

OUTREACH TO LIMITED RESOURCE FOREST LANDOWNERS: EXTENSION INNOVATION FOR LOW LITERACY AUDIENCES

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ABSTRACT

We find that existing forestry extension and educational materials provided by public agencies in the southeastern United States generally require some knowledge of technical forestry terms, are written at a reading level above the average literacy level in many rural counties, and are likely to frustrate low literacy readers due to factors such as small font size and few illustrations. As part of a research and education project, we are producing two tiers of new and revised outreach materials: one targeted at low literacy landowners, and the second targeted at people who work with such landowners. Both tiers of publications start from basics, are written in non-technical language, and have many illustrations that are closely related to the text and relevant to the intended audience. While these are simple principles, their implementation can be complicated. We offer examples from our new publications and a set of specific guidelines for developing forestry outreach materials appropriate for limited resource and traditionally underserved forest landowners.

INTRODUCTION

Privately owned forests are of great social and economic significance in the southeastern United States. However, the benefits of forests and forestry are not equally accessible to all forest landowners. Landowners who participate in commercial forestry (resulting in sale of timber and non-timber products) characteristically have relatively large amounts of land, high incomes, and easy access to both governmental and private programs that offer technical and financial assistance. While not all of these landowners are engaged in commercial forestry, this usually reflects a deliberate choice about forest land management. In contrast, limited resource landowners are much less likely to have sufficient information, contacts, financial resources, and the scale of forestland required to make active forest management a viable option. These landowners often face financial and institutional obstacles, such as limited access to credit and heir property issues (Mitchell 2001, Dismukes, Harwood, and Bently 1997, USDA 1998). Minority landowners are particularly affected because of the history of discrimination in land tenure and public assistance programs in the Southeast (Dismukes et al. 1997, USDA 1997).

We suggest that these factors are often compounded by low literacy levels. If forestry and extension programs are to provide an equitable

distribution of benefits to all segments of society, we need to restructure the methods by which we present forestry knowledge, in order to reintegrate these landowners into productive forestry practices.

CONSTRAINTS ON PARTICIPATION IN THE FOREST ECONOMY

While there is no generally agreed upon definition of limited resource landowners, they typically have (a) small acreages of farm and/or forest land, (b) limited access to capital, and (c) low annual incomes. (See Figure 1). As discussed in a recent panel at the Society of American Foresters Convention,

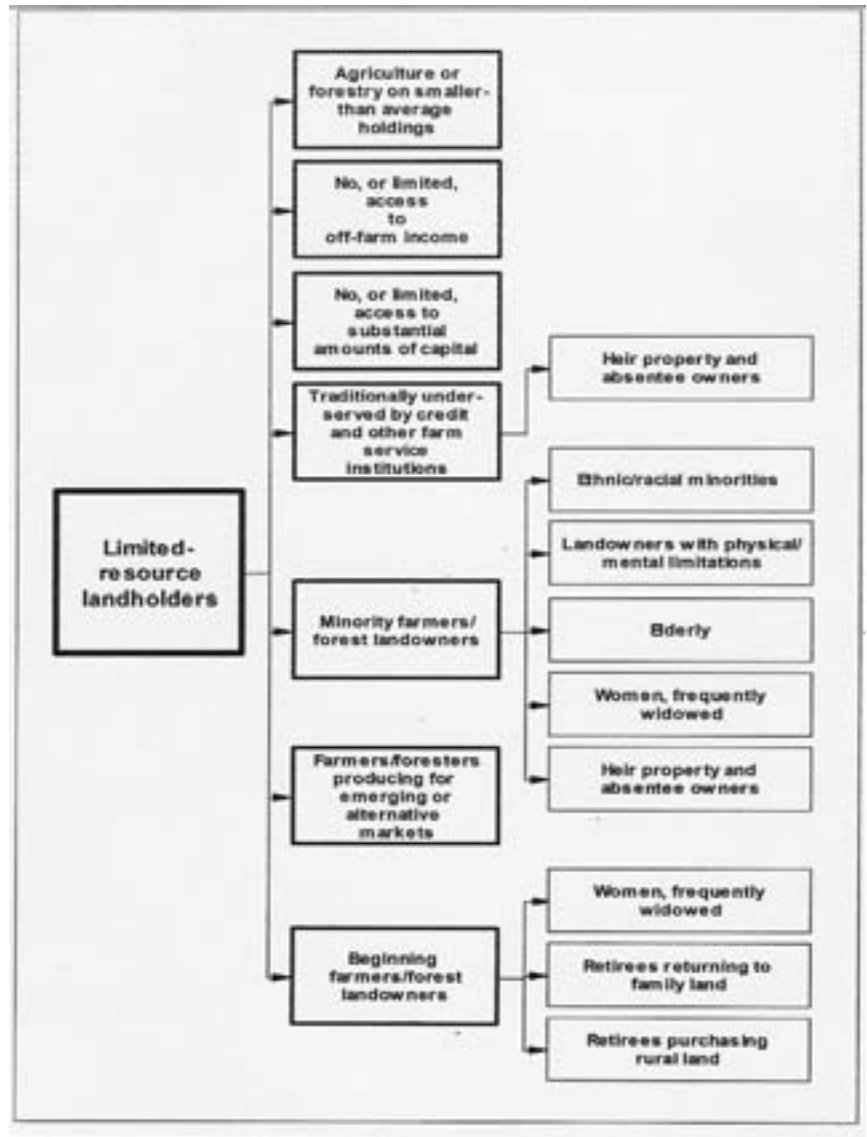


Figure 1: A typology of limited resource landowners

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“these economically challenged people are ‘poor’ not only in terms of financial and physical resources, but also in terms of motivation and self-confidence. Low educational and literacy levels limit their ability to seek forestry assistance and their comprehension of forest product markets and cost share or incentive programs. Immediate concerns often supersede long-range planning, and they may be reluctant to pay for timber sale or reforestation advice. Without such professional advice or agency assistance, less-than-scrupulous timber buyers easily prey upon them. Predatory procurement practices (such as undervaluing standing timber or poaching timber) are all too common” (Warren et al. 2002).

Institutional and structural constraints limit participation in cost share and incentive programs through various mechanisms, resulting in significant groups of landowners being “underserved” by public agencies. Minority landowners may be reluctant to seek assistance, because the long history of discrimination by federal and state agencies has created high levels of distrust and suspicion (Dismukes et al. 1997, USDA 1997). Understaffing of public agencies may encourage personnel to focus on the landowners who most actively seek out assistance and who are perceived as most likely to succeed. The shared background of extension agents, assistance foresters, forestry service providers, and large successful forest landowners may also act as a barrier to participation by less knowledgeable landowners. Because agencies most often work with landowners who have some experience and knowledge of forestry, workshops and written materials tend to be pitched to these audiences (Warren et al. 2002). Excluded groups include women who have inherited land but lack sufficient forest management and financial skills and retirees from cities and towns, who are not familiar with land management of any kind (Warren 2002). In summary, limited resource and traditionally underserved landowners often have insufficient market knowledge, tend to receive less time and attention from private and public service providers who expect higher returns from working with large landowners, and lack educational and outreach materials targeted to their specific needs.

THE SUSTAINABLE WOODLANDS PROJECT

The research team at North Carolina State University and North Carolina A&T University has created a new program under a grant from USDA SARE: The Sustainable Woodlands Program. Its goal is to strengthen the capacities of limited-resource and traditionally under-served forest landowners throughout the Southeast so that they can manage their natural resource base in a manner that is both sustainable and profitable. This requires overcoming financial and institutional impediments to landowner participation in the forest products and services sector. Overcoming these impediments will not be possible without engaging forestry professionals and policy makers in dialogue about research results (Warren and Sills 2001).

In the short term, the project investigates methods for communicating with these landowners; provides improved understanding of their forest decision-making; evaluates how existing government incentives and markets for traditional and alternative woodland management options can be utilized by landowners; and increases landowner knowledge of these options through field days, workshops and demonstrations, and information campaigns. Longer-term impacts include enhanced economic, social, and environmental stability of forests, increased dialog between the client populations and service providers, more effective extension and outreach programs, improved public policies, and greater diversity and sustainability of both social and ecological systems (Warren and Sills 2001).

The project contains four objectives that will help achieve ecological and economic diversity in southeastern family forestry. Objective 1 is to develop and apply methods for identifying and contacting client landowners. Objective 2 is to describe and analyze the preferences, opportunities, and constraints that inform decision-making about woodland management. Objective 3 is to analyze and select technically proven options for woodland management that are sustainable and appropriate to family goals and economic systems. Objective 4 is to extend these options to the client population. Specifically, the research team will provide outreach guidance to agencies, private voluntary organizations, and corporations that oversee sustainable and diverse forestry/farming system initiatives, through continuing education programming and other information dissemination. Case study families will host on-farm demonstrations of management options selected based on research findings about landowners, markets, and incentive programs. Other outreach activities will include workshops or field days that highlight the on-farm demonstrations and a pilot information campaign about available support and incentive programs for woodland management and markets (Sustainable Woodlands 2004.).

The research is focused in two clusters of counties in the coastal plain of North Carolina and a contiguous county in Virginia. These counties contain high numbers of limited-resource farmers, large proportions of woodlands on farms, and considerable non-industrial private forest holdings (USDA-NASS 1997, USDA Forest Service 1990). Using a combination of survey, interview, and consultation methods, both quantitative and qualitative data are collected and analyzed on extant and proposed farming system preferences and management, opportunities for entry into existing and emerging forest product and service markets, and constraints on participation in a variety of public and private cost-share and incentive programs. Progress and results are shared through continuing education workshops, field days and on-farm demonstrations, production of educational materials in several media, publication of extension and academically oriented papers, and interim and final reports (Sustainable Woodlands 2004).

EVALUATING INFORMATION NEEDS

Under the fourth objective of the research and education project, the information needs of our target audience of limited resource and traditionally underserved landowners, and evaluating how well those needs are met by currently available outreach materials. Identifying an appropriate literacy or reading level and judging materials against that standard are key steps.

Literacy Levels

According to the National Institute for Literacy (NIFL 2004; see also Couchman, Williams, and Cadwallader 1994, and Miller 2001), literacy is not something individuals have or do not have. The institute created a literacy continuum divided into 5 levels, with level 5 indicating the highest skill level. Almost all adults in level 1 can read a little but not well enough to fill out an application form, read a food label, or read a simple children’s book. Adults in level 2 can usually compare and contrast information, or integrate pieces of information, but cannot read higher-level text and have difficulty with problem-solving skills. Adults in levels 3 through 5 usually can perform the same types of tasks, but on more lengthy and complex texts (NIFL 2004).

A survey conducted by NIFL (1992) found that 23% of American adults (age 16 or older) perform at level 1 and are at level 2. In six of the study counties of the SARE Sustainable Woodlands Project, over 60% of the population is at literacy level 1 or 2, and in four of the counties, over 75% of the population reads at these levels. We

suspect that this may be typical of many of the South's "black belt." These counties generally are rural, with large minority populations (Baharanyi et al. 1993, Wimberley & Morris 1997).

Reading Levels

Many existing publications and other resources on forest management contain highly technical terminology, and almost all are written at reading levels inappropriate for audiences at NIFL literacy levels 1 and 2. While we focused on materials available in North Carolina, we also searched the web for materials from other southern states. Southern Region Extension Forestry and most states have extensive forestry websites where publications can be downloaded as PDF files or viewed on-line. These websites include publications written at lower reading levels, but most of these are designed for school children (e.g., through Project Learning Tree) and do not provide the technical management, legal, taxation, or marketing information needed by landowners. We found only a few materials that are clearly targeted to low literacy forest landowners, such as Winrock's [Top Dollar for Your Timber](#) (Winrock 1998) and a recent North Carolina publication on land inheritance issues (Prince 2003).

To identify more specific reading levels, we evaluated selected materials developed and distributed by North Carolina Cooperative Extension Forestry. The materials were selected based on a survey of project personnel and cooperators, including representatives from extension, research, and non-governmental organizations. Each respondent rated approximately 25 titles in terms of their importance to limited resource landowners, and we subsequently focused on the most highly rated materials, using three methods. For the first method, we developed a list of indicators of appropriate organization, language/style, and design, including characteristics such as white space, font size, paragraph length, and use of active voice. Each of these was rated on a 1 to 5 scale, with 5 representing the best. Using this method, most of the forestry extension materials are rated 2 or 3, indicating that they are "not reader friendly," or at best, they are "average."

The second method used is the Fog Index, which was originally developed by Robert Gunning (The Learning Web 2003). This index is a proven method of evaluating the readability and expected comprehension of written materials. In this method, a passage or sample from the document, containing at least 100 words, is used to evaluate the text. First, the words and sentences are counted. Next, the number of "big" words is determined. Any words of three or more syllables are considered big. Average sentence length is calculated by dividing the number of sentences into the number of words. The percentage of big words is calculated by dividing the number of words into the number of big words. This is added to the percentage of big words. To get the index score, this sum is multiplied by 0.4 (University of Minnesota Libraries 1998). The ideal Fog Index level for most readers (higher than level 2), is 7 or 8. A level above 12 indicates the writing sample is too hard for most people to read. *Readers Digest* has a Fog Index of between 8 and 9. *Time Magazine* is about 11 (The Learning Web 2003). The forestry extension materials all have Fog Index scores of 10 or more.

The third method is the Flesch tools provided with Microsoft Word. Flesch Reading Ease uses average sentence length and average number of syllables per word to rank a document on a scale from 0-100. A score of 100 indicates a document that is very easy to read, while scores in the range of 70 to 80 are considered average. Flesch-Kincaid Grade Level uses the same criteria as Flesch Reading Ease, but assigns a grade level that corresponds to the level of education required to fully comprehend the document (Center for Cognitive Science and Educational Practice 2004). The extension documents we evaluated are all rated at grade levels of 8.1 and higher, with Flesch Reading Ease scores of 33 to 68.

All three of these scoring techniques rely on mechanical rules that may produce misleading results (see Center for Cognitive Science and Education Practice 2004). However, all three techniques lead us to essentially the same conclusion: currently available forestry extension materials are generally not written at an appropriate level for the majority of people in our study counties. This finding was further confirmed through discussion with representatives of non-governmental organizations who work with limited resource landowners. All of them agreed on the need for more appropriate outreach and educational materials for landowners, with one of the key criteria being text accessible to readings with lower literacy or reading levels. Of course, other factors – including the topics addressed, assumptions about prior knowledge, culturally appropriate vocabulary and illustrations – were also identified as important and are discussed next.

DEVELOPMENT OF NEW OUTREACH PUBLICATIONS

During many discussions with extension specialists and project collaborators, one of the most difficult issues to resolve was defining the "true" target audience for new outreach materials. One concern was that we would oversimplify in an effort to keep the documents brief and at a very basic reading level. The opposing concern was that we would not meet the needs of limited resource landowners if we did not strictly focus on the information that they absolutely "need to know," leaving out "extraneous" information that would still be "good to know." As a result of these discussions, we decided to produce two tiers of publications, accommodating four audiences: 1) extension personnel and community, religious, and educational leaders; 2) forestry and natural resource professionals; 3) schools (K-12); and 4) limited resource, low literacy landowners. One tier would meet the needs of audiences 1-3. The second tier would meet the needs of 3 and 4. In practice, these tiers have become two new publication series, with a common logo representing multiple-use on small woodlands. (For examples of the publications, see the project webpage www.ncsu.edu/woodlands)

The first tier of publications provides detailed step-by-step information for example, the points that might be covered by an extension agent in a meeting with a landowner. This tier includes a guide to public and private agencies, indicating the appropriate agency for answering different questions. The key is produced as a poster the size of a desk blotter and in a web version, on the project webpage www.ncsu.edu/woodlands. We are also in the process of producing an illustrated glossary of forestry terms that will form part of this tier.

The second tier of publications is brief fact sheets. All points are explained in short sentences and are illustrated with line drawings, directing landowners towards next steps and further sources of information.

Both tiers of publications start from basics, are written in non-technical language, and have many illustrations that are closely related to the text and relevant to the intended audience. However, these are simple guidelines and their implementation can be complicated. For example, words and phrases considered by foresters to have precise technical meanings – such as "pine plantation" and "timberlands" – may have very different meanings and connotations to traditionally underserved landowners. Illustrations to show the human dimension of forestry (e.g., consultant meeting with landowner) should be reflective of the target audience, but that audience itself is diverse. Additionally, the balance between simplifying language and removing all useful information is always a difficult one.

Each draft publication was formally reviewed by university faculty, extension specialists and agents, consulting foresters, community leaders, staff of environmental organizations, an attorney, and educators. Reviewers were sent electronic versions of each document and a form with guidelines for their review, including key areas of format, organization, and content that they should evaluate. These reviews provided valuable input and resulted in significant improvements to all of the publications.

WoodsWise and TreeTips

Our first tier of publications is entitled *Woods Wise* (Fig 2). Other than the key and glossary described above, these documents closely resemble existing “Woodland Owner Notes” from North Carolina Cooperative Extension. Our focus is to increase the readability of each document through the use of simple language, explanation of concepts, and streamlining of information (removal of extraneous information). Our *Woods Wise* document has a Fog Index of 7.18. The Flesch Reading Ease score for this document is 67.4, with a Flesch-Kincaid Grade Level of 7.3.



Figure 2. Logo of Woods Wise publication

Our second tier of publications is entitled *Tree Tips*. (Fig 3.) Some of the *Tree Tips* are based on *Woodland Owner Notes* and *Woods Wise* topics, while others consist of topics about which landowners have requested assistance and which are not addressed in current outreach materials. *Tree Tips* have been written using the same readability concepts as the *Woods Wise* documents, but focusing on the use of simple, bulleted lists, removal of questionable vocabulary, more examples, larger font, and more illustrations. The average grade level for our *Tree Tips* is 5.3, with an average Reading Ease score of 77.5.



Figure 3: Logo of Tree Tips publication

The boxes containing Figures 4-6 provide examples of a passage taken from a *Woodland Owner Notes*, compared to the same subject matter as presented first in *Woods Wise* and then *Tree Tips* documents.

Further Evaluation

During the spring of 2004, the first author, a graduate student in the Department of Forestry at North Carolina State University, will evaluate four new outreach materials through two “tiers” of interviews with (1) key informants and (2) limited resource landowners. Key informants will be primarily forestry and extension professionals. Interviews will be conducted in three of the seven counties under study in the SARE Sustainable Woodlands project, including participants in forestry outreach meetings and

EXAMPLE # 1: North Carolina Cooperative Extension Woodland Owner Notes 6: Guide to Consulting Foresters

What Is a Consulting Forester?

A consulting forester represents, for a fee, the best interests of his clients in all matters concerning the forest. A consulting forester can improve the quality of the forest environment and increase the production of marketable products. When the trees become merchantable, he can secure buyers and supervise the timber sale. The fees charged by a consultant may be based on an hourly or daily rate, forest acreage, or a contract price based on a percentage of gross revenues from the sale of forest products. The cost of services can be repaid by faster tree growth and the higher prices received for timber that is marketed correctly.

This introduction is followed by several paragraphs describing individual tasks that consulting foresters will conduct . . .

Timber Sales. When a stand of timber is to be harvested by the clearcut method, the consultant marks the boundaries of the area. When using the selection method, the consultant marks the boundaries and the trees to be harvested, painting the stump as well as the trunk to make sure unmarked trees are not cut. Sometimes the trees to be left are marked instead of the trees to be cut. The consultant may record the species, diameter, quality, and height of each tree to be cut. With this information, he can calculate the volume of the sale and prepare a contract for the owner’s approval. The consultant may also determine where to locate the skid trails and log landing.

For a sealed-bid sale, the consulting forester will send potential buyers an “invitation to bid on standing timber,” which includes volumes, species, size classes, and tree quality. It may also include dates for woodlot inspection, the payment schedule, dates for beginning and completing logging operations, the performance deposit required, if any, and any other conditions of the sale that will protect the landowner’s property and best interests.

The forester will show the woodlot to potential buyers, supervise the opening of bids, and advise the landowner on available alternatives. After the landowner chooses the buyer, the forester will have the buyer sign the contract, collect the performance bond and all or part of the sale price, and arrange the details of the logging operation. He may check the logging operation to ensure that the terms of the contract are honored. The forester conducts a negotiated sale similar to a sealed- bid sale except he may personally contact buyers in an attempt to receive the best price for the stumpage.

This passage has a Flesch Reading Ease score of 50.8 and a Flesch-Kincaid Grade Level of 11.6. The Fog Index is 12.31

Figure 4: Woodland Owner Notes #6—Guide to Consulting Foresters

EXAMPLE # 2: Sustainable Woodlands Woods Wise: Guide to Consulting Foresters

What is a consulting forester?

Consulting foresters work for landowners to help them plan and manage their woods. They are consultants, so they work for a fee. They are foresters, so they know how to take care of trees and the rest of the forest --like the soil, streams, and wildlife. In North Carolina, they must be registered with the state.

Following the same format from the WON, this introduction is followed by several paragraphs describing individual tasks that consulting foresters will conduct . . .

Timber Sales. Consulting foresters can advise you on when to sell your timber. They can also “appraise” your timber and calculate how much it is worth. For this appraisal, the forester walks through your forest, studies your land, and looks at the trees – their height, their width (diameter), what kind (species), and how many are there. Before a timber sale, the forester should mark areas to be protected, like “streamside management zones.” The forester may also mark the best trees to cut. Consulting foresters can help you find timber buyers, get the best price, and prepare the timber sale contract. They also can advise you about financial assistance for replanting trees after the sale.

This passage has a Flesch Reading Ease score of 71.0 and a Flesch-Kincaid Grade Level of 6.8. the Fog Index is 8.60

Figure 5: Woods Wise--Guide to Consulting Foresters

workshops. The interviews will focus on evaluating the content and design of the current outreach materials, as well as other educational needs, constraints to receiving outreach materials and other assistance, and best methods of delivering outreach materials to the target audience of limited resource landowners. As a second form of evaluation, the materials will be distributed to landowners who participate in an on-going survey of landowners in the study counties. Follow-up calls will be made to a random sample of those landowners to determine whether they found the outreach materials to be useful and easy to understand.

Based on this feedback, the SARE Sustainable Woodlands project will develop additional materials with format and content reflecting lessons from the evaluation. Two to four new publications will focus on topics that are not directly addressed in any current outreach materials. For example, initial interviews have suggested demand for information on what to do with forest areas harvested but not reforested for several years – in other words, forest land that has grown back in undesired species or malformed scrub.

GUIDELINES FOR REACHING LOW LITERACY AUDIENCES

Our project is an on-going learning process. As a product of reviewing literature, discussions with landowners and extension personnel, and practical experience creating new outreach publications, we offer some tentative guidelines for developing outreach materials appropriate for limited resource and traditionally underserved forest landowners, recognizing that this population includes many people with relatively low literacy skills.

EXAMPLE #3: Sustainable Woodlands Tree Tips: Getting Help From a Forester

A consulting forester is someone who –

- Helps you manage your land and trees
- Is listed with the state as a registered forester
- Has forestry skills and experience
- Knows about forestry regulations
- Looks out for what is good for you and your forest

Unlike either the WON or Woods Wise publication, all of the tasks that consulting foresters will conduct are listed here in a simplified bulleted list . . .

What will a consulting forester do?

- Help you write a plan about what you want to do with your woods and when you need to take each step.
- Help you improve your woodland so you can make money in the future if you decide to sell the trees.
- Help you find people to buy your trees and get the best price for them.
- Plant new trees so that you can make more money later.
- Give you advice about how to attract more deer, quail, or turkeys to your woodland.
- Find people who will pay a fee for hunting in your woods.

This passage has a Flesch Reading Ease score of 94.8 and a Flesch-Kincaid Grade Level of 2.4. The Fog Index is 7.59.

Figure 6: Tree Tips—Getting Help From a Forester

1. Know the audience: find out what they already know, do not know, and want to know.
2. Focus on “need to know” information: recognize the difference between what the audience needs to know and what is good to know. Excess information could be confusing.
3. Keep it short: Many people do not like to read and if they must, they want it to be brief.
4. Sequence information logically. Build connections between what the reader already knows and new information that is presented. Summarize or repeat information often.
5. Avoid:
 - clichés and jargon. If jargon must be used, explain the word with a simple definition.
 - abbreviations, contractions, and acronyms.
 - double negative expressions.
 - breaking words across lines.

6. Use:

- short words (two syllables or less), short sentences and short paragraphs.
- active voice.
- illustrations, placed close to related text.
- words with single meanings.
- one word repeatedly and consistently rather than synonyms
- lots of white space and wide margins.
- simple font, large enough to be clearly seen and easily read (at least 12 point).
- narrow columns (easier to read).
- double space between paragraphs, and single space between headings and the first paragraph.
- short explanatory headings and subheadings to break up long columns.

7. Put important information either first or last, so that the reader does not forget or skip those key points.

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