Environmental Impact of Immigration

By Leon Kolankiewicz

IMMIGRATION-AMBUSHED POPULATION

Many environmentalists (i.e., activists), ecologists (i.e., scientists), and other scientists (e.g., physicists, chemists, biologists, geologists, even astronomers) once argued that the size and growth rate of human population entail significant negative ramifications for the natural environment and for both renewable and non-renewable resources, leading to greater rates of use, overuse, and more rapid depletion of these resources.

Mostly, though, the earlier prescient population prophets-without-honor and the few resolute souls who remain have been "voices in the wilderness"—assailed by the ignorant and ignored by the apathetic. Thus, even as U.S. and global populations continue to swell swiftly with no cessation in sight and no peaks predicted by demographers, the resistance to these blatantly unsustainable and environmentally ruinous demographic trends has wavered and wilted in recent decades.

Yet there was a brief shining moment, now nearly half a century ago, when it seemed that the imperative of stopping population growth was acknowledged by many prominent people, even an American president or two and the most popular entertainer and comedian of the day. And there was hope that the United States, acknowledging, at long last, limits to population growth, was mere decades away from stabilization. From the perspective of a new century yet young but already steeped in pessimism and resignation, how long ago and far away those hopeful days now seem!

Earth Day was first celebrated in 1970. January 1 of that same year, in a new decade and new era, saw the single most important environmental statute in American history signed into law by President Richard M. Nixon: the National Environmental Policy Act, or NEPA, sometimes dubbed the nation's "environmental Magna Carta." In Title I of NEPA, the "Declaration of National Environmental Policy," the very first words were: "The Congress, recognizing the profound impact of man's activity on the interrelations of all components of the environment, particularly the profound influences of *population growth*…" [italics added].

Later sections of NEPA ordered agencies of the federal government to conduct Environmental Impact Statements (EISs) for proposed actions (e.g., projects, permits, programs) that might "significantly" affect the quality of the human environment. But NEPA never ordered Congress itself to study and disclose the potential environmental impacts of its own actions, such as immigration legislation that increased U.S. population growth.

Figure 1. President Richard M. Nixon at the signing ceremony for NEPA on January 1, 1970

A backlash against concern about overpopulation gathered force in the 1970s as two of America's most polarizing issues gathered steam—immigration and abortion. Both immigration and abortion relate to the most fundamental questions of who and how many of us there are and who and how many of us there should be. A rapidly increasing immigration rate soon supplanted the birth rate as the main driver of U.S. population growth. From 1990 to 2000, the U.S. population grew by more than in any single decade in American history—33 million—compared to an entire U.S. popu-

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Leon Kolankiewicz *is an environmental scientist and national natural resources planner. He has a B.S. in forestry and wildlife management from Virginia Tech and an M.S. in environmental planning and natural resources management from the University of British Columbia. He is the author of* Where Salmon Come to Die: An Autumn on Alaska's Raincoast.

lation of just 4 million at the time of the first Census in 1790. The 1990s topped the peak Baby Boom (1950 to 1960) decade as well as any single decade during the 1880-1920 great wave of immigration from eastern and southern Europe, by far. The 2000 to 2010 decade wasn't too far behind the 1990-2000 decade.

The Immigration and Naturalization Act (Hart-Celler Act) of 1965 opened America's golden door from what had earlier been a trickle, to first a stream, and later a flood of immigration from non-traditional source or sending regions, primarily Latin America and Asia. In post-Civil Rights Era America, the fact that most new immigrants were non-European "people of color" made it difficult to criticize the new mass immigration *numbers* without being labeled a xenophobe, racist, or nativist by mass immigration's unscrupulous and opportunistic advocates and apologists.

Open borders advocates, or those whom former INS agent Michael Cutler astutely calls "immigration anarchists," had realized that politically, since they couldn't win the argument on its merits, their best offense was to keep the critics of mass immigration on the defense by publicly accusing them of racism, etc. We were "racist" for not meekly acquiescing to open borders and the effective surrender of our national sovereignty to foreigners (prospective immigrants) and to unpatriotic, pocket-lining Americans who profit from an unending influx of immigrants (or those whom I like to call the self-serving "billionaire boys," such as Mark Zuckerberg, Bill Gates, George Soros, and Michael Bloomberg).

In the 1980s, Republican President Ronald Reagan and his henchmen, such as Interior Secretary James Watt, pushed environmentalists into the open, waiting arms of the Democratic Party. The last thing the fat cats in cushy jobs with green groups in the emerging Environmental Establishment were about to do was criticize mass immigration, angering the Democratic leadership and liberal coalition partners, especially Hispanic elites. And of course the Democratic leadership, if not rank-and-file, working-class Democrats, while regurgitating the usual vacuous clichés and humbug about "nation of immigrants," blah blah blah, salivated over mass immigration as a source of ever more voters and political power, perhaps permanently eclipsing their arch-rivals, the Republicans, at the ballot box. (While behind the scene, the powerful economic players who pull strings in both parties remain firmly wedded to a non-stop, Ponzi scheme increase in the number of docile, low-wage workers and voracious consumers.)

And so environmentalists have made their Faustian bargain. They have more political clout than they would have otherwise, but the immigration-driven population growth they have tacitly (or explicitly, in the case of the Sierra Club and climate activist Bill McKibben) endorsed will inevitably trash the environment. And that abused environment will trigger still more public support for the environmentalist cause and for the environmental campaigners who ostensibly promote solutions. A win-win situation all the way around, except for the beleaguered environment itself.

On a less cynical note, if American environmentalists decide to do nothing to prevent immigration-driven population growth from occurring—either because they think it is inevitable or are too focused on more immediate environmental threats, or because they fear alienating their liberal and ethnic political allies—they should at least acknowledge the tradeoff such a decision entails. If stopping U.S. population growth is a lost cause, so is stopping environmental degradation.

This article describes some of the impacts of immigration-driven population growth on the environment. Since the early 1970s American women have chosen to have about two children on average—roughly the number necessary to maintain the size of the U.S. population. However, federal immigration programs have added significantly to the American population by bringing in over a million legal immigrants annually and tolerating widespread illegal immigration, year after year, decade after decade.

Census Bureau projections released in December 2012 confirm that despite somewhat lower levels of immigration in recent years, absent a change in immigration policy, the U.S. will still grow by almost 100 million to 420 million by 2060, with immigration accounting for about 80 percent of the increase. If we truly wish to protect the environment of the U.S., substantially lowering the level of legal and illegal immigration must be part of the discussion. To date, it has not been, because of the unwillingness and intransigence of the vested interests just mentioned, whose first priority is not environmental sustainability.

A REASONABLE RANGE OF POPULATION PROJECTIONS

Progressives for Immigration Reform (PFIR), a Washington, D.C.-based advocacy organization that promotes immigration policy in the interest of American workers and the environment, is preparing a programmatic EIS on immigration numbers. As part of this EIS, PFIR analysts developed three alternative demographic projections corresponding to three reasonable immigration-level scenarios.

> First, the *No Action Alternative* maintains current immigration levels where they are now, at about 1.25 million annually (legal and illegal immigration combined).
>
> Second, the *Expansion Alternative* increases aggregate immigration numbers by a million per year, to 2.25 million annually.

This corresponds to the levels of so-called "comprehensive immigration reform" that the Obama administration and Gang of Eight in the U.S. Senate have pushed for in recent years.

Third, *Reduction Alternative*, which is PFIR's preferred alternative, reduces aggregate immigration numbers by a million per year, to 0.25 million (250,000) annually. This is close to the traditional, pre-1965 average level of immigration to the United States.

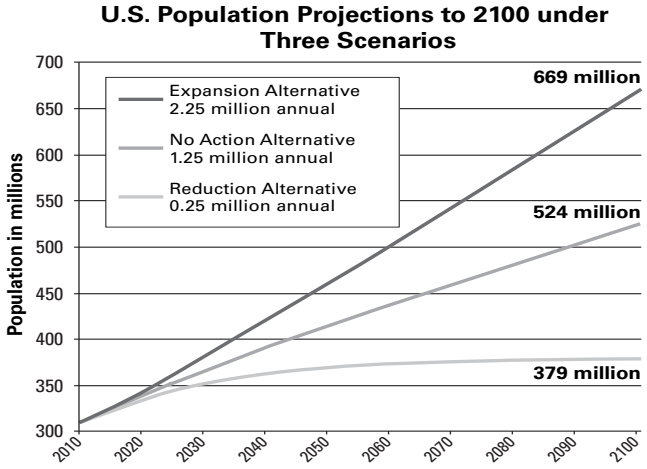

Figure 2. Population projections of three alternatives in the PFIR EIS

TABLE 1. POPULATION PROJECTIONS TO 2100 OF THE THREE IMMIGRATION SCENARIOS USED IN THE PFIR EIS

Average annual net migration	U.S. population in 2010	U.S. population in 2050	U.S. population in 2100
0.25 million (250,000)	309 million	369 million	379 million
1.25 million	309 million	415 million	524 million
2.25 million	309 million	460 million	669 million

SELECTED FINDINGS OF THE PFIR ENVIRONMENTAL IMPACT STATEMENT

PFIR's EIS examines the environmental impact of three immigration level/population growth alternatives with regard to six issue areas:

- Urban sprawl and loss of farmland
- Habitat loss and impacts on biodiversity
- Water demands and withdrawals from natural systems
- Carbon dioxide emissions and resultant climate change
- Energy demands and national security implications
- International ecological impacts of U.S. immigration policies

This article summarizes the findings from two of these six topics: First, urban sprawl and farmland loss, and second, international ecological impacts of U.S. immigration policies. The reader can access the Progressives for Immigration Reform or Immigration EIS websites for the other topics or for the complete study, which is 480 pages long.

URBAN SPRAWL AND LOSS OF FARMLAND

No Action Alternative—By 2100, under the No Action Alternative (1.25 million annual immigration), the addition of 215 million new Americans would entail the development of 79 million additional acres or 123,438 square miles of formerly rural land, an area that approximates the combined size of Kentucky, Indiana, South Carolina, and West Virginia. About 90 percent of this sprawl would be due directly to population growth. Large swaths of America would lose their rural character and "feel." Overall, the effect of the No Action Alternative on suburban sprawl would be *adverse, significant, and long-term.*

Because farmland tends to be flat, and flatlands are easier and cheaper to build on than hillsides, and because of the proximity of much farmland to urban areas, where it lies directly in the path of development, much of the acreage for the new development necessitated by 215 million more residents will likely come from the nation's productive agricultural land base.

Interpolating and extrapolating from the average recent rates of cropland loss and population growth, it can be inferred that under the No Action Alternative, cropland per capita would decrease from 1.18 acre/person in 2010 to 0.32 acre/person in 2100. At these rates, in 2100 each American would have only 27 percent of the cropland that he or she enjoyed in 2010. Another way of stating this is that agricultural yields (food produced per acre) would have to increase almost four-fold just to maintain per capita food production.

The impact of farmland and cropland loss due to immigration-induced population growth could potentially be alleviated or mitigated by continuing advances in agricultural technology that raise productivity or yield per acre (although there could be diminishing returns from these endeavors) as well as sharpening America's commitment to implementing Smart Growth programs and farmland protection policies of the sort advocated by conservation groups. Each of these policies, if successfully implemented at scale, would have the net effect of increasing population density on both existing and future developed land. Americans would have to be willing to accept relatively more apartments and condominiums and relatively fewer and smaller single-family detached homes with yards. Just how politically and culturally feasible this large shift in public attitudes

would be remains to be seen.

Overall, the effect of the No Action Alternative on farmland loss would be *adverse*, *significant*, *and long-term*. This alternative would substantially reduce future U.S. food security.

Figure 3. Composite satellite image of North America at night showing how densely developed certain parts of the United States already are, especially in the East.

Expansion Alternative—By 2100, under the Expansion Alternative (2.25 million annual immigration), the 2100 U.S. population of 669 million would exceed the No Action Alternative population of 524 million by 145 million. In this alternative, 113 million acres of developed land in 2010 are projected to increase to 245 million acres (383,000 square miles) by 2100. This would be about equal in area to Texas and New Mexico combined, that is, our second and fifth largest states. Still larger swaths of Rural America would forever be converted to Urbanized Areas and lose their rustic character and "feel" than in the No Action Alternative. Extensive areas of the country that would still be officially designated "rural" under the classification systems of the Census and the National Resources Conservation Service (NRCS) would nonetheless be under the influence of adjacent developed areas and would lose some of their rural feel, charm, and tranquility.

Overall, the effect of the Expansion Alternative on suburban sprawl would be *adverse, significant, and long-term.* It would result in the permanent conversion of 132 million additional acres or 206,250 square miles of open space and natural habitat to urbanization—the essentially irreversible process of converting rural land into developed or urbanized land. Urbanized or developed land would increase from 7.6 percent of all non-federal lands in 2010 to 17 percent in 2100 (compared to 13 percent under the No Action Alternative).

As noted above, because farmland tends to be flat, and because flatlands are easier and cheaper to develop than hillsides, much of the acreage for the new development necessitated by 360 million more residents will likely come from the nation's agricultural land base. Table 2 shows projected losses of cropland under the three alternatives considered in the PFIR EIS. Over 52 million acres of cropland are projected to be lost by 2100 under the Expansion Alternative.

Overall, the effect of the Expansion Alternative on farmland loss would be *highly adverse, significant, and long-term.* It would likely be associated with the permanent disappearance of tens of millions of additional

TABLE 2. PROJECTED CUMULATIVE CROPLAND LOSS BY 2050 AND 2100 UNDER THE THREE IMMIGRATION SCENARIOS (ALTERNATIVES) USED IN THE PFIR EIS

Alternative	Average annual net migration	U.S. cropland in 2010 (acres)	Cropland lost to development by 2050 (acres)	Cropland lost to development by 2100 (acres)
Reduction	250,000	361 million	8.7 million	10.2 million
No Action	1.25 million	361 million	15.4 million	31.2 million
Expansion	2.25 million	361 million	21.9 million	52.2 million

TABLE 3. PROJECTED AREA OF TOTAL DEVELOPED LAND IN 2050 AND 2100 UNDER THE THREE IMMIGRATION SCENARIOS (ALTERNATIVES) USED IN THE PFIR EIS

Alternative	Average annual net migration	Developed land in 2010 (millions of acres)	Developed land in 2050 (millions of acres)	Developed land in 2100 (millions of acres)
Reduction	250,000	113.3	135.3	139.0
No Action	1.25 million	113.3	152.2	192.1
Expansion	2.25 million	113.3	168.7	245.3

acres of farmland (cropland, pastureland, and rangeland) to urbanization. While the sustainability of many current agricultural practices is already questionable, surviving farmland and soils remaining in cultivation or under grazing regimes would be subjected to even more intensive pressures and practices in order to maintain productivity at all costs. In itself, this is likely untenable and unsustainable over the long run. This alternative would drastically reduce future U.S. food security.

Reduction Alternative—Under the Reduction Alternative (250,000 or 0.25 million annual immigration), the 2100 U.S. population of 379 million would exceed the 2010 population of 309 million by 70 million or 23 percent; it would be 145 million—or 28 percent—less than the 524 million of the No Action Alternative population. As of 2010, there were 113.3 million acres (177,031 square miles) of developed land in the United States. With population growth of 70 million by 2100 under the Reduction Alternative, this built-up area would expand by 25.7 million acres to 139 million acres in aggregate at the end of this century. Table 3 (see page 27) compares the total area of all development acreage for all three alternatives in 2050 and 2100.

Figure 4 is a bar chart that graphically depicts the projected change in the amount of developed land under each of the three alternatives.

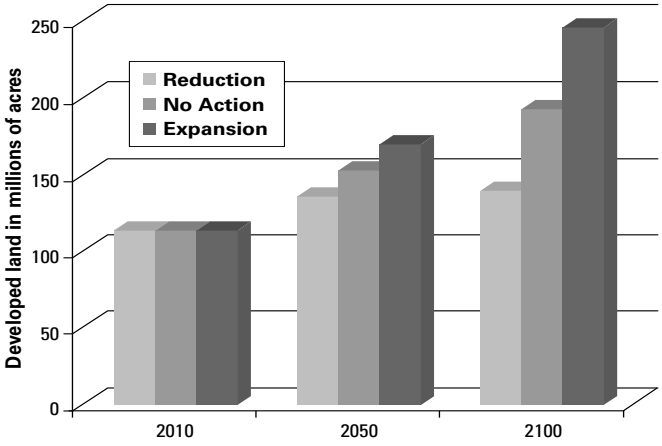

Figure 4. Estimated growth in amount of developed land in U.S. under three immigration alternatives in the PFIR EIS

Overall, the effect of the Reduction Alternative on suburban sprawl would be *adverse, significant, and long-term*. Even though all three alternatives are rated as "adverse, significant, and long-term," the Reduction Alternative is quantitatively and qualitatively much less adverse than the No Action and Expansion alternatives.

Accommodating 70 million new Americans—more than the current combined populations of our two most populous states, California and Texas—would still require development of significant additional space and land area, but not nearly as much as in the No Action and Expansion alternatives.

Overall, the effect of the Reduction Alternative on farmland loss would be *adverse, significant, and long-term.* Of the three alternatives, this one would have the least negative impact on future U.S. food security.

INTERNATIONAL ECOLOGICAL IMPACTS OF U.S. IMMIGRATION POLICIES

U.S. consumption and population growth impact the natural resources and environment not just of U.S. territory itself but of the lands, natural resources, environments, and (often indigenous or tribal) residents of other countries and continents. Many of the raw materials, resources, and manufactured products used directly or indirectly by American consumers originate overseas and are imported into the U.S. as part of international trade and commerce.

For example, the United States imports large quantities of raw materials such as wood products, metals and minerals, and energy (e.g., natural gas, oil, hydroelectricity) from our more thinly populated northern neighbor Canada, which has about one-tenth the U.S. population in an area roughly equal in size. Imports of lumber and wood products like pulp, paper, newsprint, and packaging encourage logging operations and the destruction of old-growth forest and loss of wilderness and wildlife in British Columbia and elsewhere.

Figure 5. Mountainside scalped in coastal British Columbia, Canada

American industry and consumers are "out-sourcing" the pollution, greenhouse gas (GHG) emissions, environmental damage, and human health effects associated with enormous amounts of drilling, digging, blasting, mining, manufacture, and harvesting—often under primitive conditions with little environmental oversight—that provides goods and services for our domestic consumption. A greater number of Americans will raise demand for imports and trigger more associated impacts in those countries that export to us.

Similarly, U.S. consumption itself, primarily of the fossil fuels, releases large amounts of carbon diox-

ide that are contributing to climate change and concomitant widespread ecological effects around the biosphere. Many of these effects are being experienced most acutely in the developing world, with its mainly poorer, marginalized populations.

No Action Alternative—The No Action Alternative (1.25 million annual immigration) would lead to a U.S. population of 524 million in 2100, an increase of 215 million (70 percent) over the 2010 population of 309 million. The potential for international ecological impacts from aggregate U.S. consumption in 2100 would be up to 70 percent greater than in 2010. The U.S. economy would likely import more raw materials, food, and manufactured goods, the production of which would entail substantial adverse environmental effects in the countries of origin.

Effects would range from the impacts of mining and forestry activities on the landscape, wildlife habitat, water quality, human health, and the wellbeing of indigenous peoples (where traditional tribal lands are exploited for their resources without express consent of their longtime inhabitants) to the impacts on air quality and human health from pollutants emitted by factories producing goods for export to the U.S. Furthermore, there would likely be a comparable increase in U.S. carbon dioxide and other GHG emissions, as well as pressure on our ecological footprint, both of which have international or global ramifications.

Overall international ecological effects of this alternative would be *adverse, significant, and long-term.*

Expansion Alternative—This alternative (2.25 million annual immigration) would result in a U.S. population of 669 million in 2100, an increase of 360 million (117 percent) above the 2010 population of 309 million.

Under this alternative, international ecological impacts of aggregate U.S. consumption in 2100 would be more than twice (approximately 117 percent) as great as in 2010. Under a much larger population, all of the effects under the No Action Alternative would be magnified even further in order to just maintain U.S. consumption and living standards, to say nothing of increasing them. While, as noted above, there would likely be positive economic effects in exporting countries from supplying much larger U.S. imports, there would be correspondingly larger environmental impacts as well.

Overall, the international ecological effects of the Expansion Alternative would be *highly adverse, significant, and long-term*. To reiterate and underscore, neither the immigration rates nor the concomitant U.S. population growth associated with the Expansion Alternative would be entirely responsible for international ecological impacts of the United States in the year 2100. That said, an alternative that more than doubles the number of resource consumers and waste emitters in the United States would exert much greater stresses and generate far greater widespread impacts that extend well beyond U.S. borders into the rest of the biosphere.

Reduction Alternative—Under this alternative (250,000 or 0.25 million annual immigration), international ecological impacts of aggregate U.S. consumption in 2100 would be about a quarter (approximately 23 percent) larger than in 2010. Nonetheless, these effects would be substantially smaller than for the No Action Alternative and the Expansion Alternative.

Overall, the international ecological effects of the Reduction Alternative would be *adverse, moderately significant, and long-term*. To reiterate and underscore, neither the immigration rates nor the concomitant U.S. population growth associated with the Reduction Alternative would be entirely responsible for international ecological impacts emanating from the United States in the year 2100. Of the three alternatives considered, this one would entail by far the lowest level of adverse international ecological impacts.

SOME OTHER ENVIRONMENTAL IMPACTS OF IMMIGRATION-DRIVEN POPULATION GROWTH

Traffic Congestion

The degree of traffic congestion on American streets and highways in and around urban areas is a function of the populations of people and vehicles in comparison with roadway capacity. In recent decades, as urban populations and vehicle-miles-traveled (VMT to transportation planners) have grown faster than roadway capacity, congestion has worsened considerably. More and more motorists sit for longer and longer hours in gridlocked traffic breathing one another's fumes.

Every year the Texas Transportation Institute (TTI) issues Urban Mobility Reports that provide updated data on traffic congestion for cities and towns around the country. One recent report concluded:

> Traffic congestion levels have increased in every area since 1982. Congestion extends to more time of the day, more roads, affects more of the travel and creates more extra travel time than in the past. And congestion levels have risen in all size categories, indicating that even the smaller areas are not able to keep pace with rising demand.

Not surprisingly, traffic congestion is worse in larger urban areas than in smaller ones. Figure 6 displays this relationship. It is not unreasonable, then, to assert that as the populations of cities and suburban areas grow, traffic congestion will worsen commensurately.

Motorists in the Washington, D.C. metro area, who even now waste more than 70 hours annually sitting in traffic, may likely find themselves idling for 100 hours a year by 2060 if population growth continues, even with ongoing and foreseeable transportation improvements.

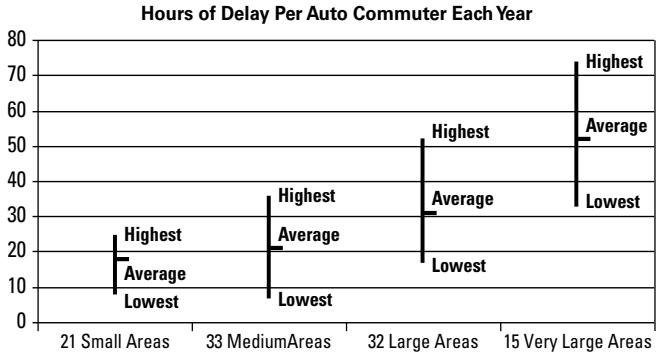

Figure 6. Congestion and Urban Area Size, 2010
Source: Texas Transportation Institute, 2011 Urban Mobility Report, Exhibit B-3

Energy Consumption

Ecosystems and economies run on energy. Energy production and consumption each entail significant environmental repercussions ranging from oil spills and air pollution to nuclear power plant risks and radioactive waste disposal. Although so-called green or renewable energy sources have certain advantages, they are not environmental panaceas. Wind farms can cause bird and bat mortality, generate objectionable noise and other issues for nearby residents, and interfere with radar at airports, as well as mar unspoiled mountain or coastal scenery. Centralized solar energy facilities in Southwestern deserts obliterate habitats and wildlife in those areas. Hydroelectric dams destroy runs of anadromous fish like salmon and shad.

Figure 7. Oil and gas drilling fragments wildlife habitat in the Allegheny National Forest of Pennsylvania to feed America's enormous appetite for hydrocarbons

Thus, the rate of annual energy consumption is a key index of environmental stresses even when that energy is produced by renewable sources. Americans are big users of energy, among the highest per capita users on earth and second only to the emerging colossus China in aggregate energy consumption. Moreover, both domestic and global energy consumption rates can be seen as unsustainable in the long run because some 85 percent of primary energy derives from non-renewable fossil fuels, which, when burned to perform work for us, are used up irrevocably and not replaced, leading to their inexorable depletion.

If per capita energy consumption were to remain unchanged, increasing America's population 36 percent by 2060 would increase energy consumption and its environmental impacts by roughly 36 percent as well. Fortunately, per capita energy use has decreased slightly in recent decades and is projected to continue this downward trend for the foreseeable future; by 2035, the U.S. Energy Information Administration (EIA) projects that energy use per capita will only be 80 percent of what it was 55 years earlier in 1980, or about a 12 percent decrease from 2010. Likewise, energy use per dollar of GDP will only be about a third of what it was 55 years earlier, a function both of energy efficiency improvements and structural changes in the U.S. economy, such as shifting energy-intensive industries overseas and moving more towards a "post-industrial" and information-based economy.

If U.S. population were to remain constant, a 12 percent decline in per capita energy use would result in a 12 percent reduction in aggregate energy use, not exactly a cause for celebration but at least a solid step in the right direction. However, because our population is projected to grow by 36 percent instead, the net result would be a 20 percent *increase* in the annual rate of aggregate energy use.

How will we meet this demand for energy? A nuclear "renaissance" appears increasingly uncertain after the costly (and still ongoing) 2011 nuclear disaster and partial core meltdown at the Fukushima Daiichi plant in Japan, and there is very little scope for additional hydroelectric output from America's rivers, especially in light of the concerns about the impact dams have on the ecosystem. Capital-intensive and expensive renewable solar and wind projects are likely to expand exponentially with government support (such as feed-in tariffs and statewide renewable energy standards) – and, at the same time, face stiffer headwinds and opposition as sensitive and valued landscapes and "seascapes" like Nantucket Sound near Martha's Vineyard in Massachusetts (where the battle over the proposed Cape Wind project has been waged for a decade) are increasingly threatened with development.

In order to meet this predicted 20 percent increase in demand, it is very likely that the country will look to expand petroleum (oil and gas) production on both public and private lands in the coming decades, including the use of hydrofracking, which is very controversial.

Increasingly, the oil and gas industry is "scraping the bottom of the barrel" to get at the fossil energy resources that remain, running faster and faster to stay in the same place.

Environmentalists and climate activists are now celebrating the Obama administration's rejection of the Keystone XL pipeline, carrying syncrude to refineries in Port Arthur, Texas, from the Athabasca tar sands in the Canadian province of Alberta, but it can always be resurrected in the future. There may also be a concerted push to finally exploit in earnest the hypothetically vast quantities of oil resources in the oil shale (actually kerogen) of the Green River Formation in Utah, Colorado, and Wyoming. An estimated three trillion barrels of oil resources are found here, more than the entire quantity of conventional oil left on earth. However, the operative word is "hypothetical," for while these resources have been known for well over a century, they have always been and may always be a resource of the "future." Their time may never come. Their EROEI (energy return on energy invested) appears to be very low. That is, producing a barrel of oil from kerogen may take almost an equivalent amount of energy in some form. Furthermore, processing would require large amounts of water in an arid region, and land surface reclamation would be difficult. Moreover, the low EROEI and the vast quantities of oil shale in combination would pose a serious threat to the climate due to enormous carbon dioxide emissions.

These are just a few of the energy-environment issues raised by U.S. population growth, which as we have seen is driven mostly by immigration policy. In sum, immigration-driven population growth in the U.S. raises important energy and environmental concerns that should not be ignored because of political correctness.

Water Resources

Water is essential to all life; both economies and ecosystems wither without it. The U.S. is comparatively well endowed with water resources and uses prodigious volumes of both surface water (withdrawn from reservoirs and rivers) and groundwater (pumped from subterranean aquifers) in agriculture, industry, and municipalities. In 2005, about 410,000 million gallons of water was withdrawn for use in the U.S. every day—over four million swimming pools' worth or about 5,000 Rose Bowls filled to the rim. About 80 percent of our water supply is from surface water and the remaining 20 percent from groundwater. Water is used to irrigate our crops, manufacture all manner of products ranging from steel to silicon chips and soft drinks, water our lawns, fill our cooking pots, wash away our wastes, and even cool our thermal power plants. About 80 percent of water is used in U.S. agriculture, which is very water-intensive because crops (like all plants) need it for photosynthesis and transpiration. Protecting water quality by avoiding and cleaning up water pollution is as important as managing and conserving water quantity.

Both aquatic and terrestrial ecosystems depend on water of adequate quantity and quality as well. While it is obvious that freshwater fish, shellfish (clams, mussels, crayfish, etc.), and aquatic plants need water of sufficient depth, flow, clarity, and temperature to survive, and unpolluted, well-oxygenated water at that, it is less obvious that adjacent riparian plant communities, wetlands, and many species of wildlife are equally dependent on the water coursing through streams and rivers.

In taking water from natural environments for human use, it is important to leave enough water behind for ecosystem services and functions. And these functions not only include supporting fisheries and wildlife, but also commercial navigation, hydroelectric generation, recreation (e.g., boating, fishing, swimming), and even sight-seeing and tourism (e.g., Niagara Falls).

Water conservation and reuse strategies and technologies have advanced considerably in recent decades, and can be applied in all water use sectors. They include water metering, drip irrigation, low-flush toilets and low-flow showerheads, lawn watering restrictions, xeriscaping (using drought-tolerant plants adapted to arid environments for landscaping), use of grey water for irrigation, and a host of others. With enough engineering and expense, we can literally cleanse our water "from toilet to tap."

All of these methods and devices taken together are capable of reducing per capita water consumption to such an extent that many regions of the country could accommodate projected population growth to 2050 and still have enough water both for humans and nature without major new water projects. However, in the driest and one of the most rapidly growing parts of the U.S.—the American Southwest—the same cannot be said. This arid region was formerly thinly populated, but it burst from just 3 million in 1900 to 45 million at present. This region, served by two over-allocated, over-stressed rivers—the Colorado and the Rio Grande—is both extremely hot and dry, its large-scale settlement made possible only through the advent and spread of air conditioning. Witty cowboy humorist Will Rogers once quipped of the Rio Grande that it was "the only river I ever saw that needed irrigation."

In a nutshell, water resources in America are already stressed in many parts of the country, and projected population growth will stress them further, though a commitment to good planning can buy time and alleviate some of that stress. One way stress will be relieved is buying farmers' water rights, which is happening in California and elsewhere. To accommodate the water demands of a growing population, we are reducing our ability to feed that population, as well as the overseas

populations that depend on our food (especially grain) exports.

Wildlife and Its Habitats

People need a place to live. Every person lives in a home—whether an apartment, condo, townhouse, or single family dwelling—that takes up space that was once natural habitat. But everyone also uses other structures, facilities, and infrastructure that displace additional habitat as well, such as roads, parking lots, office buildings, shopping centers, recreation facilities, and schools. Yet all of these facilities occupy just a small portion of the overall land area that each person co-opts. Farmland, rangeland, timberland, and mines extend across large areas and are exploited to provide food, fiber, and minerals to each consumer. Most of the energy we use comes from oil and gas wells and coal mines that disturb or eliminate wildlife habitats.

Pesticides, herbicides, and fertilizers are used heavily to provide the food we eat; the former can harm wildlife because of its toxicity, while the latter two can impair water quality and aquatic life. A notorious "dead zone" up to 6,000-7,000 square miles in area now appears every summer near the mouth of the Mississippi River in the Gulf of Mexico; this zone of severe hypoxia or oxygen deprivation is caused by the runoff of fertilizers (plant nutrients, primarily nitrogen and phosphorus) from farmland in the Mississippi watershed. Animal wastes and sewage contribute nitrogen and phosphorus as well. Nutrients cause algal blooms (i.e., algal population explosions) which, when the algae die en masse, deplete dissolved oxygen, upon which almost all aquatic and marine life depends.

Increasing U.S. population will severely exacerbate pressures on remaining wildlife and wildlife habitat. Even if more people opt to reduce their per capita impact by living more compactly and recycling and eating less meat or no meat at all (which reduces the amount of land and water required to feed them), about the best we could hope for is to trim the increase in aggregate impacts. In our most overpopulated and biologically diverse state, several years ago the California Department of Fish and Game counted more than 800 imperiled species, including half of all mammals and one-third of all birds. The Department identified the major stressors affecting California's wildlife and habitats. It emphasized that: "Increasing needs for housing, services, transportation, and other infrastructure place ever-greater demands on the state's land, water, and other natural resources." Of course, all of these are a direct function of population size and growth.

Ecological Footprint

The Ecological Footprint (EF) is a measure of the load that aggregate human demands impose on the biosphere, or "ecosphere." EF compares the demands of the human economy, or subsets of it, with the earth's (or a given country's) ecological capacity for regeneration and renewal, its "biocapacity." EF represents the amount of biologically productive land and water area needed to regenerate the renewable resources a given human population consumes and to absorb and render harmless, or assimilate, the corresponding waste or residuals it generates. The global EF now exceeds global biocapacity by more than 50 percent, which is not a sustainable situation over the long run; it means we are drawing down "natural capital" and running up an "ecological debt".

Mass immigration is increasing America's national EF, pushing our country deeper into ecological debt. See Figure 8, in which our EF, as estimated by the Global Footprint Network, had exceeded our biocapacity even before 1961. At nearly 323 million, U.S. population currently is well in excess of the carrying capacity of our land and resource base. If everyone in the world consumed resources like Americans, the Ecological Footprint would require four to five Planet Earths to meet our demands. High immigration levels driving U.S. numbers to almost 400 million by 2050 and 500-700 million by 2100 will only exacerbate this untenable situation.

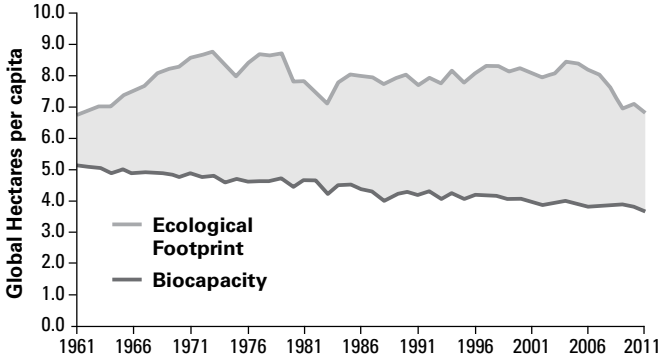

Figure 8. U.S. Ecological Footprint vs. Biocapacity, 1961-2011 (Source: Global Footprint Network)

Carbon Dioxide Emissions

Anthropogenic GHG emissions, the most important of which is carbon dioxide (CO_2), raise the concentration of these gases in the earth's atmosphere, and in the case of CO_2, in the upper layers of the ocean as well. Climatologists believe the increase in atmospheric concentrations is causing average global temperatures to rise. There is widespread concern that such warming may result in far-reaching, long-term impacts on the earth's climate, biosphere, agriculture, and coastal communities from sea level rise. About 30-40 percent of anthropogenic CO_2 emissions are absorbed by the world's oceans, helping scrub it from the atmosphere, but threatening the marine environment instead. In water CO_2 is converted into carbonic acid (H_2CO_3),

gradually acidifying the ocean and impeding the process of calcification, by which creatures such as corals and shellfish form their shells. Marine biologists are deeply worried for the future of the oceans.

The Environmental Protection Agency (EPA) has reported that, "between 1990 and 2010, the increase in CO_2 emissions corresponded with increased energy use by an expanding economy and population." And the U.S. Department of State, in projecting future emissions, noted: "These rising absolute levels of CO_2 emissions occur against a background of growing population and GDP."

A 2008 Center for Immigration Studies report found that immigrants to the U.S. on average increase their per capita CO_2 emissions by four times over average per capita emissions in their native countries. With immigration estimated to be responsible for 80 percent or more of U.S. population growth to 2050, and virtually 100 percent of growth to 2100, immigration is now the main force pushing U.S. CO_2 emissions upward. Trying to lower U.S. CO_2 emissions under a scenario of constant population growth will be like an overweight person trying to lose weight while increasing his or her caloric intake (i.e., eating more and more): a mission impossible.

Other Effects of Projected Population Growth

Adding more than 100 million resource consumers to America's population by 2060 and between 200 and 300 million more by 2100 will have other adverse effects on the American landscape and environment in addition to those described above. These are suggested by the schematic in Figure 9. The table of contents of a typical EIS includes topics such as soils, air quality, vegetation, wildlife, endangered species, noise, recreation, visual resources (aesthetics), cultural and historical resources, waste management (including hazardous and toxic wastes), and environmental justice. A substantially larger population extracting more resources from the environment and extruding more residuals into the environment will adversely impact all of these.

CONCLUSION—PILING ON THE PRESSURE

In 1972, the transmittal letter to the President and Congress of the Report of the Commission on Population Growth and the American Future (nicknamed the Rockefeller Commission) stated:

> After two years of concentrated effort, we have concluded that, in the long run, no substantial benefits will result from further growth of the Nation's population, rather that the gradual stabilization of our population through voluntary means would contribute significantly to the Nation's ability to solve its problems.

More than 30 years later, in 1996, this statement was echoed by the Population and Consumption Task Force of President Clinton's Council on Sustainable Development. The task force concluded that: "reducing current immigration levels is a necessary part of working toward sustainability in the United States."

In spite of their common sense logic and the respectable political pedigree of those making these calls for a halt to U.S. population growth, these appeals have fallen on deaf ears for more than 40 years. In these four-plus decades, the U.S. population has soared by 50 percent—by about 120 million—and pressures on the environment have increased more or less in tandem. Now over the next five decades and beyond, the Census Bureau is projecting that America's numbers will continue to swell without respite, with persistent high levels of immigration as the primary driver. And the Environmental Establishment is silent, complicit, clueless, or all of the above.

If Americans acquiesce to this fate, an ever larger population cannot help but move the country ever further away from the goal of environmental sustainability. That is what saddened and sickened Senator Gaylord Nelson (D-WI), the father of Earth Day, and David Brower, the legendary conservationist, in their final years. ■

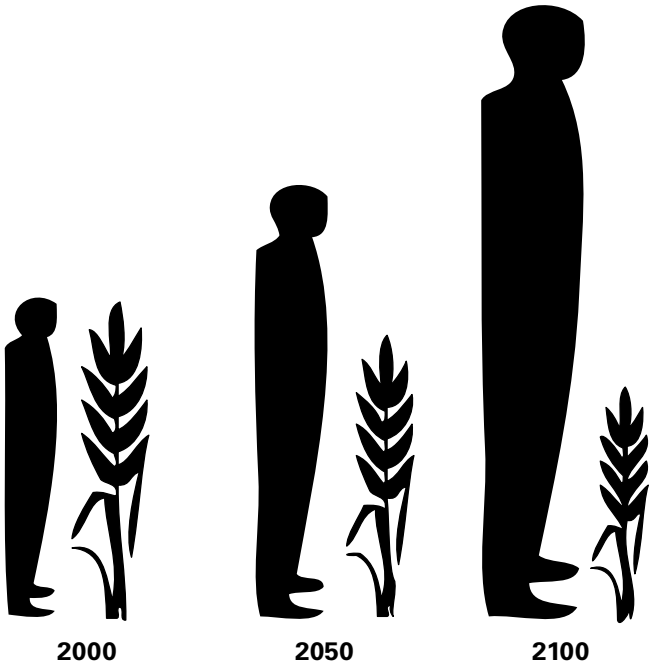

Figure 9. Schematic depicting opposite trends in U.S. population size (growing man) and cropland area (shrinking grain stalk); this graphic applies more broadly to all natural resources and environmental quality.