

Losing the Dark: a Case for a National Policy on Land Conservation

Flying over the East Coast of the United States on a clear night, it is easy to see that conservation in this landscape has largely failed. The view from the airplane window confirms the well-known fact that private lands throughout the United States have been shifting from rural to residential use (Brown et al. 2005). For all of the advancements in our understanding of biological systems and in our tools for predicting the consequences of society's choices, the state of affairs for nature on private lands, where we live and work, has become steadily worse. Simple visual inspection of the Earth at night (http://visibleearth.nasa.gov/view_rec.php?id=13872) or out the airplane window confirms it. What is visible from a plane but not so clear from NASA's images is how the dark spots in between are festooned with dimmer lights—outdoor residential lights of lower wattage than conventional street lights and beneath the tree canopy. Many of those dark spots were, a decade ago, undeveloped forests and farms. Those tendrils of dimmer lights illuminate the subdivisions that have become the landscape of much of the eastern United States and increasingly have come to characterize the rest of North America as well.

This "failure" does not lie with conservation biology, which has consistently defined the problem and proposed solutions (Theobald et al. 2005). Nor does it lie with a lack of will and effort on behalf of land trusts and agencies working within existing policy and funding levels. The problem is a lack of political will to address the issue through nationally funded policy. The American public needs to awaken to this crisis. There is an old Quaker tradition called bearing witness: perhaps by simply repeating the obvious we can stimulate a national change in land-use policy.

Failure has occurred because of a lack of a nationally funded land-conservation policy that recognizes changing land-use economics. A few decades ago forestland and farmland stopped being primarily valuable as forestland and farmland. Nevertheless, instead of making it a national priority to secure ecologically critical lands from development, free-market processes were largely allowed to drive widespread land conversion. While postwar Europe was strengthening land-use controls, the United States was by and large trying to stimulate land development (Hallett 1988). Without controls, when the future state of a parcel

exceeds the value of its current state, use will change (Irwin et al. 2003). Because of the importance of the housing market, selling a land-use planning policy to politicians will be a tall order. But then again, conservation biologists are used to uphill battles.

Like in all "developed" nations, the United States' population has moved from predominantly rural in the early 20th century to exurban and urban. This decentralization of community life has been facilitated by the decentralization of amenities typical of cities. Transportation systems responded to decentralization by expanding the road network rather than emphasizing rail. The result of all of this development has been an economy that booms but a landscape that is increasingly carved into smaller parcels, the disappearing dark spots at night.

So what is in those dark spots that we cannot afford to trade them for a growing economy and comfortable lives? Clearly, what we lose are those things that most people rarely care about or incompletely understand and which we will almost certainly fail to conserve if we need to justify them one case at a time. This is particularly true for noncharismatic species, species that compete with humans for resources, and ecosystem services.

We acknowledge that—on the whole—the eastern North American landscape, like much of Europe, is more forested today than it was in the 1800s. The work of numerous environmental historians and landscape ecologists (e.g., Foster 1992) has illuminated the incredible impact that *Homo agriculturalis* had on the forests. Although forests eventually began to grow back as farmland was abandoned, the current trend is for both farmland and forestland to shift to residential development. This is not limited to exurban areas: amenity developments near lakeshores, mountains, and coastlines create new hubs. When one peers down through the thousands of feet to the sleeping land below, one sees a new land-use phenomenon. We see *Homo residentialis*, whose spread is marked by those dimmer lights. This time the transformation is practically permanent.

Local land trusts, The Nature Conservancy, local planners, and many other organizations have had spectacular success given the magnitude of their resources relative to the engine of land-driven economic development (Brewer 2003). But on the whole this conservation

paradigm can be viewed as philanthropy rather than an integral part of national policy. Although policy programs such as smart growth and the design of “conservation subdivisions” indicate progress (Arendt 1999), these initiatives are not yet institutionalized at the national level. Land conservation is not a national political priority. Even when our very life systems are threatened—marine fisheries and climate, for example—politicians balk at instituting real regulatory policy. Instead, responsibility for protecting the dark spots is shunted to the private sector and local and state governments. Through systematic conservation planning for multiple targets (not just endangered species), the government needs to embrace its responsibility for conservation across the entire landscape as national policy and fund it accordingly. As many conservation scientists have pointed out (e.g., Redford & Sanderson 2000; Miller & Hobbs 2002), to really protect nature we need to protect not only large, remote reserves but those landscapes in which humans live and work.

One way to do this would be to have a national land conservation policy. Such a policy would mandate that privately owned landscapes could only be developed to certain densities and that such development should happen according to conservation biology principles. For example, road building and forest clearing would be kept below levels that are known to harm associated ecosystems. The policy would provide market-level compensation for landowners who want to sell their lands and compensate landowners for maintaining ecological services for society. This is not cheap; then again, neither is war. In judging its costs, we need to also consider the benefits of relatively intact landscapes (clean water, air, biodiversity, places to play) to hand to the next generation.

Countries that have faced limits on land availability for centuries have developed more prescient land-use policies than has the United States. European nations tend to have more strict zoning and land-use laws and since the 1960s have been making progress toward an international “spatial policy.” An early draft states “the profound changes brought about in the economic and social structures of the countries of Europe and their relations with other parts of the world demand a critical review of the principles governing the organization of space, to avoid their being wholly determined by short-term economic objectives without taking into consideration social, cultural and environmental aspects.” The enlargement of the European Union accelerated activity for spatial planning across all jurisdictions for efficient transportation networks, development, and agriculture and environmental protection (Jenson & Richardson 2004). The European Spatial Development Perspective of 1999 has many specific environmental goals, including reducing fragmentation by transportation networks. We have no equivalent program in the United States.

We believe that most conservation biologists would come to support a U.S. land-use policy designed espe-

cially to protect biodiversity in settled landscapes. The single most important obstacle will be private property rights. It is going to cost taxpayer money—a lot of it—to purchase those public goods from the people who own the land. Conservation cannot just be regulated, rely only on private conservation funds, or occur only in remote places. Many Americans have banked on sale of their lands to send children to college or to retire. A land-use policy will not succeed without a budget equal to the task. Over its 40-year existence, the Land and Water Conservation Fund (LWCF) has invested \$14.4 billion to purchase new lands. By comparison, the war in Iraq has cost the American taxpayer over \$300 billion in just 4 years—a 250-fold greater annual rate of spending. We suggest that the land conservation money not be folded into the LWCF (within the National Park Service) but be administered by an agency—either new or redefined—with a broader environmental mandate and a track record for achieving environmental objectives across multiple jurisdictions, such as the Environmental Protection Agency. The monies may then be allocated to local groups based on a centralized, systematic assessment of regional conservation priorities. Members of the Society for Conservation Biology may play a significant role in administering the systematic assessment of these priorities.

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