Biology 208 Spring 2010

POPULATION AND COMMUNITY BIOLOGY

Ecological Debates

On February 22nd and 24th, we will establish teams of four individuals focused around a single topic. You will have the week to research your topic and prepare your presentation and rebuttal materials. On March 1st and 3rd, we will hold formal debates on topics of ecological and environmental interest. Each team of 4 people will be divided into 2 sides of the topic, one to represent the "Pro" viewpoint and another to represent the "Con" viewpoint.

For each topic, we will use the following format:

1. 5-minute "Pro" position statement
2. 5-minute "Con" position statement
3. 5-minute "Pro" rebuttal given by the "Con" team
4. 5-minute "Con" rebuttal given by the "Pro" team
5. Discussion by the lab as a whole

Your approach should be to "set the facts straight", and we will discuss each topic with the entire class based on your facts and people's opinions.

Strategy and Tactics

You must anticipate your opponents' viewpoint and position yourself to address issues they will raise. Your initial statements must be well thought out and well developed. The quality of your rebuttal is dependent on how well you have prepared for the debate. You will be forced to pull your rebuttal together quickly for presentation requiring good notes and some anticipation on your part concerning the opponents' stand.

We expect you to cite your sources during your presentation, i.e., John Doe writing in Newsweek... We want you to research your topic thoroughly in addition to preparing and delivering a high quality presentation.

Jim Van Fleet vanfleet@bucknell.edu, a reference libriarian at the Bertrand Library, has created a BIOL 208 Ecological Debate Resource Page. A link to this page has been added under "Labs" on our course web page.

A list of topics from which to choose is as follows:

Energy and related issues

1. Nuclear power is safe.
   Pro – it is environmentally safe and necessary for electrical power – especially in light the absence of CO_2 emissions in nuclear power and thus, it providing energy without adding greenhouse gases to the atmosphere.
   Con – it is environmentally dangerous, expensive, and can be replaced by other benign methods of power generation.

2. Offshore drilling for petroleum and natural gas should proceed promptly to take advantage of easier access due to reduced Arctic ice cover.
   Pro – oil is an important domestic resource that can be produced and transported without environmental damage.
   Con – oil exploration and drilling are too dangerous to the environment, U.S. should cut oil consumption.

3. People should be taxed on the basis of amount of energy they use, and all new construction (both residential and non-residential) should be regulated to minimize consumption of non-renewable energy.
   Pro – No one has the right to use more energy than anyone else, especially when it reduces the quality of environment for everyone, we should encourage the use of insulation and alternate energy sources such as solar.
   Con – if someone can afford the luxury and the energy, they should be permitted to use it.

4. Large dams (e.g., Aswan Dam, Three Gorges Dam, Glen Canyon Dam) are important for flood control and pollution-free energy production.
   Pro – dam building stimulates economic development and provides cheap electricity to millions of people worldwide without adding greenhouse gases to the atmosphere.
   Con – large dams are unnecessary and cause major damage to downstream communities, estuaries, migratory fish populations, and inundated land.

5. The use of the private automobile should be markedly restricted.
   Pro – it is environmentally dangerous and is wasteful of fossil fuels.
   Con – it is fast and efficient and there are many psychological disadvantages to mass transit.

Resources, resource distribution, resource management, and related issues

6. The lumber industry should be allowed to cut all public lands for timber.
   Pro – we need timber for housing, management of wild lands is efficient and increases productivity.
   Con – we have too little untouched forest land now. Cutting makes a less stable ecosystem, promotes landslides and flooding, and destroys aesthetic qualities.

7. Mountaintop removal and valley fill is the most efficient method to mine coal and should be encouraged to make these resources available.
   Pro – strip and deep-shaft mining leave large amounts of coal unused forcing mining companies to ruin large tracts of land by these wasteful procedures.
   Con – mountaintop removal and valley fill mining causes irreparable environmental damage and should be halted immediately.

8. Tropical forest systems are collapsing as a result of human activity.
    Pro – annual loss of forested area in the tropics is nearly equal to the size of Pennsylvania and should be curtailed.
    Con – tropical forest products are important to the economies of developing nations in which they occur and the cleared land is necessary for farming.

9. Fire is an integral part of the environment in some ecosystems and should not be regulated.
    Pro – wildfires such as those in Yellowstone Park in 1988 should be permitted to run their course except when human life and property are at risk.
    Con – wildfires do tremendous damage in terms of destruction of wildlife and habitat; governmental agencies such as the Park Service must control fires.

10. A federal bottle bill is necessary requiring deposits on beer and soft drink containers.
    Pro – it will reduce wastage of natural resources.
    Con – it isn't economically sound and isn't convenient for consumers.

Personal choice and related issues

11. Parenthood is a privilege that should be controlled to avoid overpopulation.
    Pro – the human population is rapidly soaring past its carrying capacity, so parenthood must be examined in terms of how another child will degrade the environment of those already born.
    Con – everyone has the right to parenthood, and forced birth control is inhumane.

12. Institutions of higher education should act with particular consciousness of their ecological footprints and act as examples of environmentally responsible development and campus planning for their local regions and society in general.
    Pro – highly educated and aware people (i.e., administrators, faculty, students) need to use their expertise and resources to show the potential for smart growth, green design, and environmentally conscious planning on their campuses.
    Con – environmentally conscious development is too costly and time-consuming for colleges and universities to undertake realistically, and these institutions should not bear any higher responsibility than other agents of development.

Public lands and related issues

13. New roads in public lands would enable timber extraction to stimulate the US economy.
    Pro – public land should be used for the good of all citizens.
    Con – additional roads fragment undisturbed habitats and decrease the value to wildlife.

14. The Bush Administration Plan to drill in the previously off-limits Arctic National Wildlife Refuge should be approved in order to provide domestic oil to the US economy.
    Pro – the US economy will benefit from oil from our own land and today's technology will prevent any environmental disaster.
    Con – the US cannot drill its way to energy security and the risk of environmental disaster is too high a price.

15. The use of recreational off-road vehicles should be more strictly controlled on public lands.
    Pro – they are causing severe damage to the ecosystem (i.e., snowmobiles and motorized trail bikes) and continue to consume new areas each year.
    Con – it's not the vehicle but the person using the RV, everyone has a right to enjoy public lands, even though such use may be detrimental.

16. Natural areas and organisms have the right to exist and must be protected from the type of development that extinguishes species and destroys habitat.
    Pro – trees, for example, have the right to exist just as humans.
    Con – economic growth is essential to human well-being. Natural areas must be utilized even if all eventually disappear and many species become extinct. We don't need a "land ethic."

17. The gray wolf is currently protected as an endangered species. However, its success in Yellowstone National Park and elsewhere in the northern US means that it should be delisted. Doing so would allow farmers to control their loss of farm animals.
    Pro – The gray wolf is a predator and they should be treated as such – land owners should be allowed to shoot them at will, like other varmints.
    Con – Gray wolves have thrived in the West since their reintroduction into Yellowstone National Park in 1995. However, they still occupy only a fraction of the range that they once occupied. Continued protection would facilitate strong core populations and dispersal.

Genetics, evolution, extinction, and related issues

18. Genetic screening legislation should be mandatory.
    Pro – this is absolutely necessary as the first step in preventing human's genetic deterioration.
    Con – government has no authority to classify "good" and "bad" traits and then stigmatize those with "bad" genes.

19. Creation science (intelligent design) should be an integral part of basic biology instruction.
    Pro – creation should be taught as an alternative to evolution as an explanation for the origin of species.
    Con – creation science has no scientific support and should not be taught as an alternative to evolution.

20. The alarming rate of extinctions or declines in population size of certain animal and plant species must be reduced.
    Pro – 70 to 80% of extinctions and significant population declines are due to humans. We are reducing diversity and destroying gene pools of potential future use.
    Con – humans have rights to live; human life is more valuable than "wild" species; our existence is not tied to our surroundings because technology has "freed us".

21. Biotechnology should be used to save endangered species from extinction.
    Pro – biotechnology offers the best way to keep endangered species from disappearing.
    Con – biotech methods are too expensive to apply to all endangered species, and in any case, science cannot forever be used as a crutch for human's destructive actions.

Pollution and related issues

22. The addition of CO_2 to our atmosphere from the burning of fossil fuels must be stopped.
    Pro – rising CO_2 levels are causing a greenhouse effect and a warming of the Earth's temperatures.
    Con – evidence for such a warming is lacking. The problem requires additional study prior to action to reduce CO_2 emissions.

23. Immediate non-point pollution control is necessary to keep the valuable Chesapeake Bay Fishery viable.
    Pro – the Bay is in serious trouble because of high N and P loads from agricultural runoff largely from the Susquehanna River watershed.
    Con – we don't know why the productivity of the Bay has declined. No government controls should be enacted until we have identified a cause.

24. Acid rain is altering many of our streams and forests (i.e., softwoods are especially harmed by acid precipitation) and must be reduced.
    Pro – we know the sources of acid rain and have the technology to reduce acid rain and should implement these technologies immediately.
    Con – more study is needed because the technology is costly, it would nearly double the electric bill and gasoline bill of every consumer.

25. Humans are seriously impacting global climate, which could be responsible for reduced crop yields and increased famine on a world-wide basis.
    Pro – food shortages are the result of large-scale, human-induced climatic changes.
    Con – recent food shortages are simply chance "bad" years—no trend is indicated—there is no "global warming."

26. There are many who say that cleanup of waste dumps is a monumental and impossible task, and that the U.S. Environmental Protection Agency's "superfund" is woefully inadequate to do what is necessary.
    Pro – the government has made a bureaucratic mess out of EPA and the running of "superfund."
    Con – in the past there has been poor administration of "superfund"; however, the funds and machinery are in place to do the job necessary.

27. The use of pesticides in large scale spray programs (e.g., med fly, gypsy moth, fire ants) for pest control is necessary.
    Pro – under certain specific conditions, i.e., large pest outbreaks in forest lands, etc.
    Con – it is dangerous and it causes native, beneficial insects to suffer.

28. Market-based (e.g., cap-and-trade) approaches to control pollution are an essential component to long-term environmental sustainability with sustained growth.
    Pro – sustaining economic growth is essential, particularly in developing nations, and global cap-and-trade markets enable growth without creating pollution.
    Con – market-based approaches do not reduce pollution globally and simply relocate pollution to poorer and less-developed countries.

Planning and related issues

29. Any country (or town) must have the right to completely ban immigration (i.e., set limits to growth)
    Pro – it is the way to maintain the quality of life for those willing to pay for it.
    Con – it is not fair to others who live in less fortunate areas. People have the right of mobility.

30. Drastic changes are required in suburban planning because we're consuming land important for agriculture and native species.
    Pro – suburban sprawl needs to be curtailed. Center-city areas should be rejuvenated and new housing should be higher density cluster housing.
    Con – suburban US is the stronghold of our economy and cultural society. We need to allow development to continue without restrictions.