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Biodiversity and Mom

*John Copeland Nagle**

I.

In December 1973, Congress enacted the Endangered Species Act (ESA).¹ The law was the latest, and greatest, federal effort to prevent wildlife from becoming extinct. The members of Congress who voted for the law always mentioned bald eagles, grizzly bears, whooping cranes, alligators, and whales—the animals, in short, that today are most likely to be memorialized as Beanie Babies.² They were also aware of the species that had already disappeared from the earth, such as the passenger pigeon and the great auk. Such images yielded an overwhelming vote in favor of the law. President Nixon signed it on December 28, 1973, proclaiming that “[n]othing is more priceless and more worthy of preservation than the rich array of animal life with which our country has been blessed.”³

Soon thereafter, a decidedly less majestic image seized the public consciousness. Shortly before Congress passed the ESA, a University of Tennessee ichthyologist discovered a previously unknown species of perch, named the snail darter, swimming in the Little Tennessee River. The United States Fish and Wildlife Service soon added the snail darter to the list of endangered species.⁴ Then, local activists sued to block further construction of the Tellico Dam, a controversial Tennessee Valley Authority project that would flood the Little Tennessee River—and thus wipe out the snail darter—if it was completed. The “fish versus dam”

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* Professor, Notre Dame Law School. I am grateful for the comments of Abner Greene, Lisa Nagle, and Deanell Tacha. This essay is dedicated to the memory of Patricia Campbell Nagle.

1. 16 U.S.C. §§ 1531-1544 (2003).

2. See Shannon Peterson, *Congress and Charismatic Megafauna: A Legislative History of the Endangered Species Act*, 29 ENVTL. L. 463, 467 (1999) (describing the species mentioned during the congressional debate concerning the ESA).

3. President Nixon's Statement on Signing the Endangered Species Act of 1973, 374 PUB. PAPERS 1027, 1027-28 (Dec. 28, 1973).

4. See Amendment Listing the Snail Darter as an Endangered Species, 40 Fed. Reg. 47,505, 47,505-06 (Oct. 9, 1975).

dispute evoked comparisons to David versus Goliath, especially after the United States Supreme Court ruled for the fish because the ESA mandates the protection of all species, "whatever the cost."⁵ Subsequent disputes have involved northern spotted owls, the Delhi Sands flower-loving fly, the Texas blind salamander, the American burying beetle, and various fairy shrimp and kangaroo rats in California.⁶

The law itself explains why Congress included all of these creatures within the ambit of the ESA, stating, "species of fish, wildlife, and plants are of esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people."⁷ All of these values are important, and I have emphasized all of them in my Biodiversity and the Law course, as well as in the first biodiversity law coursebook that I wrote with J.B. Ruhl.⁸

Nor is my interest in biodiversity purely academic. I cultivated an appreciation for the beauty of the natural world as I was growing up. My most enduring memory of a family vacation to Lexington and Concord was not any historical insight about the Revolutionary War, but rather that of the hundreds of goldfinches flying amidst the purple thistle that covered the vacant field next to our discount hotel. I also remember the Boy Scout camping trip where I saw an otter swimming in the Kankakee River and thousands of geese visiting the Horicon marsh. One of my fondest memories dates to a family vacation to Door County, Wisconsin, in 1973. Somehow my mother persuaded her thirteen-year-old son to rise

5. *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184 (1978). The case and related events are discussed in CHARLES C. MANN & MARK L. PLUMMER, *NOAH'S CHOICE: THE FUTURE OF ENDANGERED SPECIES* 147-75(1995); WILLIAM BRUCE WHEELER & MICHAEL J. McDONALD, *TVA AND THE TELlico DAM 1936-1979* (1986); Zygmunt J.B. Plater, *In the Wake of the Snail Darter: An Environmental Law Paradigm and Its Consequences*, 19 U. MICH. J.L. REFORM 19 (1986).

6. See *Robertson v. Seattle Audubon Soc'y*, 503 U.S. 429 (1992) (upholding a rider to a federal appropriations statute that had been enacted to minimize logging restrictions in areas inhabited by the northern spotted owl); *Bldg. Indus. Ass'n of Superior Cal. v. Norton*, 247 F.3d 1241, 1243 (D.C. Cir. 2001) (rejecting a challenge to the listing of the vernal pool fairy shrimp, Conservancy fairy shrimp, longhorn fairy shrimp, California linderiella, and vernal pool tadpole shrimp as endangered under the ESA), *cert. denied*, 434 U.S. 1108 (2002); *Sierra Club v. Glickman*, 156 F.3d 606, 609-10 (5th Cir. 1998) (ESA litigation challenging the pumping of water from the Edwards Aquifer, home of the Texas blind salamander); *Nat'l Ass'n of Home Builders v. Babbitt*, 130 F.3d 1041, 1043 (D.C. Cir. 1997) (rejecting a commerce clause challenge to the application of the ESA to the construction of access roads for the hospital in the habitat of the Delhi Sands flower-loving fly), *cert. denied*, 524 U.S. 937 (1998); *Southwest Ctr. for Biodiversity v. Carroll*, 182 F. Supp. 2d 944, 945-46 (C.D. Cal. 2001) (awarding attorneys fees to plaintiffs who insisted that the Army Corps of Engineers conduct a biological assessment of the impact of a proposed dam on the San Bernadino kangaroo rat); MANN & PLUMMER, *supra* note 5, at 3-27 (explaining how the American burying beetle lived in the path of a proposed highway to a hospital on a Native American reservation).

7. 16 U.S.C. § 1531(a)(3) (2003).

8. See JOHN COPELAND NAGLE & J.B. RUHL, *THE LAW OF BIODIVERSITY AND ECOSYSTEM MANAGEMENT* 24-47 (2002) (discussing why we should care about biodiversity).

at the unimaginable hour of 5:30 a.m. for a bird walk at the nearby Peninsula State Park. We saw quite a few birds early that morning, most notably a bunch of cedar waxwings. Ever since then, I have associated cedar waxwings with Mom.

Yet the utilitarian values of protecting species—esthetic, ecological, educational, historical, recreational, and scientific—always struck me as inadequate. Can we really not survive without the Delhi Sands flower-loving fly? We do not eat it, or make clothes from it, or name it as the state insect, or arrange eco-tours to visit it. The value of the fly becomes even more problematic when the cost of saving it includes relocating a needed hospital and complicating access to the hospital once built.⁹ The Illinois cave amphipod, a tiny scavenger that lives in just six caves in central Illinois, raises similar questions. Critics challenged its listing as an endangered species on the basis that the amphipod lacked any utilitarian value. In its response, the Fish & Wildlife Service admitted, “[I]t is difficult to describe the need to protect a species that most people will never see and that has no obvious economic, commercial, recreational, or esthetic value.”¹⁰ The agency did not, however, venture an opinion concerning any non-utilitarian value of the Illinois cave amphipod. Furthermore, other tiny creatures can be affirmatively harmful, as the AIDS virus and the specter of bioterrorism so vividly demonstrate.¹¹ These concerns convinced Charles Mann and Mark Plummer that “the entire discussion of utilitarian value, though often invoked as a reason to conserve biodiversity, is a red herring.”¹²

More recent defenses of biodiversity in general, and the ESA as a means of protecting it, have emphasized the moral, ethical, and religious reasons for preventing any species from going extinct. As I grew to

9. See *id.* at 2-12 (summarizing the dispute concerning the Delhi Sands flower-loving fly).

10. Endangered and Threatened Wildlife and Plants; Final Rule to List the Illinois Cave Amphipod as Endangered, 63 Fed. Reg. 46,900, 46,902 (Sept. 3, 1998) [hereinafter *Illinois Cave Amphipod Listing*]. The agency offered a defense of amphipods in general:

From an ecological perspective, an amphipod belongs to a group of species called detritivores that consume dead and decaying organic matter, recycling their nutrients back into the environment. Nutrient recycling is a critically important function in all ecosystems, especially nutrient-poor cave ecosystems. Amphipods can also be considered to be indicator species, that is, species especially sensitive to physical and chemical changes in their habitat, which can tell us when there is something critically wrong in their environment, and ours.

Id.

11. See MANN & PLUMMER, *supra* note 5, at 132 (quoting Mark Sagoff’s observation that the world would be better off if the monkey that carried the AIDS virus had gone extinct a century ago); Victoria V. Sutton, *A Precarious “Hot Zone” – The President’s Plan to Combat Bioterrorism*, 164 MIL. L. REV. 135, 136 (2000) (observing that “modern genetic engineering carries with it the specter of modification of familiar weapons species such as anthrax and smallpox into forms against which all our vaccines and other defenses would be worthless”).

12. MANN & PLUMMER, *supra* note 5, at 134.

appreciate these arguments for preserving biodiversity, the utilitarian arguments impressed me even less. For example, a spring 2003 publication of the Nature Conservancy—the leading private organization dedicated to the protection of biodiversity—featured the role of spiritual perspectives in explaining the need to protect the life around us. An Episcopal rancher commented, “*Redemption* literally means to buy back. I think when the Conservancy buys a piece of land, it’s participating in the work of redemption.”¹³ A Muslim working for the Nature Conservancy in Indonesia explained his belief that “[he] will be rewarded by God for each good act [he] performs on behalf of another person or creature or even [himself].”¹⁴ Likewise, a 2002 publication of the Biodiversity Project—the only organization in the United States focused on building a long-term constituency for biodiversity and the many issues that affect it¹⁵—seeks to help environmental advocates “gain confidence and skill in expanding the public debate about biodiversity to include the ethical dimension.”¹⁶ The authors advise that “[r]eligious advocates for biodiversity preservation . . . hope that, by highlighting the religious dimensions of the issue, they can help some of their opponents realize that their own deepest beliefs may be at odds with the actions or policies that they themselves are promoting.”¹⁷ They report some success in that endeavor, as evidenced by a poll indicating that respect for God’s work ranks second among the reasons for protecting the environment in general, ahead of protecting the balance of nature or protecting nature for its own sake.¹⁸

The scriptural story of Noah has become prominent in contemporary debates about biodiversity, as reflected in my own scholarship.¹⁹ Others have probed this theme as well. Former Secretary of the Interior Bruce Babbitt noted that God “did not specify that Noah should limit the ark to two charismatic species, two good for hunting, two species that might provide some cure down the road, and two that draw crowds to the city

13. *Portraits of Faith*, NATURE CONSERVANCY, Spring 2003, at 24 (statement of Bob Ayres).

14. *Id.* (statement of Sudaryanto).

15. Biodiversity Project, *About Us*, at <http://www.biodiversityproject.org/About%20Us/aboutus.htm> (last visited Oct. 5, 2003).

16. Jane Eider, *Introduction: Unpacking the Ethical Toolbox*, in ETHICS FOR A SMALL PLANET: A COMMUNICATIONS HANDBOOK ON THE ETHICAL AND THEOLOGICAL REASONS FOR PROTECTING BIODIVERSITY 10 (Nov. 2002), available at <http://www.biodiversityproject.org/EthicsForASmallPlanet.htm>.

17. Peter W. Bakken, *Biodiversity, Theology, and Ethics: Key Concepts*, in ETHICS FOR A SMALL PLANET, *supra* note 16, at 25.

18. See Michael P. Nelson, *The Ways We Value Nature*, in ETHICS FOR A SMALL PLANET, *supra* note 16, at 58 (displaying the results of a 2002 poll). “Responsibility to future generations” was the leading reason for environmental protection. *Id.*

19. See John Copeland Nagle, *Playing Noah*, 82 MINN. L. REV. 1171, 1216-60 (1998).

zoo.”²⁰ In the same vein, Professor Holly Doremus has observed, “Noah was not allowed to choose creatures to save on the basis of his personal preferences or their instrumental value. He simply followed God’s directions to bring all the beasts of the earth into the ark, undoubtedly including some he would not have chosen to save. Moreover, God did not offer Noah economic incentives to induce compliance or seek consensus among stakeholders before finalizing the plan.”²¹

Consider, too, popular interpretations of the lessons of Noah. According to the director of a Jewish environmental organization, “God does not let Noah decide which species to save and which to extinguish. This shows us that all creatures on Earth, even the ones that seem useless to human life, are precious parts of Creation with inherent value to God. The story also tells us we have an obligation, like Noah, to work hard to protect the diversity and abundance of life on earth.”²² The covenant between God and Noah demonstrates that the human obligation to care for creation is ultimately to serve the “purposes of the Creator.”²³ Moreover, former Vice President Al Gore and others have compared the flood confronted by Noah to the flood of people and pollution that threatens biodiversity today.²⁴ Some have even suggested that the story implies that “God was more concerned about preserving animal species than sinful people.”²⁵ In each instance, the ancient story of Noah is employed to address some of the most difficult issues related to the protection of biodiversity today.

Holly Doremus extols the efficacy of the Noah story in modern efforts to preserve endangered species as follows:

The religious force that the Noah tale holds for a sizeable chunk of the population makes it even more effective. It has helped nature advocates gain political allies among groups from whom they had become estranged. For a generation, environmentalists had been at odds with the Judeo-Christian religious community. The story of Noah’s Ark has provided a rallying point for the combination of faith and environmental concern. That combination has proven to be politically powerful. . . . Moreover, the Noah story has brought the

20. Bruce Babbitt, *Between the Flood and the Rainbow: Our Covenant to Protect the Whole of Creation*, 2 ANIMAL L. 1, 5 (1996).

21. Holly Doremus, *The Rhetoric and Reality of Nature Protection: Toward a New Discourse*, 57 WASH & LEE L. REV. 11, 52 (2000).

22. Sandi Scheinberg, *In My Opinion: Rediscovering Earth’s Value Through Faith*, OREGONIAN, Dec. 13, 2001, at D13 (editorial written by the executive director of the Northwest Jewish Environmental Project).

23. *Id.*

24. See AL GORE, *EARTH IN THE BALANCE* 245 (1992) (asking “does God’s instruction have new relevance for those who share Noah’s faith in this time of another worldwide catastrophe, this time of our own creation?”); Nagle, *supra* note 19, at 1219 n.183 (quoting additional sources).

25. *The Word on Animals and Endangered Species*, GREEN CROSS, Winter 1996, at 14.

underlying ethical and spiritual rationale for the ESA out of the political closet, allowing long-time supporters of species protection openly to declare their moral, and even religious, motivations. Direct reference to the widely held intuition that people have an ethical or religious duty to protect species, or nature more generally, seems likely to increase political support for protective legislation.²⁶

Doremus adds that “[w]ith the Noah story in the background, the ESA seems to have succeeded in implanting, or perhaps reinforcing, a powerful societal norm against human-caused extinctions.”²⁷ Furthermore, Doremus notes, “[t]he Noah story . . . allows the political community to acknowledge the importance of property rights but to conclude that obligations to protect nature outweigh those rights when extinction is at issue.”²⁸

The Noah story is not the only source of religious, or even biblical, teaching concerning biodiversity. Genesis teaches that God created the entire world and the life that fills it, commanding Adam to tend the earth and to “keep” it.²⁹ References to all endangered species as “God’s creatures” thus fill the debate over the ESA.³⁰ More generally, eight themes emerge from the Christian view of creation: God created the world, God pronounced the creation to be good, God is the owner of all creation, God gave humanity dominion over creation, God charged men and women with the responsibility for caring for creation, God alone is worthy of worship, creation has suffered the effects of the entry of sin into the world, and God will redeem His creation.³¹ Together, these themes point toward a stewardship obligation with respect to the creatures with which we share this world.³²

These reasons have persuaded me of the need to protect the amazing bounty of biological diversity that lives on the earth. They are also reasons that have resonated with policy makers in recent years. In 1994, for example, members of the Evangelical Environmental Network and the National Religious Partnership for the Environment lobbied Congress in opposition to proposed changes to the ESA. One environmental activist later insisted that “one of the key reasons why the Endangered Species Act was not revised, or was not in fact destroyed,

26. Doremus, *supra* note 21, at 51-53. Doremus adds a cautionary note about the Noah story’s implications for the preservation of biodiversity as well. *See id.* at 53-54 (explaining that Noah responded to a short-term crisis, provided sharply limited protection, and may have acted out of self-interest).

27. *Id.*

28. *Id.*

29. *See Genesis* 1:20-25; 2:15.

30. *See Nagle, supra* note 19, at 1227 n.210 (quoting sources).

31. John Copeland Nagle, *Christianity and Environmental Law*, in *CHRISTIAN PERSPECTIVES ON LEGAL THOUGHT* 438-42 (Michael McConnell et al. eds., 2001).

32. *See generally Nagle, supra* note 19, at 1226-30.

was because . . . of Evangelical Christians who came and reigned-in the more Evangelical leaders of the Republican party.”³³

In short, the utilitarian justifications are helpful, but they cannot fully explain the role that the diversity of species plays in human society.

II.

Then Mom got a stomachache. It was early August 2001, and my family made our annual pilgrimage to watch the Cubs play at Wrigley Field for our belated celebration of Mother’s Day. We spent the weekend with my folks, and on Sunday afternoon Mom did something that was very unusual for her—she took a nap. Unusual, but understandable for anyone who was sixty-nine years old and who tried to keep up with four little grandchildren.

The stomachache worsened over the next couple of weeks. The doctors diagnosed it as an umbilical hernia and scheduled an outpatient procedure to repair it. Another opinion confirmed the hernia but suggested that there might be a gall bladder problem as well. Mom went to the clinic to have the hernia repaired, only to be whisked to the hospital for more intensive testing. After several days of testing, the results were still inconclusive, so the doctors operated to fix the hernia and whatever else they could find. Two hours later, after the surgery, the surgeon came into the consultation room, diagramed what he had seen, and uttered the words that I had never imagined I would hear to describe my mom: “millions of cancer cells.”

So the waiting began again. For the next five days, we encouraged Mom as she slowly regained her strength from the surgery, and we awaited the news from the pathology report and the oncologist. We were braced for the worst, remembering the anecdotes of several friends who lost family members to pancreatic cancer in four months or to liver cancer in seven months. Mom’s twin sister had died twenty years earlier after an ugly, two-year battle with breast cancer. We knew, though, that cancer treatment had improved dramatically in the past twenty years and that many types of cancer were no longer as lethal. For those five days, we waited to learn which kind of cancer Mom had.

Finally, the pathology report completed, we met with the oncologist. He explained that it is not always possible to determine the source of a particular cancer, and Mom’s cancer could not be identified conclusively. In his best judgment, Mom had ovarian cancer. He further explained that there was a treatment for ovarian cancer, a newly developed drug, that would give Mom a sixty to seventy percent chance to survive her disease for several years to come. We left that meeting feeling almost giddy,

33. David Hahn-Baker, *The 20th Anniversary of Love Canal: Lessons Learned*, 8 BUFF. ENVTL. L.J. 225, 232 (2001).

having feared the “she has six months to live” speech, and instead learning that there was a treatment for the cancer that was attacking Mom.

III.

The Pacific yew tree, *Taxus brevifolia* to its scientific friends, grows in wet forests at low to middle elevations in the Pacific Northwest.³⁴ Its bark consists of extremely thin, purplish, papery scales. Its trunk is twisted, and it grows slowly in shady areas, living for two hundred to five hundred years. Its leaves are flattened and needle-like, and its wood is tough, heavy, resistant to decay, and valued for detailed woodworking jobs. But it is not especially common anywhere, save for parts of the Nez Perce National Forest in northern Idaho. Its rarity even prompted a 1991 effort to list the tree as an endangered species, though the federal government determined that the tree lacked the requisite endangerment to be protected by the ESA,³⁵ and in recent years the tree has become much more abundant.

Until recently, the Pacific yew played a modest role in its ecosystem. Its fruit is toxic, though that did not dissuade some Native Americans from eating it in small amounts. Native Americans also used the wood to make bows for archery, paddles, snowshoe frames, fishhooks, and other tools. The tree serves as a source of food for moose that eat the foliage and sometimes strip the bark. Black-tailed deer, elk, and caribou eat the tree, too. The Pacific yew survives as blackbirds, waxwings, nuthatches, and various small rodents eat the tree’s fruit and thus scatter the tree’s seeds.³⁶

In 1958, the National Cancer Institute (NCI) began to screen 35,000 plant species to determine if any of them could be helpful in the fight against cancer. Scientists soon focused on the medicinal properties of a chemical contained in the Pacific yew called paclitaxel, which became better known as Taxol. The research progressed slowly during the 1960s and 1970s, but Taxol showed enough promise to start clinical trials on cancer patients in the early 1980s. In 1991, the NCI selected Bristol-Myers Squibb to work as the commercial partner for the development of Taxol. By the time Mom was diagnosed with cancer, Taxol had become

34. The story of the Pacific yew and Taxol is told in JORDAN GOODMAN & VIVIAN WALSH, *THE STORY OF TAXOL: NATURE AND POLITICS IN THE PURSUIT OF AN ANTI-CANCER DRUG* (2001); Douglas O. Heiken, *The Pacific yew and Taxol: Federal Management of an Emerging Resource*, 7 J. ENVTL. L. & LITIG. 175 (1992); The Taxol® (paclitaxel) Story, at <http://www.Taxol.com/timeli.html> (last visited Oct. 5, 2003) (time-line provided by the manufacturer of the drug).

35. See Endangered and Threatened Wildlife and Plants; Notice of 90-Day Finding on Petition to List *Taxus Brevifolia* (Pacific yew) as Threatened, 56 Fed. Reg. 40,854 (Aug. 16, 1991).

36. See Heiken, *supra* note 34, at 184.

the standard treatment for ovarian cancer. It has a very good success rate for a previously untreatable disease: almost eighty percent of ovarian cancer patients live at least one year after their diagnosis, and about half survive for five years or more.³⁷ Taxol has also worked against breast cancer, some kinds of lung cancer, and a variety of other cancers.³⁸ Researchers have since obtained Taxol from other sources, including from synthetic manufacture and hazelnuts,³⁹ but the Pacific yew was the original source of the drug used to treat ovarian cancer patients.

Of course, the Pacific yew quickly became my favorite tree. I checked E-Bay for Pacific yew souvenirs, finding few. I told my class about the Pacific yew. I was teaching a seminar in biodiversity and the law, and while we had already completed the material discussing the reasons for protecting the world's biological riches, I had to tell them about my newfound admiration for medicinal virtues of seemingly obscure species. I was especially eager to tell them because I had choked up early in the semester when I explained to my class that my mom had just been diagnosed with cancer. Suddenly the utilitarian arguments for protecting biodiversity seemed far more compelling than I had ever credited them.

IV.

I wish the story had a happy ending, that Taxol had rid Mom of her cancer and vindicated my new appreciation for the unseen benefits of the natural world. But that is not what happened. It took Mom several weeks to get her strength back after the surgery, and then she endured three rounds of chemotherapy treatments containing Taxol, administered every three weeks. We expected the chemotherapy to rob Mom of her strength, and it did. We also expected that there would be periods during the treatment when Mom possessed enough energy to live a relatively normal life, yet those times never materialized. We watched television commercials showing how chemotherapy patients could frolic with their grandchildren and wondered why Mom had to sleep all the time.

After three treatments, the oncologist took Mom off the chemotherapy. "For now," he said. They gave Mom other drugs and additional blood to help her get her strength back. Our family, Mom's

37. See American Cancer Society, *What Are the Key Statistics About Ovarian Cancer?*, at http://www.cancer.org/docroot/CRI/content/CRI_2_4_1X_What_are_the_key_statistics_for_ovarian_cancer_33.asp?sitearea= (last visited Oct. 5, 2003).

38. The Bristol-Meyers Squibb Company web site lists the uses of Taxol at <http://www.taxol.com/> (last visited Oct. 5, 2003).

39. See GOODMAN & WALSH, *supra* note 34, at 2 (describing how the synthetic production of Taxol eliminated the need to harvest the material from the Pacific yew); *Key Agent in Anti-Cancer Drug Found in Hazelnuts*, L.A. TIMES, Mar. 20, 2000, at 20. The substitute sources for Taxol rendered the conservation provisions of the federal Pacific yew Act, 16 U.S.C. §§ 4801-4807, obsolete soon after Congress enacted that statute in 1992.

closest friends, and the pastor of the church that had been so important to Mom for thirty years held a prayer service for her, gathering around her in her living room because she was too weak for the one-mile trip to the church. The next day Mom was so weak that she could not even get to her doctor's appointment. That night we took her to the hospital, and we soon learned that Mom had "a few weeks to a couple of months max" to live. Eleven days later, surrounded by her family and having said good-bye to her friends, Mom died.

Mom lived three months, one week, and one day after she had been diagnosed with cancer. In that time, she displayed a faith that amazes me. Her reaction to the news that she had cancer was striking: "It can't be easy to tell your mother that she has cancer," she told my brother, "but you did a really good job." At her prayer and healing service, she prayed that she would continue to be a witness to others. She was always more concerned about others than herself, right to the very end of her life.

Taxol did not save Mom. Yet we know that there are many people alive today because scientists discovered that the Pacific yew tree contained a substance that could treat previously untreatable kinds of cancer. Thanks to Taxol, thousands of women have survived for many years after they were diagnosed with ovarian cancer or other forms of cancer. We have had the joy of meeting some of those otherwise faceless statistics. I only wish Mom had been one of them.

v.

My views about biodiversity are but a small part of how I have been changed by Mom's death. I see the utility of unknown, seemingly worthless species. I recall what the Fish & Wildlife Service wrote when it listed the Illinois cave amphipod as endangered:

One of Congress' underlying principles when enacting the Act was that allowing any species to go extinct could result in unforeseeable adverse effects, because we may not know what contribution that species later may be found to have for the good of humans. There are many examples of plant and animal species that have been found useful in the treatment of diseases or in scientific research that provide benefits. Once a species becomes extinct, that potential benefit is lost forever.⁴⁰

Taxol gave me hope, and it has given many others much more than that. That hope adds another reason to the simple religious command to preserve the biodiversity "with which our country has been blessed."⁴¹ It even begins to solve the riddle whimsically voiced by Ogden Nash: "God

40. Illinois Cave Amphipod Listing, *supra* note 10, at 46,902.

41. President Nixon's Statement on Signing the Endangered Species Act of 1973, 374 PUB. PAPERS 1027, 1027-28 (Dec. 28, 1973).

in his wisdom made the fly / And then forgot to tell us why."⁴² Taxol offers just one illustration of the many hidden reasons for why we live amidst such an abundant array of biodiversity.

Yet as wonderful as Taxol is, Mom's experience places it in perspective. We should marvel at the beauty and utility of the natural world around us. But we dare not place our faith in creation, even a creature as magnificent as the Pacific yew tree. We place our faith in the Creator. Just like Mom.

42. OGDEN NASH, THE POCKET BOOK OF OGDEN NASH, *The Fly* 166 (1962).

