complete caption with enough detail that the table can stand alone. If someone picks up your table and caption on a scrap of paper, they should have enough details to get a sense of what the table means. Tables almost always include only 3 lines: one above the table, one below the table, and one beneath the header row(s). Do not add more lines except in the rare situation where doing so dramatically improves the clarity of the information presented in the table. Table captions always go above a table. Each table always cited in the text in numbered order (i.e. table 1 is cited before table 2).

<table>
<thead>
<tr>
<th>Sites</th>
<th><strong>Variable 1</strong> (Units)</th>
<th><strong>Variable 2</strong> (Units)</th>
<th><strong>Variable 3</strong> (Units)</th>
<th><strong>Variable 4</strong> (Units)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site 1</td>
<td>w.www</td>
<td>x.xx</td>
<td>y.yy</td>
<td>z.z</td>
</tr>
<tr>
<td>Site 2</td>
<td>w.www</td>
<td>x.xx</td>
<td>y.yy</td>
<td>z.z</td>
</tr>
<tr>
<td>Site 3</td>
<td>w.www</td>
<td>x.xx</td>
<td>y.yy</td>
<td>z.z</td>
</tr>
</tbody>
</table>

**Table 2.** Product classes and stumpage price in East Texas in Nov-Dec 2010 from Timber Mart-South.

<table>
<thead>
<tr>
<th>Product Class</th>
<th><strong>Minimum DBH</strong> (inches)</th>
<th><strong>Pine Value</strong> ($/ton)</th>
<th><strong>Hardwood Value</strong> ($/ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulpwood</td>
<td>4.6</td>
<td>$6.22</td>
<td>$7.56</td>
</tr>
<tr>
<td>Chip-N-Saw</td>
<td>7.6</td>
<td>$10.44</td>
<td>---</td>
</tr>
<tr>
<td>Sawtimber</td>
<td>9.6 Pine, 11.6 Hdwd</td>
<td>$24.46</td>
<td>$23.37</td>
</tr>
<tr>
<td>Poles*</td>
<td>&gt; 12 with specific taper</td>
<td>$54.86</td>
<td>---</td>
</tr>
</tbody>
</table>

*No pole data was available from East Texas. Data is from same time period in northwestern Louisiana.*
Tables can also contain text or other information. Depending on the information, you may not need variables or units.

**Table 3.** Texas Forest Service volume conversion factors

<table>
<thead>
<tr>
<th><strong>Sawlogs - Veneer Logs</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MBF-International-1/4&quot; X 0.74 = MBF-Doyle</td>
<td></td>
</tr>
<tr>
<td>MBF-Scribner X 0.78 = MBF-Doyle</td>
<td></td>
</tr>
<tr>
<td>MBF-USFS Scribner X 0.814 = MBF-Doyle</td>
<td></td>
</tr>
<tr>
<td>Pine - 8 Tons = 1 MBF-Doyle</td>
<td></td>
</tr>
<tr>
<td>Hardwood - 9 Tons = 1 MBF-Doyle</td>
<td></td>
</tr>
<tr>
<td>2.37 Pine Cunits = 1 MBF-Doyle</td>
<td></td>
</tr>
<tr>
<td>1 Cunit = 100 Cu.Ft.</td>
<td></td>
</tr>
<tr>
<td>Pine CNS 2.7 tons =1 cord</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Pulpwood</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pine 2.7 tons = 1 cord</td>
<td></td>
</tr>
<tr>
<td>Hdwd 2.8 tons = 1 cord</td>
<td></td>
</tr>
</tbody>
</table>
EVERY GRAPH should have 1) LABELED VARIABLES and 2) UNITS.

In general the independent variable goes on the x-axis and the dependent variable goes on the y-axis. The independent variable is the variable that is unaffected by the other variable. The dependent variable depends on the value of the independent variable. Usually the independent variable is the variable we have some control over, and the dependent variable is out of our control. An example of this is the relationship of tree height to stand density. We can control stand density (through planting or thinning). We cannot control tree height. Tree height is a function of available site resources and the age of the stand. Therefore stand density is our independent variable that goes on the x-axis, while tree height is the dependent variable that goes on the y-axis.

Rules to remember:

1. Never use a fancy 3D figure when a simple 2D figure clearly displays your data.
2. Always remember that your figure may be printed in black and white. Make sure it will be easy to interpret in black and white.
3. Always label the variables and units on each figure.
4. Always include a complete caption beneath each figure.

Graphs can be of a variety of different forms intended to display different kinds of data.

Point or Line Graph: These are typically used to display the relationship between two variables.

Bar Graph: These are typically used to show the value of data grouped into a number of categories.

Pie Graph: These are only used to show how a sample population is broken down into discrete categories. Remember, if your data does not sum to 100%, then you should use a bar graph, not a pie graph. For example, percent cover data would not be appropriate to show on a pie graph, since it can sum to more or less than 100%.
Figure 1. Point graph showing content content content… Include a complete caption with enough detail that the figure can stand alone. If someone picks up your figure and caption on a scrap of paper, they should have enough details to get a sense of what the figure means. Make sure that a figure, like this example, can be easily interpreted even if printed in black and white. Figure captions always go below the figure. Each figure always cited in the text in numbered order (i.e., Figure 1 is mentioned before Figure 2).

Figure 2. Line graph showing content content content…
Figure 3. The effect of thinning on total yield and harvestable wood of an average stand. The solid lines show how the stand would continue to grow without thinning, while the dashed lines show how the stand would grow following thinning. (Note: since this graph shows trends that occur at different time scales in different forest cover types there are no numbers on the axes. This is appropriate for this figure given its objective, which is to illustrate generically how thinning affects stand growth.)
**Figure 4.** Bar graph showing content content content…

**Figure 5.** A balanced uneven-aged diameter distribution of a hypothetical stand with a basal area of 146 square feet per acre, a maximum tree size of 24 inches dbh, and a q-factor of 1.5.
Fig. 3. Clone-by-fertilizer interactions at age six for stem growth of 21 clones of *P. taeda*. Stem volume was calculated based on the empirical formula found in Burkhart (1977). Standard error bars are shown, and p-values are presented for the interactions depicted.
Figure 6. Pie graph showing content content content…

Figure 7. Composition by basal area of a typical bottomland hardwood stand in the Western Gulf Coastal Plain. Data is from McWilliams, W. H., and J. F. Rosson Jr. 1990. Composition and vulnerability of bottomland hardwood forests of the coastal plain province in the south central United States. Forest Ecology and Management 33-34:485-501.
MAP FORMAT & EXAMPLES

Maps should be prepared using GIS software whenever possible. If maps are to be distributed in electronic format, ensure that maps will be legible if printed in black and white.

At a minimum, each map should include the following:

1. Title (indicating the theme and location of the map)
2. Map body
3. Neatline
4. North arrow
5. Legend
6. Scale bar with convenient divisions (50’s or 100’s for metric; multiples of 66 for English units)
7. Appropriate labels
8. Textual or visual information that locates the map body on a larger scale.
9. Author information
10. Created date
11. Attribution of any data sources such as imagery

Many other kinds of information can be included on a map depending on what you are trying to communicate.

Neatline: A box around all the content on a map

Legend: An example of each symbol used on the map with a textual description of what it symbolizes.

North Arrow Examples:

Scale Bar Examples:
The Stephen F. Austin Experimental Forest was created in 1945 by an act of Congress. It spans a total of 2,648 acres (1,072 hectares) in Nacogdoches County, TX. Access is off Farm to Market Road 2728 between State Routes 7 and 59.
Transect Lines and Plot Locations in the Ball Park Complex, Nacogdoches County, Texas

Table 1. Acreage of each stand, including buffers in the ball park complex, Nacogdoches County, TX.

<table>
<thead>
<tr>
<th>Stand/Area</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Stand</td>
<td>42.89</td>
</tr>
<tr>
<td>Fine Stand</td>
<td>5.03</td>
</tr>
<tr>
<td>HDWD Stand</td>
<td>33.54</td>
</tr>
<tr>
<td>Buffer Area</td>
<td>4.32</td>
</tr>
</tbody>
</table>

Legend:
- Upland Hardwood Pine
- Fine Stand
- Ball Park Complex
- SMZ
- Streams
- Transect Lines
- Plots

Created by Penny Whitman, Katherine Syrung, Jeremy Priest
Date: 5/31/11
Source: Texas Natural Resource Information System (TNRIS), Walker GIS Lab, Arthur Temple College of Forestry and Agriculture.

Prepared by Drs. Jeremy Stovall and Rebecca Kidd
Revised 01.07.2020
Forestry Style Manual: Page 30 of 31
A Note on Using Maps as Figures in Technical Reports

Maps may sometimes be used within the body of a technical report. In this case, maps should be treated and labeled as a figure. When used as a figure, maps often do not include all the components listed on page 18. Rather, text and features on maps used as figures should be minimized as much as possible to communicate the map’s desired content as clearly and concisely as possible.

**Figure 1.** Map of study sites in the 2.5 x 10^6 ha Adirondack State Park in upstate New York, USA. The location of the park in New York State is shown in the inset, and the towns of Old Forge and Saranac lake are included on the map for reference. Site labels are locations (ALC, Adirondack League Club private reserve; FPW, Five Ponds state wilderness area; HPW, High Peaks state wilderness area; and PLW, Pigeon Lakes state wilderness area) followed by stand age class (M, mature; OG, old-growth).