

Cancer Cure or Conservation: A Question of Health for Humans and the Ecosystem

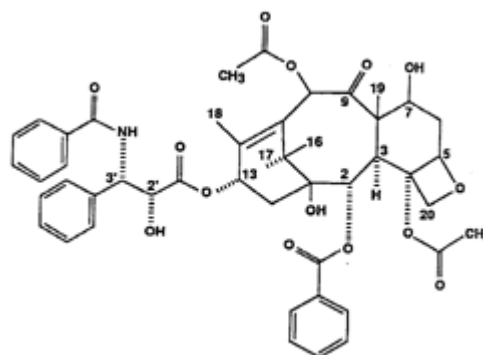
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Jim Redwood had been summoned by the Quinault Indian Nation Tribal Planning Committee to return to the long house for an important vote. The Tribal Council elected in 1995 had been approached by the Forest Service to “lease” its remaining land to Bristol-Myers for the bio-prospecting of the Pacific yew (*Taxus brevifolia*), needed for the development of the new drug, taxol. Taxol was one of a few drugs that showed incredible promise in the treatment of rapidly growing cancers.

“Great,” he thought, “I’ve got a backlog of sick patients in the clinic already and now I’ve got to rush over there to vote on the land issue. Why can’t they ever plan these things better?” But Jim knew his last thought was just a way to blame someone else for his lack of help at the clinic. The Tribal Elders had planned this meeting, and it *had* been well in advance, so the expert advisors would have time to converge on their small reservation of a little over 200,000 acres in the Southwest corner of the Olympic Peninsula on the Pacific coastal area of Washington. “They’re probably all there, waiting for me,” he thought. It was going to be one of those days.

Jim hadn’t realized when he was elected to the Tribal Planning Committee how important the position would become. Who could have anticipated that one of the smaller understory trees, the red cedar, would become the primary source of a “miracle drug” for cancer patients? He only hoped that the drug would be developed in time to help his mother, recently diagnosed with metastatic breast cancer.

Jim took a deep breath. The other 10 members of the Planning Committee were already seated. The only seat remaining was his, front and center as the moderator. He swiftly took his place, gave a quick nod to the other committee members, raised his arms, closed his eyes, and began with the traditional opening prayer. “Oh, Great Spirit, we ask for Your guidance today as we consider the important issues before us. Grant us wisdom in deciding the fate of the land You have given Your children.” He lowered his arms and sat down.

“We will begin by introducing our expert advisors. On my left is Dick Shaffer, Assistant Director of Timber Management for the U.S. Forest Service Regional Office in Portland, Oregon. Next to him is Dr. Gordon Cragg, Chief of the Natural Products Branch of the National Cancer Institute. On my far right is Dr. Mark Plotkin, Executive Director, Ethnobiology and Conservation Team, Smithsonian Institution. Next to him is Hal Hartzell, Jr., Vice President of the Native Yew Conservation Society. Mr. Shaffer will begin with his statement.”

“Thank you, Dr. Redwood. Let’s just get to the bottom line. Women are dying every day of ovarian and breast cancer. The Forest Service places a high priority on helping Bristol-Myers in every way we can, legally and environmentally. This taxol stuff that comes from the Pacific yew is the best thing to come along for treating these women. Let’s get in there and harvest those trees. Who knows how many lives are being lost while we waste time debating this.”

Dr. Gordon Cragg chimed in. “I agree, Mr. Shaffer. We need to get started since the process takes some time to extract the taxol. The current yield of taxol is 1 gram per 30 pounds of bark, assuming a 73% recovery rate. Since these trees are not that large, that means we need 1.5 trees for every gram of taxol. A patient typically requires 500 milligrams per course of treatment, with four courses necessary, for a total of 2 grams per patient. That’s three trees per patient and there are about 40,000 women needing this treatment now.”

“Do you use the whole tree to get this medicine or only certain parts? Must the tree be killed to get it?” asked Billie Rainfeather, a tribal member.

Dr. Plotkin responded. “You know, that’s a legitimate concern. It’s primarily in the bark and only 10% of the yew population in your forested areas are the size preferred by bark collectors, trees 10 inches or larger in diameter. I think that if Bristol-Meyers plans on meeting that level of demand in the form of bark from the tree, the species would be in great jeopardy. As I’m sure you know, removing the bark automatically kills the tree. So, we risk eradicating trees of this yew species with any significant dimension, and endanger the future of the species by removing the seed source for future generations.”

Hal Hartzell jumped in. “Yes, Mark, and that’s not all. The Fish and Wildlife Service estimates that three to four million large yew trees remain on federal lands. To treat a year’s worth of ovarian and breast cancer patients combined, that’s 150,000 treatments and would require the bark from 1.5 million trees. How often can you justify harvesting that much?”

“Can’t the Forest Service figure out some way to grow this tree on a tree farm?” asked Billie. “I really hate to see our land ruined. Do we know what this removal will do to the rest of the plants and animals? Our people use this tree to make traditional ceremonial crafts like bows, arrows, masks, and other items. We also depend on the forest for deer and elk and other game animals to feed our families. How will we be able to live off the land if it is ruined to harvest one kind of tree?”

Hal added, “Yew habitat is old growth forest. Remove that and yew species will decline. The yew is difficult to start from seed, and it produces few seeds, which only germinate after passing through the gut of some animal. It’s a shade tolerant species, slow growing, and is a favored browse food for elk and deer. Harvesting these trees would definitely impact the populations of some animals in this area.”

Billie turned to Dick Shaffer. She decided to get to the heart of the matter. “The cancer cure is good but is that the *real* reason you want our land? You know, there is always some doubt in our minds when the government wants Indian lands. I’ll bet the drug company stands to make a big profit from this drug. How much compensation are you offering the tribe? We have done a better job in the last 80 years managing our Tribal lands than you folks did for the 150 years before that. Will our land be able to recover from the loss of this tree?”

The crowd in the Council House was getting unruly. Jim decided it was time to call for a vote. “It’s time for the Planning Committee to consider the advice of the experts. We will reconvene in two hours and let you know our decision.”

Jim had heard so many contradictory statements his head was spinning. How should he vote?

Questions

1. What tree does the drug company Bristol-Myers want to harvest?
2. What important substance is contained within the tree?
3. What part of the tree contains the substance?
4. Why is the drug Taxol valuable to humans?
5. Where does the tree grow?
6. What “function” does the tree have in its natural environment?
7. How many trees must be harvested to treat one person?
8. How do the Quinault Indians traditionally use the tree?
9. What percent of the yew trees have a diameter smaller than the optimum size for collection?
10. Why can't the drug company just collect the bark?
11. Why can't the drug company grow the yew tree in a tree farm?

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