## Professional Biologist Finding leadership opportunities in an era of dual-career families

he recurring problem of a lack of diversity within national science leadership is exacerbated by the logistical problems associated with drawing women from dual-career families into leadership roles. Many of the specific issues that dual-career families face are now familiar to the BioScience readership (Foster 1993a,b, Lubchenco and Menge 1993, Wake 1993). Qualified scientists may not pursue opportunities beyond their home institutions because the problems seem insurmountable. Creative, flexible solutions are needed to enable more scientists to serve in leadership roles. Temporary appointments are one opportunity that can encourage broader participation by scientists who would otherwise be unavailable because of their partners' careers.

I have just finished a one-year rotation (1994) at the National Science Foundation (NSF) in the Washington, DC, area. As division director for the Division of Biological Instrumentation and Resources (BIR) in the Biological Sciences Directorate (BIO), I was one of only three female division directors among the 33 research divisions. The lessons I learned from this experience are worth sharing in the hopes that they lend credence to a new approach to increasing diversity in science leadership in this era of dual-career families.

At Oregon State University in Corvallis, I am a professor in the Forest Science Department and director of the Quantitative Sciences Group (QSG), a team I assembled to meet the statistical, quantitative, computer-networking, and computational research needs of the department. I also conduct research in

by Susan G. Stafford

scientific information management, teach statistics, and advise graduate students in forestry, a field and college where men make up the majority. I was able to accept the NSF appointment through an Interagency Personnel Agreement (IPA) between NSF and Oregon State University. Federal agencies use IPA arrangements to borrow people from the academic, nonprofit sector. Oregon State University considered the experience I would gain at NSF as being highly valuable to my work when I returned to campus. A grant compensated the university for my salary while I was working for NSF. The agreement we negotiated included travel expenses back and forth between my home institution and Washington, DC.

#### Logistics

When Mary Clutter, NSF assistant director for BIO, first contacted me about this opportunity, my husband and I both considered relocating with our college-age son to the Washington, DC, area for one to three years. We believed initially that either we would both go or both stay. Relocating our family, even temporarily, however, with one of us lacking full-time employment was not feasible. For my husband, a banker, to take leave for such an extended period might have compromised his job security. Even so, this risk would have been offset had he been able to take advantage of professional development opportunities on the East Coast. But because there is no program specifically designed to facilitate the recruitment of members of dual-career families to the Washington, DC, area (Oregon State University does have such a Family Employment Program; Stafford and Spanier 1990), the burden of finding suitable employment or advance-

ment opportunities within a limited time is on the candidate and his or her spouse.

We then began to consider a bicoastal commuting arrangement that would allow me to be gone from Corvallis for no longer than three weeks at a time. We initially planned to try that arrangement for 18 months, but revised our plans because of a new Internal Revenue Service ruling effective January 1994. This ruling redefined the duration of temporary living as not to exceed 12 months, and if so, all living expenses associated with the temporary job are not deductible, so as to make fiscally imprudent the cost of maintaining bicoastal households for more than one year.

I devised a schedule charting out a pattern of three weeks at NSF and one week in Oregon and put it out for review by NSF and my home department (Forest Science) and the College of Forestry at Oregon State University. I planned to work for NSF 75% of the time from Washington, DC, and 25% from Oregon. Although I hoped that it would be acceptable to both parties, I was willing to walk away from the opportunity if NSF or the university was not able to work within the framework my husband and I considered essential. I was lucky. Both organizations agreed to the schedule. While I was home in Oregon, I would be available to NSF for dayto-day work and would also be working with my students and colleagues on my university research. I continued to meet regularly with my students to discuss their research, direct my QSG activities, and serve on university committees. It was incumbent upon me to make the arrangement work; I was willing to adhere to the schedule and keep up with the workload to get the job done.

#### One year at NSF

On 1 January 1994 I arrived in Washington, DC, to begin one year overseeing the approximately \$50million BIR annual budget. The division supports a wide range of programs: Instrumentation and Instrument Development; Research Training Opportunities-Research Experience for Undergraduates, a portfolio of postdoctoral fellowships, and Research Training Groups; and Community Research Resources and special projects, such as Database Activities, Computational Biology, Living Stock Collections, the Arabidopsis Genome Project, and the Plant Science Initiative. During the 1994 calendar year, there were two rotating division directors and two permanent division directors among the four divisions within the BIO Directorate. Each division also had a permanent deputy division director.

I viewed the arrangement for the 1994 calendar year as a mutual commitment by NSF, Oregon State University, my family, and myself. It was therefore important that I consistently follow the prearranged work schedule, which would allow my colleagues at NSF and the university, as well as my family, to make plans. If, early in my tenure at NSF, it became clear that the schedule was unimportant to me, how could I possibly expect others to take it seriously? Although there were many times when getting on yet another plane was the last thing I wanted to do, I believed that I needed to uphold my end of the bargain.

Eventually, the monthly crosscountry flights became chapter markers for the year, and I found myself using them as episodes for gaining overall perspective, making midcourse corrections, and reflecting on the division. When one is immersed in daily details and crises, it is difficult, but yet so essential, to make time to focus on the big picture.

The schedule also gave me the opportunity to find creative, innovative methods of being in more than one place at a time. I accomplished this goal by using the capabilities becoming ubiquitous in the office place (i.e., video presentations, conference calls, e-mail, and fax machines). With advance planning, workable solutions were possible. Computer technology allows colleagues to work together despite geographic separation.

The usefulness of the schedule cannot be understated. Nevertheless, there was subtle pressure to abandon it. I was told by one NSF colleague that my schedule resulted in lost opportunities for NSF and, when I was away, precluded me from participating in and contributing to impromptu meetings. These missed opportunities were an inevitable disadvantage of the arrangement. For the most part, however, people had few problems arranging important meetings around my schedule. I told my colleagues that my schedule was, while not ideal, predictable.

The availability of permanent personnel in key positions (e.g., deputy division director) was essential for the arrangement to work. These people represent the institutional memory and, through teamwork, were my on-site presence when I was off site.

#### Lessons learned

Within the first few months at NSF, it became clear that I needed to focus on a few realizable goals. It is tempting, when one comes to NSF on a temporary basis, to try to learn everything, do everything, attend every meeting, and in general, be everything to everybody. Therefore, I found it essential to identify a few key themes and projects that were critical to overall success and to focus on accomplishing them in the time available. I developed some guiding principles, which I suspect have applicability beyond my year at NSF:

• Focus on the big picture. Do not become distracted with details. My overall objective was to establish a vision and more of a corporate identify for BIR within the directorate, NSF, and the scientific community by examining the internal structure and organization of BIR and making recommendations for reorganization.

• Limit yourself to a few, major

involved with too many things. Be selective in how you spend your time and choose your causes carefully. For example, I had three specific goals for my year as division director. First, I wanted to breathe new life into the Database Activity Program and get a new program officer on board as soon as possible. The division planned a summer workshop (special emphasis panel) wherein a revised program announcement was discussed and strategic planning for the whole program was examined. Second, I wanted to educate the directorate and NSF on the importance of issues related specifically to scientific databases and to research infrastructure support in general, such as the Protein Data Bank (PDB). Finding links with other programs and directorates as well as other governmental agencies was essential. The recompetition of PDB (now called the Macromolecular Structure Database) taught NSF, other federal agencies, and the scientific community valuable lessons and identified critical issues that must be addressed as they collectively wrestle with the question of how to provide longterm support for research infrastructure with short-term budget horizons. And third, I wanted to represent NSF at meetings on relevant issues that were both of interest to me and within my area of expertise, notably meetings of the National Biodiversity Information Center, relevant National Academy of Sciences/National Research Council committees, and the US/European Community Biotechnology Research Task Force.

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• Be organized and self-disciplined. Do your homework and learn quickly. Learn to switch gears quickly. Deal with the frustration that comes from having to tackle tough problems head on with a minimum of preparation or warning. Do the best you can and know that is all you can expect of yourself. Do not panic.

• Have a sense of humor—you are likely to need it.

• Exercise and rest. The value of a regular exercise program—regular as is humanly possible given the travel schedule—cannot be over-stated. Get as much rest as you can

and be good to yourself. If your commute is bicoastal, jet lag is inevitable, but there are sources that provide survival techniques (e.g., Fairechild 1992).

• Lead by empowering others, not by intimidation. Know when to relinquish control. And celebrate your staff's accomplishments. I strove to promote a sense of community and mutual respect within the division between program officers and program staff. Our division of BIR abandoned the commonly used labels of professional and support staff because I believed all members of the BIR division were professional. I adopted the terms program officers and program staff instead. I wanted

to be a role model for other women at NSF; I also wanted to raise the visibility of issues related to employment and recruitment policies that, once established, are likely to enable NSF to become a more family-friendly federal agency.

• Be open to constructive criticism there is likely to be plenty of it-and do not wait for accolades.

• Strive for excellence not perfection.

As I reflect on the year, it was overall, a positive experience. I survived, and my family did, too. Clearly, for the arrangement to work, my family, department, university, and NSF all had to be flexible.

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Each family situation is different: my family's arrangement may be unworkable for families with younger children. However, the success of my temporary appointment shows that there are options for recruiting that need to be explored.

Candidates should not be discarded simply because the obstacles initially appear too great. To get the diversity of competent people-both men and women-in leadership positions, those who are hiring must work with them and around their schedules. Let the people whose lives are likely to be affected decide with what they can and cannot live. Do not make these decisions for them.

I would like to think that my experience at NSF was not-and need not be-unique. If dual-career couples and their families are to flourish, ways must be found to meld the schedules and rewards of work and home (Etzkowitz et al. 1994). Such is the way of new, alternative leadership paradigms in sciencefor women and men alike.

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Susan G. Stafford is professor of forest science and director of the Quantitative Sciences Group, Department of Forest Science, Oregon State University, Corvallis, OR 97331-7501. Her research interests are applied statistics and scientific information management. Stafford is co-principal investigator on the National Science Foundation funded Long-Term Ecological Research (LTER) project (BSR 9011663) on the H. J. Andrews Experimental Forest and is an active member of the LTER information management community. © 1996 American Institute of Biological Sciences.