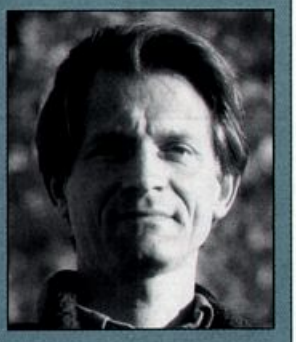
J. P. Myers

FACTS, INFERENCES AND SHAMELESS SPECULATIONS



The National Mutation Strategy

SOME TIME AGO, I suggested in this column that judicious use of pesticides might actually improve the quest for vagrant birds. The theory, you may recall, was that pesticides are likely to diminish migratory competency and thereby increase migration orientation errors. Apply just the right touch of dicofol in western Mexico and *Poof!* MacGillivray's Warblers may come to Philadelphia next spring. Put enough DDT in Paraguayan palm swamps and who knows, the Spectacled Tyrant (*Hymenops perspicillata*) might appear in Washington, D.C., before the next election.

I kept expecting one of the bird tour organizations to pick up on this and use it as a marketing ploy, but to date none has, or at least none has confessed. My economist friends (all two of them) tell me the reason is obvious. If *BIRD TOUR COMPANY X* were to do the spraying, it couldn't keep *BIRD TOUR COMPANY Y* from sharing in the benefits without paying its share of costs. The economists say the only way it would work is if the various bird tour companies jointly financed the spraying. Cooperation in competitive birding being what it is, this will never happen. So it is going to take a bit more R&D to get this idea rolling in the marketplace.

Things are much further along on the nuclear side of things, however. Some of you may be following the public scandal over contamination around our nation's nuclear weapons production facilities. The fact is, and, readers, this is not yet widely known, that all of it was planned as a massive effort to increase our national bird diversity index. This is the only explanation that makes sense: things are so wrong in that system that it could not have happened by accident.

It began in the late thirties. Franklin Roosevelt, widely known to be a birder and a participant in the Christmas Bird Count (if you need hard, irrefutable evidence), was one of the first national politicians to see that ultimately a nation's wealth depends upon its biological resources. Roosevelt, while fundamentally correct in his thesis, was misled by a cabal of systematists bent not so much on national interests as upon increasing the complexity of geographic variation, and ultimately the numbers of papers that *Systematic Zoology* might publish on the subject. They convinced Roosevelt that developing a network of nuclear weapons facilities was one surefire way to jack up the mutation rate, so that speciation might actually exceed extinction. The whole geography of production and pattern of contamination we have today flows logically from that singular vision.

A recent report (D. Russell, *Ami-*

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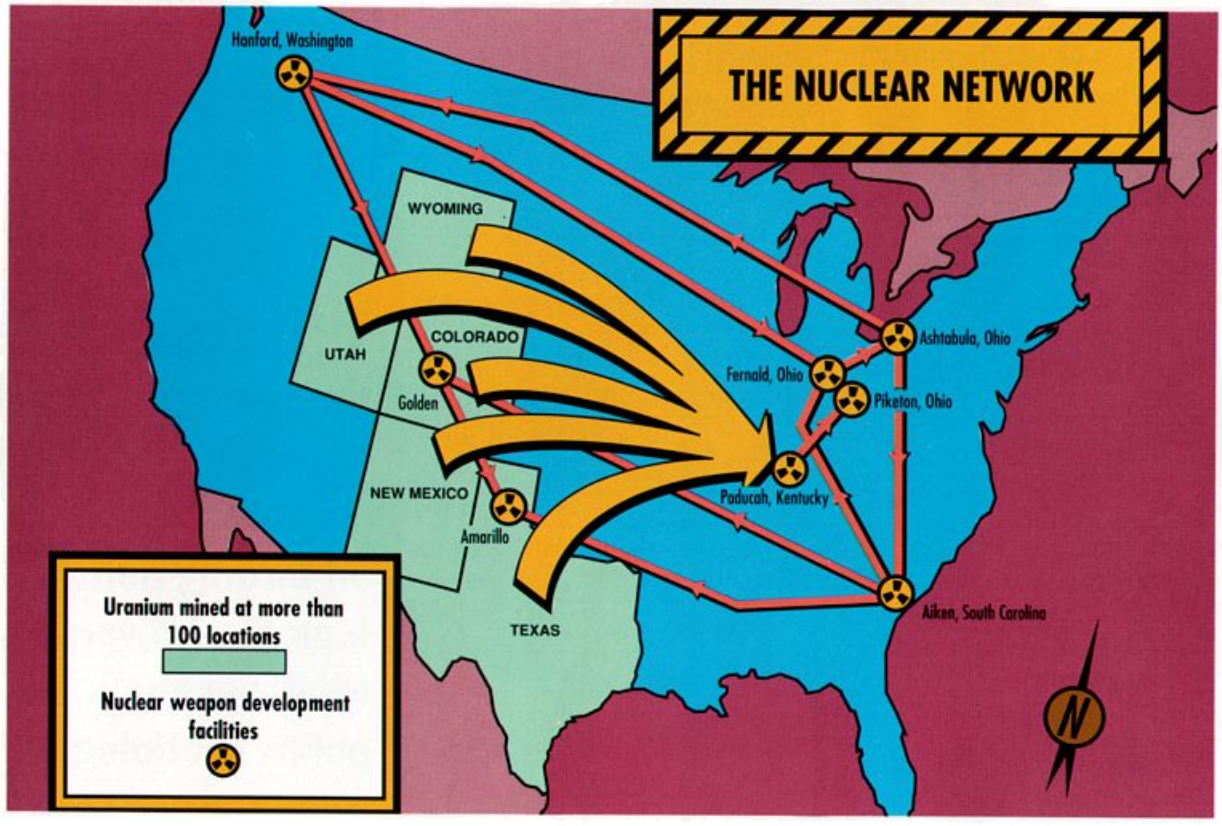

cus Journal 12(4):18-30, published by the National Resources Defense Council) spells out this geography and contamination in flabbergasting detail. First, the geography.

Uranium for operational weapons is mined at more than 100 underground and open-pit sites in Wyoming, Colorado, New Mexico, Utah, and Texas. It then goes to gaseous diffusion plants in Paducah, Kentucky, where U-234 and U-238 are separated. From there the enriched ores go to the Portsmouth Gaseous Diffusion Plant in Piketon, Ohio for further enrichment, and afterwards to the Feed Materials Production Center (not operated by Ralston-Purina) at Fernald, Ohio.

At Fernald, the enriched uranium is converted to a metal, then shipped to the Extrusion Plant at Ashtabula, Ohio, where it is made into rods and bullets (not of ordinary caliber). These products are then shipped to the Savannah River Plant in Aiken, South Carolina or to the Hanford Nuclear Facility, in eastern Washington, where they are used as reactor fuels.

At Hanford and Savannah, the uranium is irradiated in reactors. Some is thereby transformed into plutonium. The fuel rods are dissolved, and the plutonium is extracted. Left-over uranium goes back to Fernald, Ohio to repeat the process. The plutonium is trucked to Rocky Flats near Golden, Colorado, to be manufactured into weapons components.

All the plutonium parts for nuclear bombs are manufactured in Rocky Flats. Once made, they are sent to the Pantex Plant in Amarillo, Texas, where they are incorporated into the final product, bombs. From Pantex they are deployed to military

Franklin D. Roosevelt on Christmas Bird Count, May 1942. Figures, left to right, Raymond Guernsen, Roosevelt, Allen Frost, Ludlow Griscom, Jim Whitehead. Photograph/Margaret Suckley; Franklin D. Roosevelt Library.

MAP/ERIC A RHINEHART

installations around the world.

Looking at a map of the flow of materials you can readily see the indelible stamp of systematists and ecologists in this process. That flow was devised by people who study insect and bird migrations, phylogenetic trees, and nutrient flows in complex, multi-layered trophic systems — not by physicists trying to reduce the likelihood of accident, contamination or clandestine diversion. The one other interpretation with some superficial appeal, is that it could have been developed by politicians attempting to spread a bit of the economic afterglow of weapons production into their own districts, but that hypothesis fails dramatically once you remember that the government wouldn't let politics intrude into so important a planning process as this.

And what about contamination? Again, from compilations by the National Resources Defense Council, it is mind-boggling any way you measure it. From 1944 to the mid-1950s, over 540,000 curies of iodine 131 leaked into the atmosphere from Hanford's nuclear reactors. This is just one of 33 different particles and gases that wafted into the air column over the facility. Over that decade, families downwind of Hanford may have received more radiation than residents living near Chernobyl during the melt-down, perhaps 35 thousand times more than the 15 curies that escaped from Three Mile Island. Millions of gallons of radioactive and chemically hazardous wastes have been dumped into unlined trenches, from whence surface contamination still oozes into twenty additional acres each year.

Amicus Journal quoted Richard Wotjasek, the project manager for Westinghouse charged with environmental restoration at Hanford: "'The term 'cleanup' is really an erroneous one. . .It may very well be that we'll end up with 'national sacrifice zones' at certain facilities — places so contaminated they must remain fenced off perpetually."

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One might hope that the contamination dates only from a previous, more cavalier age, but it keeps leaking out. The Department of Energy recently negotiated, for example, a $78 million settlement with 14,000 neighbors of the Fernald plant for a 1984 leak of uranium oxide into the county water supply.

And what of FDR's technological plan to increase the national index of bird diversity? Tragically, this basic goal of the nuclear weapons production facilities has faded out of sight. It may be due to the fact that birding never caught on around the nuclear weapons production facilities. The extra paraphernalia necessary for effective birding in radiation zones may have sunk the budgets of low-rent birders, who might also have felt constrained by the lead attire. Perhaps, now that trips to Manu are out (thanks to the Peruvian *Sendero luminoso*), and that the Chiricahuas are bloated with tape recorders luring becards and trogons, and that everyone has been to Attu, the weapons plants will become one of the hot birding tours for the nineties.

Not only did nuclear birding never catch on, but students of evolutionary biology began to appreciate that mutation figured little, if at all, in setting the instantaneous rate of speciation. And now, with real extinction rates so unnaturally high anyway, thanks to wetlands loss, deforestation, *etc.*, and likely to expand dramatically due to global warming, our nation's leaders realized that even so dramatic a technological approach as planetary radiation therapy is unlikely to accelerate the basic rate at which new species differentiate enough to balance extinction, much less to exceed it.

Whatever the real or imagined impact of radioactive contamination from the nuclear weapons production facilities on birding and biological diversity, whatever the political etiology, we are stuck with a large, glowing, and expensive mess. Dealing responsibly with Hanford alone could eventually cost over $50 billion. Doing it system-wide (see map), could exceed $150 billion. This number approaches the cumulative expenditure by this country on nuclear weapons since 1950, some $250 billion to construct over 60,000 warheads.

Now for the first time since World War II, no nuclear weapons are being manufactured by the United States. This is not occurring because of diminished hostilities east-to-west, but instead because of court challenges to the environmental practices at production facilities.

Public outrage has already played a significant role in forcing the Department of Energy to acknowledge its cleanup liabilities. In fact, it has begun a series of citizen hearings that will lead, for the first time, to a programmatic Environmental Impact Statement on the cleanup and modernization of its weapons plants.

Add your voice to the clamor. ■

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