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FOR 175

Forest Management in the Interface: Amenity Resources[1]

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Amenities are among the most desired resources produced by interface forests. They raise property values, motivate land purchases, and direct land management. Forest owners, especially those owning small acreages in the interface, typically rank aesthetics at or near the top of their list of priorities. Consultants selling forestry services in the interface report that they often emphasize aesthetics in discussions with clients.

It may seem counterintuitive, but timber harvesting and other vegetation management actions often provide opportunities to increase amenity resources, especially scenery and trails. In fact, opening vistas and trails can be cost prohibitive without coordinating these activities with timber harvest actions that fund or offset the expense of producing amenities.

Scenery

For better or worse, visual quality advertises the ethics and capabilities of professional forestry. Visual information provides among the most accessible and immediate means for public valuation of forest management. Managing the aesthetics of interface forests is critical because it is a service and skill that will sell to interface clients and it advertises the stewardship ethic of natural resource professionals.

Characteristics of scenic forests are outlined in Table 1. Most are intuitive. A park-like stand with large, well-spaced trees and little understory obstructing views is considered scenic. Forests with dead, downed, jumbled tops, exposed soil, and an absence of large trees are considered unattractive. Scenery often improves with age, spacing, and size of trees. Scenery also improves with colorful foliage, vistas to distant views, and occasional meadows that add variety to the visual experience.

Harvesting practices can minimize the ugly and enhance the scenic. Strategic replanting hastens vegetation regrowth and recovery of scenic quality. Selective harvesting can identify and leave a few large trees with colorful foliage and other scenic attributes. Strategic clearings can create meadows that add visual diversity and open vistas, both of which dramatically increase scenic quality. And, perhaps most importantly, practicing the type of silviculture that communicates to residents and visitors that owners, loggers, and foresters care about the job they are performing and the forest they are leaving behind greatly increases the social acceptability and scenic potential of interface forests. It is also important to think of scenery from a temporal dimension: trees grow, clear-cut forests re-seed, thinning produces larger trees, downed wood rots, etc. All of these factors change the scenic resource of a stand over time.

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Naturalness

Many landowners value natural appearances, seek to live near nature, and want to minimize evidence of human intervention. Part of the reasoning behind these motivations might be that these landowners believe nature knows best and that any human intervention, especially something as dramatic as harvesting trees, will harm and degrade valued environmental qualities. In addition, people may value naturalness because they find it aesthetically pleasing. People like being near nature. It relaxes and restores them (Kaplan and Kaplan 1989). Careful design and implementation of management actions can increase the aesthetic of naturalness. Selective harvesting that leaves a mostly contiguous canopy, very low stumps, no obvious rows of trees, and minimizes soil disruption, for example, increases perceptions of naturalness (Magill 1994) (Table 1 and Figure 1).

Table 1. Tips for Improving Forest Scenic Quality

Create amenity clearings Meadows and wildlife clearings provide visual variety and increase amenity. Special or visible sites can be graded and treated with lime, fertilizers, and grass seed to hasten and maintain meadows or repair landings. Mow clearings to maintain openings and low, even ground texture. Create vistas by clearing visual corridors from residents and trails.
Thinning Open park-like forest stands are preferred; selective thinning can promote it. Row thinning can create the appearance of straight lines and rows. A more random look is preferred. Think long-term; thinning increases tree size, which increases scenic quality.
Ground cover Park-like forest stands are preferred, so create opportunities to see through the stand by reducing understory vegetation. Dispersal, chipping, burning, and compression of limbs also minimize visual obstructions.
Rotation Old, large trees are more scenic, therefore consider long rotations.
Ephemeral features Wildlife, flowers, trees with showy colors, snow, etc. greatly increase visual quality, so create opportunities for them to flourish.

Figure 1. People prefer to be close to nature for its relaxing and restoring qualities.
Credits: Larry Korhnak, UF/IFAS

Picnic Areas, Parking Lots, and Camping

Places where people gather are often located among trees because trees increase aesthetics and provide shade. These activities can compact soil and damage healthy trees and other vegetation. Younger trees and deeper rooted species are more likely to survive these abuses. Chances for tree survival increase with barriers or designations that direct parking, hiking, and camping away from at least some of a tree's root area. Hickories, sycamores, white ash, beech, buckeye, poplar, and red maple tend to do better in recreational areas than oaks, locusts, cherry, and most pines (Hultsman, Cottrell, and Hultsman 1998).

Parking lots should be sufficient to allow vehicles to turn around. Earthen mounds, rocks, or log barriers can be used to corral cars and keep the parking area from expanding, compacting soil, creating erosion, and damaging plant roots. Importantly, parking surfaces should not drain surface water directly into creeks, rivers, lakes, or tanks. Oil, grease, antifreeze, litter, and other pollutants often collect on parking surfaces and wash off into water systems. The slope of the lot should be away from water sources. When a slope must drain towards water sources, the installation of small, shallow swales will hold runoff and let the pollutants settle before making their way into the water systems (Bell 1997) (Figure 2).

Figure 2. Camping activities can compact soil and damage healthy trees and vegetation.
Credits: Larry Korhnak, UF/IFAS

Privacy

A persistent explanation for residential migration into interface forests has been the pursuit of cleaner, healthier, safer, saner lifestyles where people can obtain a sense of privacy and contact with nature (Jacob 1997, Schmitt 1990). Forest management can promote these benefits with visual and acoustic buffers. Visual buffers are the most obvious.

They screen neighbors from one another and restrict views from commuters on busy roads. The vegetation need not be very thick to work effectively.

Acoustic buffers are also important. They diminish the sounds of neighbors and traffic. However, studies have shown that vegetation performs rather poorly as an acoustical buffer; about 100 feet of forest is needed to decrease road sounds by five decibels. Regardless of the actual reduction in sound level, vegetation buffers still reduce the perceived annoyance of the sound source. Acoustical buffers also benefit wildlife, especially those bird species that abandon nests if exposed to loud urban and traffic noises (Dwyer et al. 1992, US Department of Transportation 2005).

Trails

Trails create opportunities for landowners to explore and manage their forests. Hiking as well as riding bikes, horses, and all-terrain vehicles (ATVs) are highly desired activities, even on small acreages. Poor trails produce erosion, lead nowhere, and hinder aesthetic experience. Good trails can be expensive to install. One way to offset construction expense is to piggyback trail development onto logging operations. Properly installed logging roads and logging skid trails can be positioned on the property with an eye towards creating a trail network (see Table 2 and Table 3 for some tips for trails). The Federal Highway Administration website is a great source of information about trail-building practices and funding opportunities (https://www.fhwa.dot.gov/environment/recreational_trails/) (Dehring and Mazzotti 1997; Hultsman, Cottrell, and Hultsman 1998; Hubbard, Faircloth, and Long 1999; US Department of Transportation 2004).

ATVs are an increasingly important source of pleasure and annoyance for forest landowners. These vehicles allow people to tour and work their forests, but present special challenges because of noise and soil erosion. ATVs can degrade many of the other amenities forest owners desire, and they have been associated with increased trespassing problems by riders who wander off their own lands onto other people's. (Table 3 and Figure 3).

Table 2. Successful Trails

Create an interconnected trail system rather than a series of single trails that require walking to a destination and then back the same way and perhaps driving among multiple trail heads.
Loops within loops create diversity. Users can enter at one spot and adjust the length of hike by taking longer or shorter loops.
One-way traffic decreases erosion, perceived crowding, boredom, and allows narrower trails.
Locate trails so as to connect meaningful destinations such as cultural artifacts (old saw mill) and natural amenities (vistas, old or charismatic trees).
Create a single access point to trail system to increase control over who uses site. Locate information near that entrance to explain trespass concerns, routes, and appropriate behavior.
Minimize user conflict with separate trails for some users (hikers hate horses, horses scared of bikers, hikers scared of bikers).
Horses and bikes disturb vegetation faster, quickly compress soil, hasten erosion, and require better trails. Consider surface treatments such as gravel and locate in better drained areas.
Water bars, soil humps, and trail dips get water off trail. Use trenches, logs, and rocks.
Use vegetation, signs, and trail design to keep people on trails.

Table 3. Special Considerations for Trail Building

Soils Slit and clay are muddy when wet, dusty when dry, and easily erode. Sandy soils are unstable and support minimal vegetation. Organic soils are fragile but moderate amounts increase stability. Moderate amounts of sand, clay, and loam provide the most durable hiking/camping surface. Deeper soils drain better.
Trail size 2 to 4 feet wide, with extra 12" of vegetation cleared on each side. 7 feet high for foot trails, 8 feet for bikers, 10 feet for horses. double trail width for two-way traffic in horses or bikers.
Trail grade 1-6% for most instances, 10-15% for short distances to minimize erosion and exertion 0% grade has potential for standing water (especially in easily compacted soil).
Trail alignment Avoid placing trail parallel to slope of land (i.e., locate them on ridge crests, valley bottoms or contours). Water collecting on trail tread drains down hill, is difficult to remove with water bar, and cause erosion. Trails placed on sides of hill can be drained with water bars (constructed features that divert water away from trails).
Streams, lakes, and trails Avoid trails parallel and immediately adjacent to streams to avoid wet soils, embankment erosion, and tread erosion from streams jumping onto trail during seasonal floods. Avoid trails along shores of lakes or streams because they entice users to the shore and cause extensive shoreline erosion. Provide access points from trail to water feature, sacrifice or harden the shore at those points. Cross streams in a perpendicular fashion on the highest ground to avoid flood waters on trail.

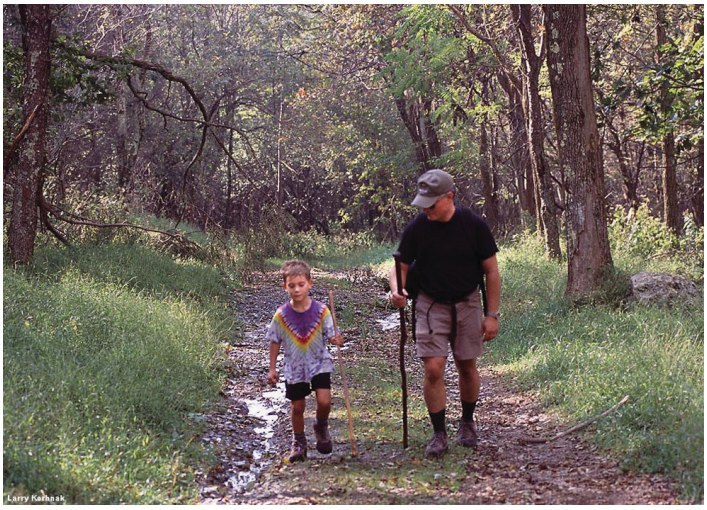

Figure 3. Hiking and other recreational activities are popular, even on small acreages.
Credits: Larry Korhnak, UF/IFAS

Shade, Wind, and Energy Efficiency

The interface forest significantly affects the comfort and livability of residential areas (McPherson and Simpson 1995; US Department of Energy 1995). Trees strategically planted around a house can reduce heating and cooling costs by 10 to 80 percent. In addition, forested areas are typically 10 to 15 degrees cooler than adjacent paved areas baking under a summer sun. Trees also function as wind breaks that dramatically reduce wind chill in colder climates and funnel cooling breezes in hotter climates.

Reducing cooling costs with tree shade is so effective that it can decrease regional electricity demand and eliminate the need for new power generation facilities. As a result, utility companies and government agencies have begun aggressively promoting tree plantings, especially in regions plagued by "brown-outs" caused by peak loads for air-conditioning. The effect of tree shade on cooling costs varies by region. The largest benefits occur where solar energy, not hot air, provides the primary source of heat gain in buildings. In regions such as the South, where air also transfers heat and humidity to buildings, the savings from shade are less, but still significant. The effect of wind breaks varies by region. Deflecting cold winter winds is less important in the South, however not deflecting, or even funneling, cool summer breezes may be more important. The placement of trees around the house to manage shade and wind must be done in ways that minimize risk of fire.

Regional Amenity

The once unbroken forested hillside is now dotted with houses and streetlights. The visual character of regions change as housing developments transform natural areas, agricultural fields, and forested ridges. These same developments that degrade regional scenery also create opportunities for its enjoyment by creating roads and increasing access to some types of outdoor recreational opportunities. Managing interface forests for scenery can be challenging. Access to scenery must be provided without degrading the qualities that attract people in the first place.

Settlement of interface forests influences the regional supply of recreational resources. While smaller landholdings provide landowners with greater access to forested areas, they make the land less accessible for others. Non-landowners may find it difficult to contact landowners to negotiate recreational uses of their land, such as hunting. This generally reduces visitors' access to privately-owned forested locations. Private landowners commonly post "no trespassing" signs on their lands, further limiting access (Cordell, English, and Randall 1993). (See Figure 3).

Back-country recreational activities, such as hiking and hunting, require large areas of land so that people can use the forest safely and comfortably. Activities such as these are less likely to be done in the interface. In contrast, activities that require less land, such as bird watching, picnicking, day walks, and drives, may increase as access to the interface increases.

Finally, the increased demand on public and private recreation resources in the interface can produce conflicts. If newcomers prefer the same recreational activities as long-time residents then crowding may result. If they prefer different activities, then there will be pressure to redirect resources to provide and maintain these new activities, such as mountain biking. This could potentially sacrifice the quality and supply of the traditional activities, such as hunting. Recreation planning in the interface will need to respond to demands for recreational activities and settings desired by both new and long-term residents.

Suggested Readings

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Forestry Aesthetics Guide: Image and Opportunity by American Pulpwood Association and American Forest and Paper Association. Washington, DC: American Forest and Paper Association.

Planning for Beauty and Enjoyment (http://pubs.cas.psu.edu/FreePubs/pdfs/uh088.pdf) by Angelina Kendra and Ellen M. O'Donnell, 1996. University Park, Pennsylvania: Penn State University Cooperative Extension.

Research on Recreational Impacts in Wilderness: A State-of-the-Knowledge Review (https://winapps.umt.edu/winapps/media2/wilderness/NWPS/documents/science1999/Volume5/Leung_5-4.pdf) by Yu-Fai Leung and Jeffrey L.

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