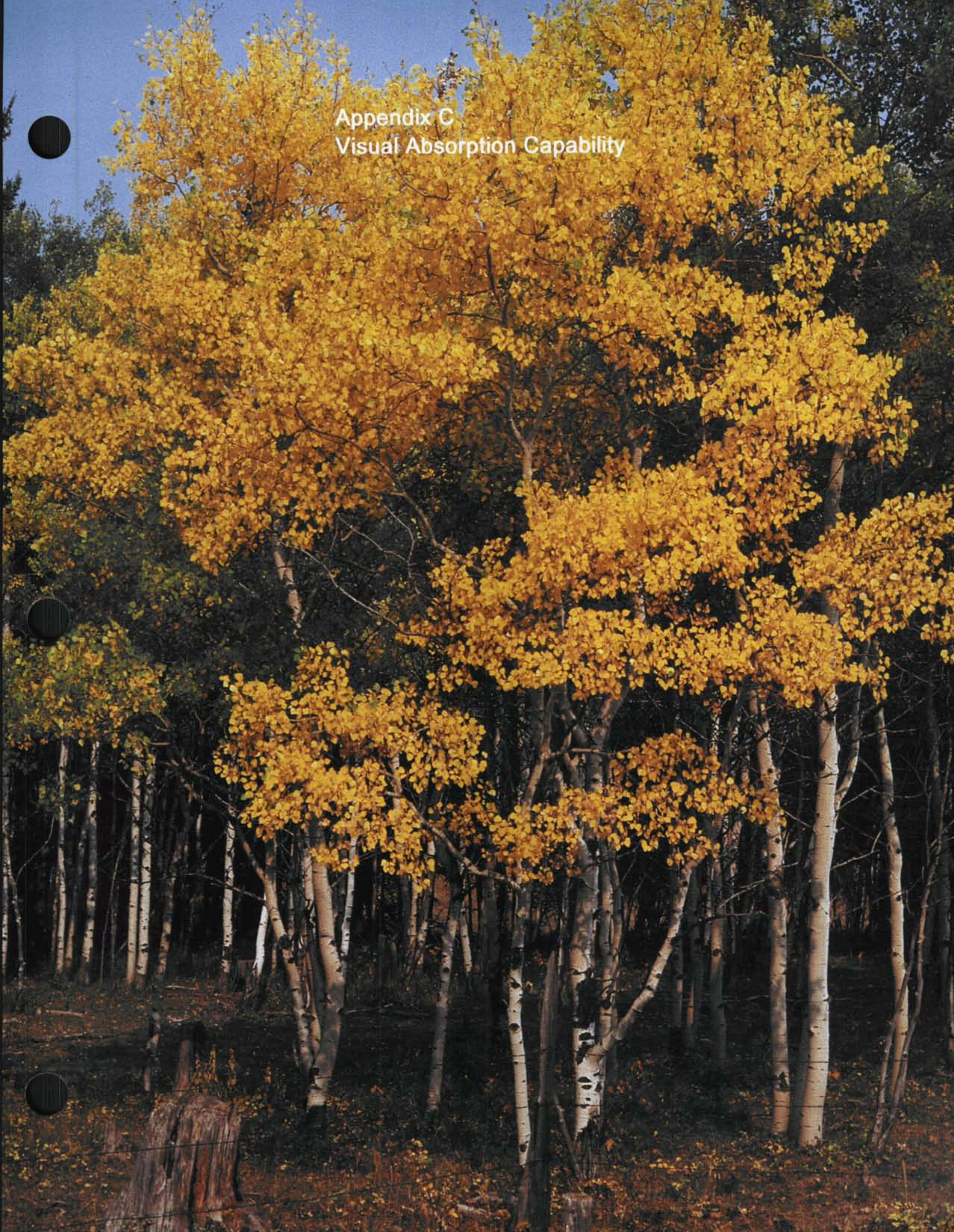
Appendix C
Visual Absorption Capability



Visual Absorption Capability

Visual absorption capability indicates the relative ability of any landscape to accept human alteration without loss of landscape character or scenic condition.

Background

Since the late 1960's, landscape architects have recognized visual absorption capability as a pertinent part of a scenery inventory on land of diverse topography. Visual absorption capability has also been referred to as "visual vulnerability" or "landscape fragility."

Landscape visibility, as a "perceptual factor," is dynamic. It varies dramatically depending upon the location of the observer. Although many may think landscape visibility part of visual absorption capability because it is associated with perceptual aspects of scenery management, it is not. In this handbook, visual absorption capability is associated only with "physical factors" of the landscape in scenery management. For discussion of perceptual factors of landscape visibility, also known as visual magnitude, see Appendix E.

Visual absorption capability relates to physical characteristics of the landscape that are often inherent and often quite static in the long term.

Purpose

Visual absorption capability is a classification system used to indicate the relative ability of any landscape to accept human alteration without loss of landscape character or scenic condition. Visual absorption capability is a relative indicator of the potential difficulty, and thus the potential cost, of producing or maintaining acceptable degrees of scenic quality. It can be used to predict **achievable scenic condition levels** resulting from known management activities in a landscape.

Thus, visual absorption capability is a useful tool in forest planning and in modifying management activities to meet landscape character goals and scenic condition objectives. It may be used to specify the most efficient location for a human alteration or structure on the landscape, so that a project will be accomplished easily, at low cost, and with minimal reduction in scenic quality.











Discussion

- The degree of visual screening provided by landform, rockform, or vegetative cover affects visual absorption capability.

- Variety or diversity of landscape pattern—particularly the amount and extent provided by landform, rockform, waterform, or vegetative cover—affects visual absorption capability.

- Heavily dissected landform and rockform partially screen and break up the visual continuity of landscape alterations, while smooth landform does not.

- Tall vegetation, such as trees, screen and break up the visual continuity of landscape alterations. Short vegetation, such as grasses and low shrubs, does not.

- Heavily patterned and diverse, dense vegetative cover, especially if mixed with waterforms, break up the perceived continuity of landscape alterations. Homogeneous vegetative cover and lack of waterforms do not.

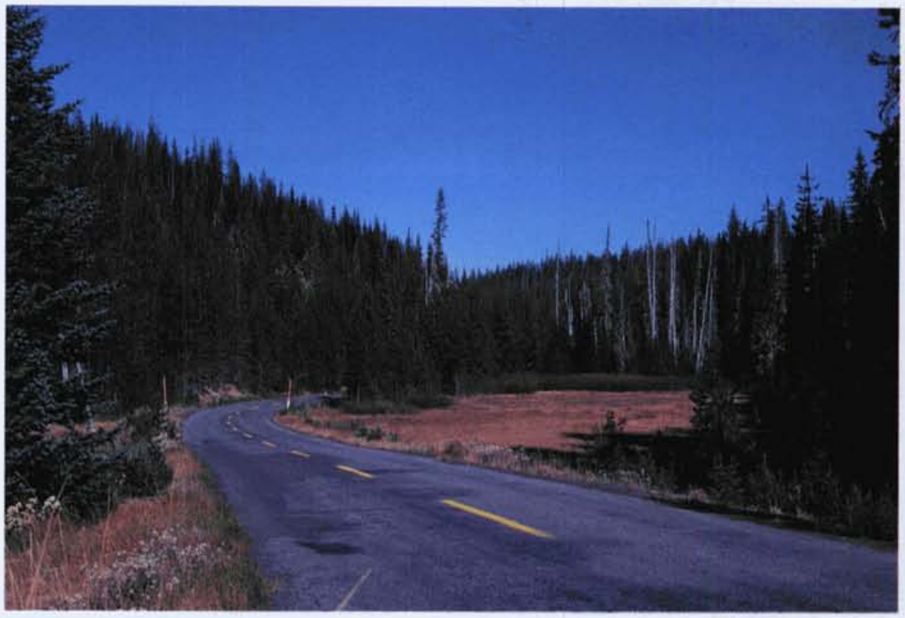
- Dense vegetation on flatter slopes provides more screening of landscape alterations than the same vegetative cover on steep slopes.

- Vegetative regeneration potential affects visual absorption capability. A landscape with good soil productivity and favorable climate quickly reproduces vegetative cover. This "greening-up" tends to screen and blend human alterations into the landscape matrix more quickly. A landscape with poor soil and climate takes longer to recover.

- Soil color contrasts to the normal vegetative cover affect visual absorption capability. Darker soil tends to reduce visual contrast of landscape alterations. Light-colored soil—tan, white, yellow, and red—tends to visually emphasize landscape alterations in heavily vegetated areas.

- Geologic stability, soil stability, and potential of erosion of a landscape affect its visual absorption capability. A landscape prone to landslide, soil slippage, and erosion exacerbates the visual impact of landscape alterations. A stable landscape does not.

Slope



Vegetative cover

Recommended Inventory Factors

1. Slope

On steep mountainous terrain, **slope** is the most important visual absorption capability factor. Slope includes factors relating to landform screening, vegetation screening, geologic stability, soil depth, and soil stability. Therefore, scenery managers generally consider it to be the best single physical factor of relative visual absorption capability. Since it is not likely to change, slope is the most constant inventory factor of visual absorption capability. Slope is usually not an appropriate visual absorption capability factor for flat landscapes.

Many other resource professionals consider slope to be important, and it is often a basic inventory factor in forest planning. With the increased availability of computerized GIS with digitized data for topographic maps, it is becoming easier to obtain and customize slope-class maps for forest planning.

2. Vegetative cover

On gently rolling landscapes, **vegetative cover** is the most important visual absorption capability factor. It is also a key factor on hilly or mountainous landscapes. Vegetative cover is largely dependent upon climate, landform, waterform, and soils of an area. Vegetative cover is the end product of these environmental processes that determine regeneration potential.

Vegetative cover is innately able to produce a certain level of visual absorption capability, but it is the least stable factor. Natural disasters and human activities can easily modify vegetation, thus altering a factor of visual absorption capability.

Vegetative cover is often a basic inventory element in forest planning. Rapidly advancing technology in remote sensing is expected to improve the capacity to gather more detailed and uniform data on several attributes of vegetative cover.

Vegetative screening capability is primarily a function of the height and physical structure of the leaves, branches, and stems of individual plants, including trees, shrubs, and herbaceous layers. Inventories of vegetation type, density, and age-class will normally capture information needed for vegetative screening ability.

Vegetative patterns and diversity are a complex function of soils, micro-climates, and past management activities. Inventories of vegetation type, density, and age-class will often provide information needed for pattern and diversity, but may need to be supplemented by a more visually oriented approach to the vegetation inventory.

3. Soils and Geology

Soils and geology are very important factors when determining visual absorption capability. However, because soils fertility is aligned with vegetation, its effect on visual absorption capability may already be considered in the vegetation inventory. Other soils factors, such as mass stability, erosion hazard, and soil color contrast, would also need to be analyzed.

Geologic formations—such as rock outcrops, slides, and cliffs—can effect visual absorption capability by providing natural openings from which to borrow when designing human alterations.

Soils are important to many other resources, and soils information is often a basic inventory factor in forest planning. Rapidly advancing technology in remote sensing may improve the ability to gather more detailed and uniform data on several attributes of soils that affect visual absorption capability. Soil-type mapping will normally capture information needed to assess effects of stability, erosion hazard, and soil color contrast.

Mapping Process

Determining Pertinent Map Scale

The inventory of visual absorption capability can be most efficiently used if it is mapped at the same scale as other components of the scenery inventory.

Determining Pertinent Visual Absorption Capability Factors

Because all landscapes vary, the factors used to inventory visual absorption capability also vary. Although **slope** is often the most important single factor in steep mountainous landscapes, there is little value in developing slope information for flat terrain. The exception is where one area having flat terrain is compared to another having steep terrain.

Similarly, if **vegetative cover** or **soils** are quite homogeneous throughout a planning area, there is little value in analyzing and mapping these factors for visual absorption capability.

Therefore, the first step in the mapping process is to analyze which physical factors affect the visual absorption capability of a landscape.

Determining Data Sources

Next, landscape architects determine the availability of existing inventories for other resources or other purposes that could assist the visual absorption capability inventory. In certain cases, it may be necessary to interpret another discipline's existing inventory for visual absorption capability. The author of the other inventory may be able to assist with interpretations, or have the ability to develop an efficient process to make such interpretations. Various disciplines, including landscape architects, can share existing data or join in the effort to obtain them.

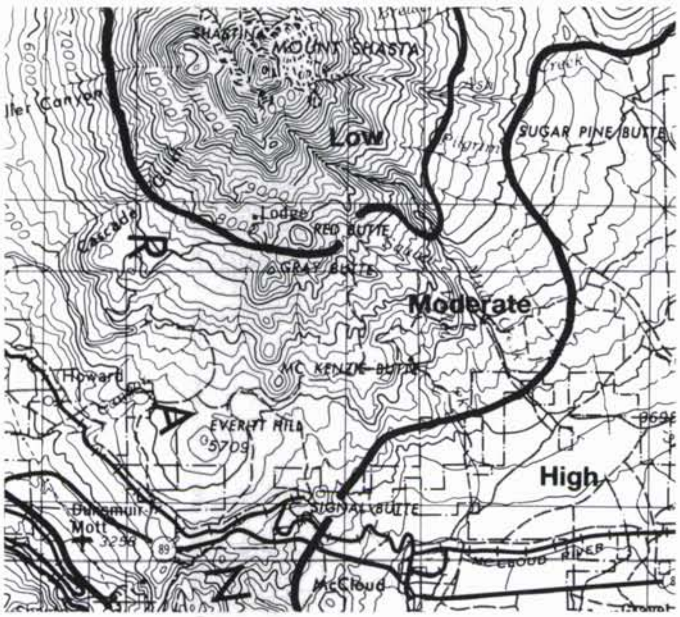
Ranking Visual Absorption Capability Factors

Landscape architects must determine whether to "rank" or "weigh" visual absorption capability factors. This will depend upon which factors have been selected, analyzed, and mapped.

A general rule is that all factors should be ranked equally, unless there is evidence that one or more factors are clearly more important. Some previous studies in mountainous terrain have determined that slope is the most important factor, and have ranked it three times higher than the least important factor, site recoverability. Forest Service Manual Supplements should be prepared by each region to establish visual absorption capability factors and ranking values, preferably for each **landscape province**.

Classifications of Visual Absorption Capability

Normally, three classes of visual absorption capability are adequate—high, moderate, and low. With increased use of computerized GIS, it may be appropriate to increase the number of classes.



Utilization

In both forest planning and project planning, landscape architects may utilize visual absorption capability to determine **achievable scenic condition levels**. They may use it in either of two modes, "proactive" or "reactive."

Proactive

In a proactive mode, a landscape architect supplies visual absorption capability information to other resource management specialists. Visual absorption capability information is then used as a guide in determining appropriate types of management activities commensurate with the following:

- Theme and variations of each alternative of the forest plan.
- Relative value of the other (non-scenery) resources.
- Relative value of scenery and closely related resources, such as recreation.

Reactive

In a reactive mode, a landscape architect uses visual absorption capability information to determine:

- The predicted achievable scenic condition level of others' management activities, without benefit of design input for scenic quality.
- Potential adjustments in other management activities that would improve the achievable scenic condition level and integrate the activities with scenic values.
- Modifications of other resource management activities and prescriptions to better meet landscape character goals and scenic condition objectives.

In reality, usually both modes are employed. First, other resource disciplines use visual absorption capability information to help determine types and intensities of management activities for each alternative (proactive).

Then, the proposed management activities and intensities are analyzed to determine the achievable scenic condition level (reactive).