

## Benefits and values BC residents expect from forests

F.Bunnell, Professor Emeritus, Faculty of Forestry, University of British Columbia

### Abstract

**Residents of British Columbia receive significant goods and benefits from forests, including improved air quality, water purification, soil stabilization, carbon capture, renewable resources, large reservoirs of biodiversity's restorative capacity and jobs. These are critical to our well-being. Moreover, well-managed forests provide environmentally-friendly products on a sustained basis with great capacity to renew themselves when faced with changing conditions, such as climate. Forests charge us nothing for these gifts.**

Whether they are aware of it or not, residents of British Columbia expect many things from their forests. Resource managers refer to these things as ecosystem goods and services. Goods are obvious things that we can see, hold in our hands and use. Ecosystem services are less tangible and often receive much less attention. They are the conditions and processes through which natural ecosystems sustain and fulfill human life through the maintenance of healthy ecosystems and the continued production of goods. Services provided by forests are remarkably diverse. The Japanese, for example, have documented the value of *shinrin-yoku* (forest-air bathing): when diabetic patients walk through forest their blood sugar drops to healthier levels.

Gifts from the forest are many. An incomplete list includes:

- Improved air quality – beyond complex and poorly understood benefits such as *shinrin-yoku*, a simple and important benefit is the reduction of ozone, particulate matter, sulfur dioxide, nitrogen dioxide and carbon monoxide. High concentrations of all of these are harmful to us.
- Sustained biodiversity – most of Earth's terrestrial species reside in forests.
- Watershed services such as water purification, mediation of floods and stabilization of soils on slopes and streambanks. Water quality is of critical importance to human populations, and forested watersheds usually are more resilient than others to disturbances, such as those associated with climate change.
- Capture of carbon – growing forests extract CO<sub>2</sub> from the atmosphere and store it as wood, thereby offsetting injections of CO<sub>2</sub> into the atmosphere by deforestation, forest fires and fossil fuel emissions.
- Provision of renewable natural resources such as timber, fuel, paper, food and other goods.
- Jobs.

All of these are critical to our well-being, but four merit elaboration. First, we are almost completely dependent on other species for our basic needs including oxygen, drinking water, fertile soil, food, clothing and fuel. Petroleum products help meet some of these needs, but only as fossilized sunshine after their creation by life in eons past. Biodiversity is thus important for continued human well being. Only species diversity can beget more diversity to continue the provision of goods and services in the face of environmental change. Forests are the richest terrestrial sources of species diversity.

Second, wood really is good. Well-practiced forestry has a low carbon footprint, which is becoming increasingly critical in the face of climate change. Energy costs of production for materials other than lumber are much higher: cement is 5 times higher, plastics 6 times higher and aluminum 125 times higher. The overall environmental burden of steel and concrete and the impacts on services we want from the environment are consistently higher than for wood.

Third, this environmentally friendly production of goods and services, including jobs, is sustainable and renewable. Increases in commodity prices are rapidly teaching us the truth of a simple adage – if you don't grow it, you mine it. Mines run out.

A final, very large point is this: all these gifts are free. Forests charge us nothing for these gifts, despite how critical they are to us. All we need to do is to sustain them.

