# Environment DA (HSR)

## Links

### Endangered Species

#### HSR is bad for the environment-endangered species are a concern

**Lisa Ratner, 6/11/12 (reporter for KALW's Crosscurrents covering Public Transportation, Food Politics, Gender Politics, and Film, Connecting the Dots: Top news stories for June 11, 2012,** <http://www.kalw.org/post/connecting-dots-top-news-stories-june-11-2012>**, S.O.)**

(LA Times) // High-Speed Rail construction is facing challenges over its environmental impact on both air quality and endangered species. Concerns include the problematic air quality in the San Joaquin Valley where about 1 out of 7 children have been diagnosed with asthma, and federal biologists say 11 endangered species will be impacted. State and federal agencies will be examining these effects over the next several months, issuing findings that could affect the cost and schedule of construction. That is on top of delays caused by environmental lawsuits brought by the powerful California agriculture industry... (San Jose Mercury News) // While High Speed Rail faces numerous setbacks, there is good news for the Caltrain system. One year since the transit system had to be bailed out to prevent massive closures, ridership is up 11 percent, allowing it to add six more train trips per week. To prevent the funding roller coasters, Caltrain is advocating for permanent funding measures that will be voted on in 2013... (LA Times) // Roller coasters may be in store for whoever replaces three of California’s most influential education Chancellors. Charles B. Reed and Jack Scott, Chancellors of California State University and the California Community Colleges, and UC Berkeley Chancellor Robert Birgeneau will all be retiring, making may wonder who will take over when all three education systems are facing such challenging times... (San Francisco Chronicle) // One way to respond to budget cuts in higher education is to cut programs with low enrollment. A new federal study claims numerous degree programs at California’s public universities with fewer than 10 graduates are endemic of program bloat and could be cut or offered online in order to improve efficiency... (California Watch) // A new report shows rates of cancer among adults in California have declined 9 percent in the past 20 years, but that cases among children have increased by 12 percent. Massive studies are underway to explain the unknown reasons for why more kids are getting sick, most of which are cases of Leukemia. Studies include examining households that use pesticides during pregnancy and if the father smoked before a baby was conceived... (Santa Cruz Sentinel) // Where contributing factors to cancer are hard to predict, there's a new software enabling the prediction of crime. PredPol is a new crime-predicting software generated by two Santa Cruz entrepreneurs and is gaining popularity among police departments. It projects when and where future crimes are likely to occur, similar to the technology used to predict aftershocks from earthquakes. It has already been credited with helping the LAPD reduce burglaries by 36 percent in one of its divisions.

#### Trains cause Environmental destruction, wiping out endangered species

**Frank, 12 –** (Stephen Frank, writer for capoliticalnews, 6/04/2012, Gov. Jerry Brown Finds Environmental Regs Inconvenient For High Speed Rail, <http://capoliticalnews.com/2012/06/04/gov-jerry-brown-finds-environmental-regs-inconvenient-for-high-speed-rail/>)

**Under Brown’s proposal, train foes would have to prove in court that the project causes major environmental problems**, **such as wiping out an endangered species or damaging extremely valuable land**.” If it were your business government can make a charge and you have prove you are right—guilty till you prove yourself innocent. Like , most elected Democrats, Jerry Brown is a hypocrite—at our expense. California has lots and lots of environmental regulations that stifle business and its economy. Now, not all of them are bad, but, what’s a Democrat governor to do when these regulations get in the way of his high dollar boondogle? (Oakland Tribune) Gov. Jerry Brown is proposing to fast-track California’s $69 billion high-speed rail project by easing legal scrutiny under the state’s landmark environmental law, this newspaper learned Friday. The proposal, which the Legislature would have to approve this month as part of launching the state’s biggest-ever construction project, does not change the California Environmental Quality Act. But **Brown’s plan**, while angering environmentalists, **would have two major consequences**. **First,** **it virtually takes away the final bullet in the chamber that project opponents were hoping to use to kill high-speed rail**: a court-ordered injunction halting construction. Under Brown’s proposal, train foes would have to prove in court that the project causes major environmental problems, such as wiping out an endangered species or damaging extremely valuable land. In the past, opponents on the Peninsula have delayed planning for the project by convincing a judge of minor problems — for instance, that the state did not adequately study track vibrations. And Central Valley farmers Friday filed a lawsuit with a similar strategy in mind. **Second**, **the proposal adds to a growing number of large-scale projects that Brown and former Gov. Arnold** **Schwarzenegger have tried to exempt from the most intense environmental legal scrutiny by arguing that California needs to create jobs quickly**. **In this case, court delays would void key federal high-speed rail grants needed to begin construction, which would prevent job creation and the development of a greener way to travel**.

### Environment (Generic)

#### Even if HSR creates jobs it will cause huge impacts on the environment – Empirics prove

**Popratnjak, 12 –** (Sophie Popratnjak, MARCH 3, 2012, Justine Greening not Green at all, <http://environmentalgeographies.wordpress.com/category/uncategorized/page/2/>)

In the 21st century countries are competing to produce the latest modes of transport to maximise the nation’s prosperity and quality of life. In 2012, transport sectary Justine Greening passed the law for a new high-speed rail in England (HS2). The BBC news stated that David Cameron’s father-in-law Lord Astor was against the HS2. He believed the high-speed rail was a ‘Pooh trap for ministers, who loved grand projects’. Like many environmentalists, Lord Astor thought there was another cheaper alternative that wouldn’t destroy the countryside. **In order for the British Government to create the HS2 environmental and social compromises must be made; thousands of metres of countryside are to be destroyed, pollution will increase and wildlife would decline all for a shorter journey**. Mike **Whitby offers an opposing argument by stating the HS2 will provide** sustainable **economic growth for the region, bringing with it 40,000 jobs**. H**owever, there is no justice or consideration for the loss of habitats, cultural heritage and demolition of people’s homes the proposed line will cause**. **Normally environmentalists would promote the use of trains** due to the reduction of cars on the road. **However, in this case many fear the potential ecological impacts**. **Warwick Councillor Bob Stevens claimed the development of the HS2 will threaten over 140 wildlife sites and 40 ancient woodlands**. Nevertheless, the government are continuing to ignore the environmental impacts the new rail line will cause by focusing on its economic benefits. With over 2,000 members of the Wildlife Trust ignored what hope does this have for the wildlife that will be destroyed? **Infrastructure projects have caused the isolation and destruction of animal’s habitats and these developments have changed the areas microclimate** (Spellerberg, 1998). As geographers it is difficult to predict the environmental consequences the HS2 will cause and what species will be affected the most. From **previous research the Madrid-Sevilla high-speed train line located in Spain had a wildlife kill rate of 36.5kills/km** (van der Grift 2001). **Research highlighted that 57% of the deaths were birds, 47% were mammals and 3% amphibians**. Britain’s HS2 will be 70km longer than the Madrid-Sevillia train line this could make the death toll even higher.

#### Trains cause Environmental destruction and thus avoid funding it

**Frank, 12 –** (Stephen Frank, writer for capoliticalnews, 6/04/2012, Gov. Jerry Brown Finds Environmental Regs Inconvenient For High Speed Rail, <http://capoliticalnews.com/2012/06/04/gov-jerry-brown-finds-environmental-regs-inconvenient-for-high-speed-rail/>)

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#### HSR will cause environmental damage

**Tim Sheehan, 5/26/12 (reporter on high-speed rail and business for The Fresno Bee, High-speed rail construction will give Valley's bad air a big bump before reductions take hold,** <http://www.fresnobee.com/2012/05/26/2851875/high-speed-rail-secret-construction.html>**, S.O.)**

Backers of California's proposed high-speed rail system frequently tout the long-term air-quality benefits of getting people out of cars and planes and onto electric-powered trains. But any reductions in air pollution won't start for at least a decade, when the trains would start carrying passengers between Merced and the Los Angeles Basin. Meanwhile, building the system in the San Joaquin Valley is expected to pump tons of dust, greenhouse gases and other pollutants into the air. International experts warn it could take years for the benefits of train ridership to make up for the harm caused during construction. The California High-Speed Rail Authority expects to pay millions of dollars to make up for construction emissions in the Valley. "Building in an emissions-free manner is not possible, of course," said Lisa Marie Burcar, a spokeswoman for the rail authority. "But offsetting those emissions to result in the same outcome is." In its environmental impact report for the Merced-to-Fresno section -- one of the first portions of the statewide train system planned to be built -- the rail authority allows that "construction ... has the potential to cause temporary and significant localized air quality impacts" on the Valley's air between 2013 and 2022. High-speed rail board to take up hiring of CEO Work would include demolition, land grading, earthmoving, pouring concrete, building stations and laying tracks. All that work, and the equipment used to do it, are expected to produce reactive organic compounds and nitrogen oxides -- two chemicals that mix in the atmosphere to create ozone -- as well as dust and carbon dioxide and other greenhouse gases. The pollution anticipated from high-speed rail construction would be a small fraction of emissions already generated in the region. But in the Valley, already struggling to meet state and federal air-quality standards, any extra pollution is a major worry, said David Barber, of the San Joaquin Valley Air Pollution Control District. Construction pollution not only has "dire consequences" for healthy air, but it threatens the San Joaquin Valley's ability to comply with federal mandates under the federal Clean Air Act, Barber told rail-authority board members this month in Fresno. The Valley faces several deadlines over the next 11 years to meet standards for ozone and fine particles, called PM-2.5. PM-2.5 is made up of dust and other particles that are 2.5 microns in size or smaller. A human hair, by comparison, is between 50 and 70 microns in thickness. Barber said failure to reach those standards will have "dramatic and potentially devastating consequences in the form of federal sanctions on the Valley." Penalties could include severe limits on industrial development and the loss of billions of dollars in federal highway funds. The rail authority outlined steps it will take to limit air pollution. Contractors will have to use the cleanest possible machinery; and trucks, for example, will have to be newer models. Temporary concrete plants will have to be at least 1,000 feet from daycare centers, schools, hospitals, senior-care centers, homes or parks. Even so, the authority admits emissions would be significant, so it promises to give the Valley air district money to reduce emissions from other sources to offset rail building pollution. "The air district strongly believes this is the right approach, given the seriousness of air-quality concerns in the Central Valley," Barber told the authority's board. Burcar said the authority will include similar requirements in the upcoming environmental report for the Fresno-Bakersfield section. In all, the agency estimates it will spend $10 million to $20 million to counter pollution. Some of that money could go to the air district's incentive programs, which include helping homeowners replace gas-powered lawnmowers with low-cost electric ones, and helping businesses, farmers and industries replace or upgrade trucks and machinery, said Samir Sheihk, the district's director of strategies and incentives. "Those programs are always oversubscribed -- there's always more demand than we have money for," Sheikh said. In Spain, where high-speed trains have been running for 20 years, some experts said it can take decades for high-speed rail to make up for environmental damage from construction. High-speed trains "might be green, [but] don't take it for granted," said Germà Bel, a professor of political economics at the University of Barcelona and a former deputy in the Spanish parliament. "Because there is a lot of environmental damage while the construction is on. "The story does not begin the day that high-speed lines begin service: The story with the environment begins the day on which the first work began." Disregarding the construction effects "gives the environmental effects of high-speed rail a kind of mythological value," he said. To make up for construction impacts, a high-speed train line must attract enough people from cars and planes. "If you have a new line with huge demand, it might be environmentally friendly -- at a huge cost," Bel said. "If you have medium use of such a line, you take about 30 years to recover the environmental damage done because of construction. If the usage is low, you actually have a very bad effect on the environment. "The point with high-speed rail is whether you get dozens of millions of trips [per year]. It's very demanding, and it's not the case with any single line in Spain." Rail officials in California say they'll do such a good job of offsetting pollution while the system is built, there will be nothing to "make up or pay back" by the time the trains would start carrying passengers in 2022. "Long-term, therefore, the project will improve air quality in the Central Valley." Read more here: <http://www.fresnobee.com/2012/05/26/2851875_p2/high-speed-rail-secret-construction.html#storylink=cpy>

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#### The HSR will Take Decades to make any Environmental Benefits and Will Hurt the Environment in the Short Term

**Tim Sheehan 12**,’ Tim is a political and Environmental activist and constantly reports on the changing environment in California, “High – Speed Rail Construction will give Valley’s bad air a big bump before reductions take hold” – The Fresno Bee, <http://www.fresnobee.com/2012/05/26/v-print/2851875/high-speed-rail-secret-construction.html>, May 26th 2012, (Date Accessed: July 9th 2012), LSV

**Backers of California's proposed high-speed rail system frequently tout the long-term air-quality benefits** of getting people out of cars and planes and onto electric-powered trains. **But any reductions in air pollution won't** [**start**](http://www.fresnobee.com/2012/05/26/v-print/2851875/high-speed-rail-secret-construction.html) **for at least a decade**, when the trains would start carrying passengers between Merced and the Los Angeles Basin. Meanwhile, **building the system** in the San Joaquin Valley **is expected to pump tons of dust, greenhouse gases and other pollutants into the air**. **International experts warn it could take years for the benefits of train ridership to make up for the harm caused during construction**. The California High-Speed Rail Authority expects to pay millions of dollars to make up for construction emissions in the Valley. "**Building in an emissions-free manner is not possible**, of course," said Lisa Marie Burcar, a spokeswoman for the rail authority. "But offsetting those emissions to result in the same outcome is." **In its environmental impact report for the Merced-to-Fresno section -- one of the first portions of the statewide train system planned to be built -- the rail authority allows that "construction ... has the potential to cause temporary and significant localized air quality impacts**" on the Valley's air between 2013 and 2022. Work would include demolition, land grading, earthmoving, [pouring concrete](http://www.fresnobee.com/2012/05/26/v-print/2851875/high-speed-rail-secret-construction.html), building stations and laying tracks. All that work, and th**e equipment used to do it, are expected to produce reactive organic compounds and nitrogen oxides -- two chemicals that mix in the atmosphere to create ozone -- as well as dust and carbon dioxide and other greenhouse gases.** The pollution anticipated from high-speed rail construction would be a small fraction of emissions already generated in the region. But in the Valley, **already struggling to meet state and federal air-quality standards, any extra pollution is a major worry**, said David Barber, of the San Joaquin Valley Air Pollution Control District. **Construction pollution not only has "dire consequences" for healthy air, but it threatens** the San Joaquin Valley's **ability to comply with federal mandates under the federal Clean Air Act**, Barber told rail-authority board members this month in Fresno. The Valley faces several deadlines over the next 11 years to meet standards for ozone and fine particles, called PM-2.5. PM-2.5 is made up of dust and other particles that are 2.5 microns in size or smaller. **A human hair, by comparison, is between 50 and 70 microns in thickness. Barber said failure to reach those standards will have "dramatic and potentially devastating consequences in the form of federal sanctions** on the Valley." P**enalties could include severe limits on industrial development and the loss of billions of dollars in federal highway funds.** The rail authority outlined steps it will take to limit air pollution. Contractors will have to use the cleanest possible machinery; and [trucks](http://www.fresnobee.com/2012/05/26/v-print/2851875/high-speed-rail-secret-construction.html), for example, will have to be newer models. Temporary concrete plants will have to be at least 1,000 feet from daycare centers, schools, hospitals, senior-care centers, homes or parks. Even so, the authority admits emissions would be significant, **so it promises to give the Valley air district money to reduce emissions from other sources to offset rail building pollution**. "The air district strongly believes this is the right approach, given the seriousness of air-quality concerns in the Central Valley," Barber told the authority's board. Burcar said the authority will include similar requirements in the upcoming environmental report for the Fresno-Bakersfield section. In all, the agency estimates it will spend $10 million to $20 million to counter pollution. Some of that money could go to the air district's incentive programs, which include helping homeowners replace gas-powered lawnmowers with low-cost electric ones, and helping businesses, farmers and industries replace or [upgrade](http://www.fresnobee.com/2012/05/26/v-print/2851875/high-speed-rail-secret-construction.html) trucks and machinery, said Samir Sheihk, the district's director of strategies and incentives. "T**hose programs are always oversubscribed -- there's always more demand than we have money for,"** Sheikh said. In Spain, where high-speed trains have been running for 20 years, some experts said it can take decades for high-speed rail to make up for environmental damage from construction. **High-speed trains "might be green, [but] don't take it for granted**," said Germà Bel, a professor of political economics at the University of Barcelona and a former deputy in the Spanish parliament. "**Because there is a lot of environmental damage while the construction is on. 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It's very demanding, and it's not the case with any single line in Spain." **Rail officials in California say they'll do such a good job of offsetting pollution while the system is built, there will be nothing to "make up or pay back"** by the time the trains would start carrying passengers in 2022. "Long-term, therefore, the project will improve air quality in the Central Valley."

## Internal Links

### Wetlands

#### HSR could destroy wetlands

Joe Lanane, 10/15/10 (Market Editor at Community Impact Newspaper, Walker tells high-speed rail advocates to ‘slow down’, <http://dailyreporter.com/2010/10/15/walker-says-slow-down-high-speed-rail/>, S.O.)

Republican gubernatorial candidate Scott Walker is accusing Wisconsin Gov. Jim Doyle and Democratic opponent Tom Barrett of advancing high-speed rail construction work without letting the public weigh in on the project‘s environmental consequences. Walker, Milwaukee County executive, said the Wisconsin Department of Transportation has not held a meeting on the project’s ecological effects since 2001. At the time, an estimated 13.5 acres of state wetlands would be jeopardized by the project, but WisDOT reports now estimate 23.85 acres would be destroyed. The increase is cause for concern, Walker said. He sent a letter Wednesday to the U.S. Army Corps of Engineers requesting public input on the environmental cost of the proposed Milwaukee to Madison high-speed rail line. “For political purposes, they’re trying to push this through, and that’s consistently been acknowledged — even among DOT staff,” Walker said. “We’re just saying we need to slow the train down.” WisDOT officials did not immediately return calls for comment. Walker accused Barrett and Doyle of pushing ahead with high-speed rail construction projects before the Nov. 2 election without taking necessary steps. But Phil Walzak, Barrett campaign spokesman, said the Milwaukee mayor is adamant high-speed rail construction efforts follow all necessary legal procedures. Walzak said Walker misled Wisconsin voters by distorting environmental issues to support his campaign against high-speed rail. “This project, like any other infrastructure project, can be done by striking a balance with environmental concerns,” Walzak said. “These projects are too often tainted in black and white absolutes without seeking any compromise or reasonable middle ground.” Erin O’ Brien, policy director for the Wisconsin Wetlands Association, said she is pleased whenever a politician stresses the need for environmental protection, not just with high-speed rail but all state infrastructure projects. Too often, she said, Wisconsin laws do not prevent irrevocable damage to wetlands. “Sometimes these projects take on a life of their own, and you can’t stop them,” O’Brien said. “But, regardless, this kind of infrastructure needs to be done sensitively.” Public hearings are generally hosted for more controversial projects, O’Brien said, and their effectiveness varies. But Walker said there is majority support for more public meetings in order to answer environmental — and financial — questions about construction of the high-speed rail line. “We’re not advocating a position or alternative to the plans,” he said. “It’s just a major project that affects this part of the state of Wisconsin, so it’s legitimate to ask the legal process be followed.

#### HSR will harm Air, water life, and endangered species, and wetlands

**Vartabedian, 12 –** (Ralph Vartabedian, LA times BA and MA degrees from the University of Michigan, JUNE 11, 2012, High-Speed Rail Faces Environmental Objections, <http://www.governing.com/news/state/mct-californias-high-speed-rail-faces-environmental-objections.html>)

**The** California **bullet train is promoted as an important environmental investment for the future, but over the next decade the heavy construction project would** potentially **harm air quality, aquatic life and endangered species** across the state's Central Valley. **Eleven endangered species, including the San Joaquin kit fox, would be affected, according to federal biologists**. **Massive emissions from diesel-powered heavy equipment could foul the already filthy air**. **Dozens of rivers, canals and wetlands fed from the rugged peaks of the Sierra Nevada would be crossed, creating other knotty issues**. A wide array of state and federal agencies is examining those effects and, over the next several months, will issue scientific findings that could affect the cost and schedule of construction. Beyond the regulators, environmental lawsuits brought by the powerful California agriculture industry are threatening to further delay work. The state rail authority is trying to push ahead with an urgent plan to start construction of a 130-mile segment from Madera to Bakersfield as early as December, arguing that any delays could put more than $2 billion of federal funding at risk. Even if the Legislature appropriates the state's share of money this summer, the construction schedule will depend on friendly and quick decisions by often tough regulators.

#### HSR construction threatens environment, endangered species, and wetlands

**Irvin Dawid, 6/16/12 (Sierra Club California, Bay Area Transportation Committee, High Speed Rail: Detriment or Benefit to the Environment?,** <http://www.planetizen.com/node/57184>**, S.O.)**

While California's high speed rail project will be beneficial for the environment by turning polluting car and plane trips into zero-emission travel by train, there are formidable environmental challenges it must overcome in the construction phase**. Ralph Vartabedian reports on the environmental challenges the high speed rail project faces that will affect the cost and the timeline for what "would be the largest infrastructure project in the nation". Potential threats to endangered species, diesel emissions from construction equipment, and wetland impacts, are a few of the obstacles the High Speed Rail Authority must confront.** "A wide array of state and federal agencies is examining those effects and, over the next several months, will issue scientific findings that could affect the cost and schedule of construction. **Beyond the regulators, environmental lawsuits brought by the powerful California agriculture industry are threatening to further delay work". And the large environmental groups have already voiced their opposition to streamlining the state's environmental law. Among the most difficult issues will be air quality, which is regulated across eight counties by the San Joaquin Valley Air Pollution Control District. The district worries that the construction project would exacerbate already problematic levels of nitrogen oxides, particulates and volatile compounds. The district is taking the position that the rail construction should make no net increase in emissions. If the cleanest diesel equipment still adds to emissions, then the district wants "financial mitigation" so it can reduce pollution from other sources, a SJVAPCD spokesman said. Even the increased population that the rail project would generate would need to be mitigated, he said." In addition to air quality are the impacts to wetlands and other bodies of water - regulated in part by the Army Corps of Engineers. "We anticipate there to be unavoidable impacts, given the sheer magnitude of the project," said Susan Meyer, a senior project manager at the Army Corps of Engineers. The law requires that any impacts be avoided or minimized. The Army could require "compensatory mitigation" under its permits, Meyer said.** Earlier, The Fresno Bee reported on the delayed improvement the electric train will have on air quality. "But any reductions in air pollution won't start for at least a decade, when the trains would start carrying passengers between Merced and the Los Angeles Basin. Meanwhile, building the system in the San Joaquin Valley is expected to pump tons of dust, greenhouse gases and other pollutants into the air. International experts warn it could take years for the benefits of train ridership to make up for the harm caused during construction", wrote Tim Sheehan.

## Impacts

### Biodiversity

#### Biodiversity key to crop yields

David Suzuki Foundation, 7/10/12 (Canadian based environmental think-thank, Protecting biodiversity, <http://www.davidsuzuki.org/issues/wildlife-habitat/science/endangered-species-legislation/protecting-biodiversity/>, S.O.)

Our planet is undergoing a biodiversity crisis. Globally, at least 16,000 species are threatened with extinction, including 12 per cent of birds, 23 per cent of mammals and 32 per cent of amphibians. Biologists know what is causing this environmental crisis — human impacts from development, deforestation, pollution and climate change are destroying the homes and habitat of wildlife around the world. More importantly, biologists understand that the trend can be reversed. There was a time when populations of the great whales, Bald Eagles and Whooping Cranes were in rapid decline. But because of strong legislation, habitat protection and international agreements, these populations are bouncing back. Despite an extraordinary legacy of animals and plants, more than 500 species are either extinct, extirpated (extinct in a particular region) or at risk of extinction in Canada. Weaknesses in the national Species at Risk Act abandon much of Canada's iconic wildlife — such as the polar bear, Atlantic salmon and Peary caribou — leaving them left off the list that's designed to protect them. For the majority of species that make the list, the government has chronically failed to identify and protect the habitat [link to Habitat Protection and Recovery Strategies] these wildlife need to survive and recover. Each province has its own obligations to protect wildlife. But British Columbia does not have standalone endangered species legislation, nor does Alberta. The province of Ontario recently updated and strengthened its Endangered Species Act, which is the first step towards responsible environmental stewardship. The David Suzuki Foundation is part of the Save Our Species coalition that helped to bring the Ontario Act into force and is working to ensure that the Act is implemented to best protect Ontario's species at risk. Protecting the environment and biodiversity is more than a moral responsibility; it has important consequences for human health and welfare. According to the United Nation's 2005 Millennium Ecosystem Assessment, two-thirds of the direct benefits people obtain from biodiversity are currently being degraded or used unsustainably. These "ecosystem services" include: providing materials such as food, fuels and fibres; regulating climate, disease outbreaks, wastes and pollination; supporting processes such as nutrient cycling and water purification; and, providing opportunities for aesthetic, recreational and spiritual use. Biodiversity loss affects many services that are essential to the functioning of our society and economy. For example, declines in the populations of bees, butterflies and other pollinators because of habitat destruction, pesticide use and invasive species cost farmers millions of dollars each year in reduced crop yields

**Biodiversity decline causes extinction**

**Tobin 90** (Richard, The Expendable Future, p. 22)

Norman Meyers observes, **no other form of environmental degradation “is anywhere so significant as the fallout of species.”** Harvard biologist Edward O. Wilson is less modest in assessing the relative consequences of human-caused extinctions. To Wilson, **the worst thing that will happen to earth is not economic collapse, the depletion of energy supplies, or even nuclear war. As frightful as these events might be,** Wilson reasons that **they can “be repaired within a few generations. The one process ongoing…that will take millions of years to correct is the loss of genetic and species diversity by destruction of natural habitats.**

### Environment Generic

**Eco collapse causes extinction**

**Jayawardena 9** (Asitha, London South Bank University, “We Are a Threat to All Life on Earth”, Indicator, 7-17, http://www.indicator.org.uk/?p=55)

Sloep and Van Dam-Mieras (1995) explain in detail why **the** natural **environment is so important for life on Earth**. It is from the environment that the living organisms of all species import the energy and raw material required for growth, development and reproduction. In almost all ecosystems plants, the most important primary producers, carry out photosynethesis, capturing sunlight and storing it as chemical energy. They absorb nutrients from their environment. When herbivores (i.e. plant-eating animals or organisms) eat these plants possessing chemical energy, matter and energy are transferred ‘one-level up.’ The same happens when predators (i.e. animals of a higher level) eat these herbivores or when predators of even higher levels eat these predators. Therefore, in ecosystems, food webs transfer energy and matter and various organisms play different roles in sustaining these transfers. Such transfers are possible due to the remarkable similarity in all organisms’ composition and major metabolic pathways. In fact all organisms except plants can potentially use each other as energy and nutrient sources; plants, however, depend on sunlight for energy. Sloep and Van Dam-Mieras (1995) further reveal two key principles governing the biosphere with respect to the transfer of energy and matter in ecosystems. Firstly, the energy flow in ecosystems from photosynthetic plants (generally speaking, autotrophs) to non-photosynthetic organisms (generally speaking, heterotrophs) is essentially linear. In each step part of energy is lost to the ecosystem as non-usable heat, limiting the number of transformation steps and thereby the number of levels in a food web. Secondly, unlike the energy flow, the matter flow in ecosystems is cyclic. For photosynthesis plants need carbon dioxide as well as minerals and sunlight. For the regeneration of carbon dioxide plants, the primary producers, depend on heterotrophs, who exhale carbon dioxide when breathing. Like carbon, many other elements such as nitrogen and sulphur flow in cyclic manner in ecosystems. However, it is photosynthesis, and in the final analysis, solar energy that powers the mineral cycles. Ecosystems are under threat and so are we Although it seems that a continued energy supply from the sun together with the cyclical flow of matter can maintain the biosphere machinery running forever, we should not take things for granted, warn Sloep and Van Dam-Mieras (1995). And they explain why. Since the beginning of life on Earth some 3.5 billion years ago, organisms have evolved and continue to do so today in response to environmental changes. However, the overall picture of materials (re)cycling and linear energy transfer has always remained unchanged. We could therefore safely assume that this slowly evolving system will continue to exist for aeons to come if large scale infringements are not forced upon it, conclude Sloep and Van Dam-Mieras (1995). However, according to them, the present day infringements are large enough to upset the world’s ecosystems and, worse still, human activity is mainly responsible for these infringements. The rapidity of the human-induced changes is particularly undesirable. For example, the development of modern technology has taken place in a very short period of time when compared with evolutionary time scales – within decades or centuries rather than thousands or millions of years. Their observations and concerns are shared by a number of other scholars. Roling (2009) warns that **human activity is capable of making the collapse of web of life on which both humans and non-human life forms depend for their existence. For Laszlo (1989: 34), in Maiteny and Parker (2002), modern human is ‘a serious threat to the future of humankind’. As Raven (2002) observes, many life-support systems are deteriorating rapidly and visibly. Elaborating on human-induced large scale infringements, Sloep and Van Dam-Mieras (1995) warn that they can significantly alter the current patterns of energy transfer and materials recycling, posing grave problems to the entire biosphere.** And climate change is just one of them! Turning to a key source of this crisis, Sloep and Van Dam-Mieras (1995: 37) emphasise that, although we humans can mentally afford to step outside the biosphere, we are ‘animals among animals, organisms among organisms.’ Their perception on the place of humans in nature is resonated by several other scholars. For example, Maiteny (1999) stresses that we humans are part and parcel of the ecosphere. Hartmann (2001) observes that the modern stories (myths, beliefs and paradigms) that humans are not an integral part of nature but are separate from it are speeding our own demise. Funtowicz and Ravetz (2002), in Weaver and Jansen (2004: 7), criticise modern science’s model of human-nature relationship based on conquest and control of nature, and highlight a more desirable alternative of ‘respecting ecological limits, …. expecting surprises and adapting to these.’

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**Kline 98** (Gary, Associate Professor of Political Science, Georgia Southwestern State University, Journal of Third World Studies, 15(1), Spring)

Additionally, **natural ecosystems provide** certain less obvious **services** that are **crucial to life** as we know it.6 The **atmosphere** of our planet **is the product largely of ecosystem operations**. About twenty-one percent of our atmosphere is made up of oxygen, the result of plant photosynthesis which releases the gas. Approximately seventy-eight percent of the remaining air we breathe is nitrogen, which is regulated by the nitrogen cycle of plant production. Ecosystems then influence weather and climate patterns by affecting the circulation of air in this atmosphere. **Plants**, and especially forests, **are instrumental in retaining and conserving** our **soil and water**. Destruction of forest areas results in soil erosion (deleterious to agriculture and plant life in general), floods, and droughts. The rapid decertification of large tracts of land in places like north Africa are a direct consequence of loss of such ecosystems. Each year an area equivalent in size to Belgium falls victim to decertification. Plant and animal life, much of it not visible to the naked eye, helps create and maintain soil by breaking down rocks into finer and finer pieces and by adding organic material to it, enriching it for agriculture. Except for some of the most troublesome products of Humankind, like DDT and plastics, these same plants and animals work to dispose of wastes. Decomposed wastes are then recycled as nutrients into the food chain for the sustenance of new life. Natural ecosystems also produce mechanisms in plants for the resistance of pests and diseases and for the pollination of flowering plants, essential to their reproduction, including many of our food crops. It should be apparent that biodiversity and life are synonymous. The organisms in an ecosystem are part of a "trophic pyramid," as labelled by scientists. That is, a large mass of plants supports a smaller number of herbivores; these support a smaller number of primary carnivores and an even smaller number of second order carnivores. Due to their more rapid rates of reproduction, the lower order life forms are generally better able to adapt to changes in their environment than the higher forms. The latter are also disadvantaged by bioconcentration of harmful substances which make their way into the food chain. Every organism has some niche and work to perform in the pyramid. Homo sapiens occupy a position at the top and are therefore vulnerable to instability at the base. **Human activity which threatens the pyramid is akin to playing Russian roulette**. Of this, Humankind is now more aware. As Garrison Wilkes of the [University of Massachusetts](javascript:void(0);) put it, "We have been building our roof with stones from the foundation."7 This problem is now manifesting itself especially in an area of human endeavor which is essential to our existence: agriculture.

**Environmental destruction leads to a global wars**

**Homer-Dixon 98** (Thomas, Assistant Professor of Political Science and Director of the Peace and Conflict Studies Programme – University of Toronto, World Security Challenges for a New Century, p. 342-343)

Another possibility is that **global environmental damage might increase the gap between rich and poor soci­eties, with the poor then violently confronting the rich for** a fairer share of the world’s **wealth**. Severe conflict may also arise from frustration with countries that do not go along with agreements to protect the global envi­ronment, or that “free-ride” by letting other countries absorb the costs of environmental protection. Warmer temperatures could lead to contention over more easily harvested resources in the Antarctic. **Bulging populations and land stress may produce waves of** environmental **refugees, spilling across borders and disrupting relations among ethnic groups. Countries might fight** among themselves **because of dwindling supplies of water and the effects of** upstream **pollution**.6 A sharp decline in food crop production and grazing land could lead to conflict between nomadic tribes and seden­tary farmers. **Environmental change could** in time cause a slow deepening of poverty in poor countries, which might **open bitter divisions between** classes and ethnic **groups, corrode democratic institutions, and spawn revolutions and insurgencies**. In general, many experts have the sense that **environmental problems will “ratchet up**” the level of **stress** within states and the inter­national community, **increasing the likelihood of** many different kinds of conflict—from war and rebellion to trade disputes—and undermining possibilities for cooperation.

### Wetlands

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**Fish and Wildlife Service** “PROTECTING WETLANDS FOR FISH AND WILDLIFE: A framework for the Fish and Wildlife Service’s Role in wetlands regulatory programs” November 7, **1996** http://www.fws.gov/policy/npi96\_11.pdf

The Fish and Wildlife Service has the responsibility and longstanding tradition of providing Federal leadership in conserving the public’s fish and wildlife resources. The Service acts to conserve these “public trust” resources through the broad mandates of the Fish and Wildlife Coordination Act, and other legislation such as the Fish and Wildlife Act of 1956, Food Security Act, Anadromous Fish Conservation Act, Migratory Bird Treaty Act, and the Endangered Species Act. Moreover, the Service's mission - **to conserve, protect and enhance fish and wildlife and their habitats** for the continuing benefit of the American people - **serves vital public needs**. In addition to their direct economic, recreational, and aesthetic benefits, **the presence of diverse, viable fish and wildlife of populations generally signals a healthy ecosystem which contains those elements necessary for human survival.** Wetlands are one of the Service's priorities for accomplishing its mission, and for good reason. **Wetlands are vital for sustaining populations of fish and wildlife** in the United States. **They provide habitat for approximately one-third of** federally-listed **plants and animals**, and nesting, migratory and wintering areas for more than 50 percent of the Nation's migratory bird species. However, during the last 200 years, over 50 percent of the wetlands in the lower 48 States have been lost. Therefore, the intent of much of the Service's effort in carrying out its mission is to ensure the protection, wise management and appropriate use of this diminishing natural resource. The Service recognizes the need for periodically assessing the direction, implementation and effectiveness of its programs, and for explaining to the public how the Service carries out its various mandates. Recently, the Service reviewed its role and approach in wetland regulatory programs. The review resulted in the production of this framework document which is intended to explain and guide the Service's involvement in wetland regulatory programs. An overview of other major wetland conservation activities the Service undertakes pursuant to a multitude of authorities is provided in a separate document - "Wetland Conservation Authorities and Activities of the Fish and Wildlife Service: An Overview."

**Wetlands key to survival: ecology, flood control, groundwater and drinking water, and economic impacts**

Ryan C. **Fleming**, Colorado State University “America’s Wetlands: A Policy Analysis of Mitigation Banking in the United States” **2004**. Wise. <http://www.wise-intern.org/journal/2004/WISE2004-RyanFlemmingFinalPaper.pdf> accessed online 11/25/08

The American public in general appreciates the aesthetic importance of wetlands as part of the natural landscape. **Environmentalists** often **refer to the wetlands as “nurseries of life”.** In contrast, landowners and developers often coin wetlands as “wastelands” and view them as obstacles to infrastructure and civilization that should be eliminated. Most **developers do not realize that wetlands play a vital role in many environmental processes including flood control, cleansing of pollutants, and species diversity** Most notably, **wetlands are home to** some of America’s **most diverse species populations and contain many** of our nation’s **endangered species**. Wetlands often contain **unique plant species** (hyrophytic plants) **that would not survive in any other habitat**. More than 138 bird species in North America are wetland dependent, and about one third of U.S. migratory waterfowl depend on wetland areas for nesting and reproductive purposes. Because of their diverse wildlife, fish, and plant populations, wetlands are prime areas for recreation, education, and research. Figure 2 illustrates the type of biodiversity common to wetland regions. **The presence of** **these** spectacular wildlife **sanctuaries contributes to** **the economy** as well. Hunters in 1996 spent nearly $1.3 billion for licenses to hunt ducks, geese and other wetland dependent birds. Bird watchers and wildlife enthusiasts contributed a whopping $29.2 billion. In 1996 the Bureau of the Census and the U.S. Fish and Wildlife Service (FWS) found that **activities associated with hunting, fishing, and wildlife observation totaled $101 billion.** **Wetlands also function as natural flood control systems.** A one-acre wetland covered in water to a depth of one foot is capable of storing 325,840 gallons of water. Wetlands near streams and rivers store water and release it slowly. The destruction of a single acre of upstream wetland near the headwater of a river basin could cause a sharp rise in flood peaks for the river basin. Figure 3 illustrates this principle. In 1999 direct flood damage was estimated at $5.4 billion. According to the Federal Emergency Management Agency (FEMA), 15,000 square miles, 9.6 million households and more than $390 billion in property are high-risk areas for flooding across the U.S. **Because of wetlands’ natural abilities to limit flood peaks and store floodwater, their destruction could lead to a higher incidence and severity of floods. Therefore the presence of these flood-diminishing wonders helps protect homeowners’ assets and has an indirect economic benefit**. **Another** major **wetland function is the natural filtration of water and improvement of water quality**. **Wetlands trap and filter sediment, toxins, and pathogens before they enter the nearest river or stream. Non point source pollution**, pollution carried by storm runoff from effluent of industrial areas, **can be collected and filtered. They also filter and restore groundwater supplies, which may subsequently be used as drinking water in the future. Some wastewater treatment plants even use wetlands as a tertiary treatment device.**

**Even small losses of wetlands threaten entire ecosystems**

Jonathan **May** “THE CURRENT STATUS OF CLEAN WATER ACT JURISDICTION AND THE FUTURE OF NON-TIDAL WETLANDS PROTECTION: A CALL TO PROTECT 'ISOLATED WETLANDS'” Spring, **2005** U. Balt. J. Envtl. L. 127 University of Baltimore Journal of Environmental Law. L/N Law Reviews

In the Prairie Pothole region, for example, **isolated wetlands are responsible for** the production of approximately **half of all waterfowl in the U.S.** n33 Wetlands' hydrologic function of recharging dwindling aquifers and other water sources becomes particularly important in non-tidal areas of the American West, where access to navigable water is limited, and aquifers are slowly emptying. n34 Simply **because isolated wetlands tend to be small and 'isolated' from other waters does not mean they lack significant value or use; in fact, small acreage wetlands have been noted to have proportionally equal benefits in terms of pollution reductions as larger wetlands**. n35 Moreover, any separation of [\*133] these 'isolated' wetlands from other wetlands is artificial, since the term 'isolated wetland' is a legal construct created for jurisdictional purposes only under federal law; there is no scientific corollary to what it is thought of legally as an 'isolated' wetland. n36 Therefore, there is a lack of scientific data on exactly what role such 'isolated' wetlands can play in the environment and economy. n37 Nonetheless, given the vital role of all wetlands, **even small ones that seem geographically isolated**, they **can have significant effects on the world around them and deserve protection.**

**Wetlands a key buffer of climate change**

**RAMSAR** Convention on Wetlands. “Ramsar COP10 DOC. 31“ 11/4/**2008**. http://www.ramsar.org/cop10/cop10\_doc31\_e.pdf

7. Global climate change scenarios for the next century project a global temperature increase of 2-6 [degrees] C, a rise in sea level of 20-40 cm, and considerable changes in the total amount and/or seasonal distribution of rainfall. The change from snowfall to rainfall and accelerated melting of glaciers in parts of some continents will reduce the water retention capacity in winter and modify the discharge patterns of streams and rivers. There will be an increase of extreme climate events, such as large storms, severe droughts and floods. These changes will affect with varying strength the different eco-regions of the globe and will put at risk the important services which wetlands provide for humans and biodiversity. They will also increase the risk of spreading disease vectors affecting human health, in some areas. 8. **Intact wetlands can buffer the impacts of global climate change through the water cycle and maintenance of biodiversity, and reduce negative economic, social and ecological effects**. 9. **Wetland conservation and restoration is a necessary means to reduce greenhouse gas emission. The importance of wetlands in the global carbon cycle** needs to be better assessed and integrated into global climate models and political efforts to negotiate carbon trading. 10. Large-scale wetland destruction is continuing as a consequence of inadequate national development policies, lack of enforcement of existing laws, and the lack of long-term land use planning that negatively affect wetlands on public and private property. Future changes in global climate will seriously exacerbate the current situation. 11. Worldwide, the human population is increasingly concentrated in urban areas. Local and regional wetlands have an exceptionally high value for water storage, water purification and recreation, but they are also under increased threat by land reclamation and pollution. 12. A modern wetland policy based on sound scientific knowledge and able to reconcile economic development with environmental protection and social welfare is required in all countries. This policy should acknowledge the value of wetlands and their ecosystem services, as well as their importance for global biodiversity. Some countries have high standards for wetland management, restoration, and protection; many others, however, are far behind.