Charcoal

High quality charcoal is mostly pure carbon, called char, made by cooking wood in a low oxygen environment, a process that can take days and burns off volatile compounds such as water, methane, hydrogen, and tar—which are either allowed to escape as gases and other volatiles in the smoke, or can be recaptured, condensed, and converted to useful byproducts. Charcoal is used in the manufacture of carbon disulfide, carbon tetrachloride, sodium cyanide, and other industrial chemicals. Extensive amounts are converted to activated carbons. Its greatest use is for home and outdoor cooking.

Making charcoal affects global warming through the production and emission of greenhouse gases, such as carbon dioxide (CO2) and methane (CH4). In tropical ecosystems it is thought charcoal production and use can significantly contribute to poverty reduction and environmental sustainability by providing energy in accordance with sustainable development goals.

Grazing

Large plant eating mammals historically have been and still are a natural resident of most forest regions of the world. However, the mix of species and their concentrations have been changed by humans which in turn has changed the forests too. Impacts have resulted from use of forests for livestock grazing, deliberate introduction of game species for hunting, and removal of top predators (e.g. wolves, grizzly bears) resulting in overabundance of wild large herbivores (e.g. boar, caribou, deer, elk). Widely spaced, fire-tolerant trees with swaths of grass between them have been replaced by dense stands of fire-sensitive and disease susceptible species or riparian forests with flat dry wastelands.

Studies have shown livestock alter ecosystem processes in a number of ways. Grazing cattle reduces herbaceous plants that outcompete tree seedlings, thus increasing tree density, greater vulnerability to insects and pathogens, and reduction of frequent surface fires resulting in more intense wildfires. Poorly managed grazing damages forest soils and stream banks and contaminates waterways with fecal waste. Grazing also negatively affects biodiversity.

Wood (Timber)

Sustainable timber has the lowest embodied energy (energy used in its processing, production and transport, from tree to consumer use) of any mainstream building material, and far less than for steel, concrete or aluminum. This is mainly because timber requires only minimal processing compared to other materials. How timber is logged does have environmental impacts. Clearcutting can increase the harmful impact of wind and rain on local ecosystems; destroy valuable wildlife habitat; and cause soil to become dry and overheated, which may in turn increase the risk of fire or interfere with seedling growth. The US Forest Service projects that demand for forest products will reach 25 billion cubic feet annually by the 2050, up from nearly 18 billion in 1991, due mainly to population growth.

Paper

The world uses an enormous amount of wood pulp to make paper—an estimated 4 billion trees are cut each year for paper. Printing a Sunday edition of the New York Times requires 988 acres of forest. The pulp and paper industry is a big contributor to the problem of deforestation and is partly to blame for the endangerment of some species that live in the forests. The life cycle of paper is damaging to the environment from beginning to end. Pulp mills contribute to air, water and land pollution. Even paper recycling can be a source of pollution due to the sludge produced during de-inking—thus the need for soy-based inks. Recycling causes 35 per cent less water pollution and 74 per cent less air pollution than making new paper. Recycling a ton of newspaper also eliminates 3m³ of landfill. As paper decomposes in the ground it produces methane, which is a powerful greenhouse gas.

Firewood (back)

Use of wood pellets for energy has seen a dramatic increase in recent years (in 2014 global production grew by 17 percent). Wood pellets consist of wood particles sourced from trees harvested specifically for the purpose of manufacturing wood pellets, portions of harvested trees that are not utilized for saw-timber, such as tops, branches, and leaves, or timber mill by-products such as sawdust, woodchips or wood shavings compressed into small cylinders for use as burning fuel.

Forest biomass harvesting offers increased revenues for land-owners due to sale of logging residues in addition to saw timber, although there is some concern that timber harvesting for biomass or use of logging residues for wood pellet production may have negative implications for forest ecology and future sustainability. Due to the removal of woody debris, which under traditional harvest systems is mostly left behind, there is potential for impacts such as reductions in ecosystem carbon storage, the nutrient pool and overall landscape productivity, and levels of biodiversity.

Firewood (front)

Approximately one-third of the world’s population relies on firewood for heating and cooking. The smoke from fuel wood burning is made up of a complex mixture of gases and fine particles (also called particle pollution, particulate matter, or PM). In addition to particle pollution, wood smoke contains several toxic harmful air pollutants including benzene, formaldehyde, acrolein, and polycyclic aromatic hydrocarbons (PAHs). Numerous research studies have shown how children living in wood-burning households experience “higher rates of lung inflammation, breathing difficulties, pneumonia, and other respiratory diseases.” Fuel wood smoke is also bad for the outdoors environment, contributing to smog, acid rain and other problems.

Open fireplaces are the most polluting way to burn fuel wood. The more efficiently wood is burned (e.g. using an EPA-certified wood stove and seasoned wood) the less smoke is created.

Create Other Cards

Example topics include:

* Exotic Hardwoods,
* Mining, Grazing,
* Fur Trapping, Hunting,
* Pet Trade, etc.

To create more pages:

In MS Word, use the **Insert** > **Page Break** to create more cards using this template.

Medicine

Extracts of many forest plants are used as the basis of modern drugs. Worldwide many indigenous people rely on medicinal plants using forests as their pharmacy. In the United States approximately two-thirds of the top 150 prescription drugs are based on natural sources: 74% come from plants, 18% from fungi, 5% from bacteria, and 3% from vertebrate species such as snakes or frogs. Medicinal species found in natural areas are of increasing interest to medical researchers and commercial producers.

The conservation group United Plant Savers lists 19 North American medicinal native plants as “at risk” and an additional 22 plant species make the “to watch” list. The threats to these species include: habitat destruction, bioprospecting, biopiracy, and overharvesting. Examples of species identified as at risk by the US Forest Service include: American ginseng (wild is more profitable than cultivated resulting in overharvesting), black cohosh and goldenseal both of the buttercup family (nearly 100% of supply comes from the wild, threatened by overharvesting and habitat degradation), Pacific yew (several species of this tree are being overharvested to produce the popular, profitable, and effective cancer drug taxol), and others.