

Parceling Out Nature: Should We Only Protect the Night in Parks?

A reprint of the Illinois Coalition for Responsible Outdoor Lighting website page at <http://www.illinoislighting.org/parceling.html>

For the members of our society who recognize that our current outdoor lighting practices have disfigured an important natural resource-- the night-- the question arises as to how best preserve some quantity of this nearly extinct phenomenon. One suggested solution is to mimic the pattern which we have followed in the preservation of natural land areas: divide our country between developed, "manmade" zones (our cities, towns, suburbs, industrial areas, etc.), and occasional preserves of "natural" landscape, which bear at least some semblance to how the land may have looked before man entered the picture.

Applying these systems to outdoor light control, the general principle is that as the landscape becomes more "manmade", the night also becomes less "natural"; it is filled with more manmade illumination. The country is dark, the city is bright. The country has birds, bees, flowers, trees; the city has cars and buildings, and people who want to be active throughout the nighttime hours, and who don't want to experience darkness. We divide the land into zones of varying nighttime lighting along these lines, limiting the amounts of stray light leaving the light fixtures in the protected natural zones, allowing more in the people-filled manmade zones. Nature can thrive in its "preserves"; man can have dominion elsewhere.

Following this system for outdoor lighting regulation is attractive for several reasons. People understand the concept of manmade areas vs. nature preserves. The vast majority of problematic outdoor lighting installations and practices are already located in urbanized areas; achieving change there faces the biggest challenges, so setting the bar there lower will ease the process of "modernizing" lighting practices. And only part of the general population is at all concerned about the questions of nighttime ecology, energy waste, and other issues of manmade illumination; for the majority, the concept of preserving the night off in a park somewhere where the animals live and people can go to see the stars may be a sufficient answer.

But is a lighting zone system a logical one to apply in a concerted effort to "re-think" our outdoor lighting practices, to make them "sustainable"? For a number of reasons, I think not.



Firstly, the idea of “manmade areas” is an illusion. While we change landscapes drastically, replacing fields and forests with offices, stores, houses and asphalt, nature remains. The birds and the bees don’t understand that they are not supposed to venture into these zones anymore. We want some remnants of the flowers and trees to remain behind. And, perhaps most importantly, we retain natural systems *within ourselves*. It is scientifically well established that the human body functions on a strong internal circadian cycle, and that this cycle is regulated by the external light/dark cycle of natural day and night. Practical scientific evidence continues to mount that disrupting that cycle through the disruption or elimination of a naturally dark night causes numerous ill effects on our bodies. If we should be concerned about the manmade elimination of night anywhere, the areas we live in should probably be among the highest ones on the list, not the lowest.

Secondly, the vast majority of exterior illumination is being used in our more heavily populated areas. That means that these areas account for not only the greatest dumping of stray light into the natural environment, but also by far the largest waste of energy through poorly designed lighting installations and practices. Again, these areas should not be on the bottom of the list when it comes to calling for less light spillage and more energy efficiency, but at the top.

Thirdly, the application of lighting regulation by a zone system will be both unrealistically taxing on our state and local governments, and potentially ineffective because of its arbitrary nature. The concept of requiring civil staff to map each and every parcel of land in this nation or any other into a multi-step lighting zone system, and having the resulting map be based on any sort of detailed analysis of land use and ecological needs is naive. A common outcome would likely be to simply classify all but a few areas at the lowest level of protection/regulation. And implementing such a system would likely create little chance of improving areas which are *already suffering from over-illumination*.

Fourth, once released into the outdoor environment, artificial illumination carries for large distances. The light in a “bright zone” won’t all stay there; it will affect an area well beyond that zone’s borders. In areas of a nation where towns and cities are relatively closely spaced (as in much of the eastern half of the U.S.), the light domes from populous areas already blend together to overrun any potential “night preserves” between.

Lastly, “sustainability” should be our goal, whenever it comes to our use of natural resources. But sustainability in outdoor lighting is not currently achievable. All but a tiny fraction of the outdoor lighting we use, and which we will be using for some time to come, will take power from the grid; power which comes (most commonly) from the burning of coal. (Yes, some of our electricity comes from renewable resources, but when you shut off a light, the utility companies do not shut off a wind turbine or a nuclear power plant; they burn a little less coal, oil, or natural gas.) Sustainability, therefore, can only be approached by consuming less electricity for outdoor lighting, period. We need to limit illumination to where it is needed, to the levels needed, at the times needed, and deliver it with the most efficient luminaires that can be engineered. These principles need to become the guiding rules in all applications of outdoor lighting (including indoor lighting which travels outside through transparent or translucent surfaces), in all locations; this is the only genuine form of environmentally responsible lighting practice.

In practical application, municipalities may end up applying differing standards for some lighting issues to areas which are already zoned for differing land use. Areas with commercial zoning may, for instance, allow slightly higher property-to-property light trespass than would be allowed in areas zoned for residential use. But this can be specified without the addition of any new lighting zone concept. And some lighting factors, such as luminaire energy efficiency, and uplighting, need to be held to the same good standards no matter where the lighting is installed.