TRI Fellows research sites represented in this issue

Brazil: Alexandra Alhadeff
D.R. Congo: Gina Rae La Cerva
Ecuador: Luke Weiss
Indonesia: Sarah Casson
Madagascar: Karin Bucht
Mexico: José Pons
Peru: David Gonzalez
Sri Lanka: Klaus Geiger
South Africa: Linda Holcombe
Zambia: Tianjun Hou
TRI Fellows: The first thirty years

Erin Beasley, TRI Program Officer, Tamara Thomas, MEM 2016 & Katelyn Liesner, MEM 2016

Abstract

What can we learn from the Tropical Resources Institute (TRI) fellows of the past three decades? After their research proposals were written, the field work complete, and results analyzed and published, what was next for the hundreds of Yale School of Forestry & Environmental Studies (F&ES) researchers who explored natural resource challenges across the tropics? We examined the current work of TRI alumni to learn more about the diverse career paths that our fellows take after their summer research. We confirmed that TRI has a broad and growing network of alumni in academia as well as the non-profit, public, and private sectors. Our alumni address conservation and management from local to international scales, and work in dozens of countries around the world. For many F&ES students, summer research with the support of TRI was an early step in a career of inquiry across multiple environmental fields and issues. We believe that fostering investigative inquiry among early career researchers and environmental professionals encourages a deeper and more situated understanding to address critical challenges for conservation and management of tropical environments and natural resources worldwide.

Yale Tropical Resources Institute

Since its creation in 1983, the Tropical Resources Institute (TRI) has supported over 580 students to pursue interdisciplinary research on resource management and conservation issues in the tropics. The mission of TRI is to provide a forum to support and connect the initiatives of the Yale community in developing applied research, partnerships, and programs in the tropics. We support projects that aim to develop practical solutions to issues relating to conservation and management of tropical resources. TRI currently administers the TRI Endowment Fellowship, which supports Masters and Doctoral level research in the tropics each year, and, more recently, the Sri Lanka Forest Conservation Fund, which supports research at the Field Center for the Sri Lanka Program in Forest Conservation. From 1995 to 2011, TRI also administered the Compton International Fellowship through a generous grant from the Compton Foundation. Compton Fellowships supported research projects in Latin America and Sub-Saharan Africa by international students from these regions.

The Tropical Resources Institute is led by the Director, and TRI staff include a Program Manager and several student Program Assistants, who contribute to an array of program activities, including the publication of Tropical Resources, the annual journal of student research carried out with the support of grants from TRI. TRI also has a Faculty Advisory Board, which provides guidance on policy matters and serves to evaluate student fellowship proposal submissions each year.

TRI recognizes that the problems surrounding the management of tropical resources are rapidly increasing in complexity, while demands on those resources are expanding. TRI seeks to train students as leaders in this dynamic era, leveraging resources, knowledge, and expertise among governments, scientists, NGOs, and communities to provide the information and tools required to equitably address the challenges ahead. Here, we illuminate the population of former TRI fellows to better understand this singular community and inform future fund-
ing and training opportunities.

We considered fellows who received their master’s or PhD degree from F&ES between 1983 and 2014 (n = 565). Of those individuals, we gathered current information for 529 TRI alumni, including graduation year, gender, additional degrees earned, home country and country of current employment, job title, employer and employment sector.¹

### Number of Fellows

The total number of fellows funded each year has increased from the handful proceeding the creation of TRI to 20-30 students each year in the last decade (Fig. 1). This growth is most likely related to the overall rise in matriculating students at F&ES, concurrent with the increasing funding availability.

The overall gender ratio is female-biased (307 women, 222 men) following an increasing proportion of female researchers over the years (Table 1), reflecting the overall increase of female students at F&ES interested in research over the past two decades.

![Graph showing number of TRI fellows per year, identified by gender.](image)

**Fig. 1.** The number of TRI fellows per year, identified by gender.

<table>
<thead>
<tr>
<th>Year</th>
<th>Female:Male ratio</th>
<th>Female Quotient</th>
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<tbody>
<tr>
<td>1980-1992</td>
<td>36:42</td>
<td>0.86</td>
</tr>
<tr>
<td>1993-2002</td>
<td>84:59</td>
<td>1.42</td>
</tr>
<tr>
<td>2003-2014</td>
<td>187:121</td>
<td>1.54</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>307:222</strong></td>
<td><strong>1.38</strong></td>
</tr>
</tbody>
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**Table 1.** The change in gender ratio of TRI Fellows from the 1980s to 2014.

### Geographic Distribution

Not surprisingly, the interest that TRI fellows show in the tropics translates into work and careers around the world. Beyond the United States of America (US), TRI fellows work on all inhabited continents in a total of 48 countries (Figs. 2 and 3). The top five countries where our fellows currently work are the US (n = 355), United Kingdom (10), Thailand (9), Indonesia (8) and Brazil (7).

The majority of TRI Fellows originally hail from the US, and 10% of those alumni currently work outside of their home country (n = 33). The

¹If you have recently changed jobs, moved, or completed a degree, we encourage you to email us at tri@yale.edu, so that we can stay up to date with your current work.
international TRI Fellows who listed a home country outside of the US are even more likely to be working “abroad”: 28% are currently working outside of their home country, with about half employed in the US and half elsewhere. These numbers underrepresent the truly global nature of the issues TRI fellows address, because many TRI fellows continue to work on international issues wherever they are located.

Employment sector

We hope that the TRI experience catalyzes student interest in conducting field research in the tropics, and TRI succeeds in attracting student fellows from both the academic (MESc/MFS) and professional (MEM/MF, albeit in lower numbers) career paths. Given the emphasis on research, it is not surprising that the largest employment sector for TRI fellows is academia. However, the variety of other sectors illustrates the diverse interests and career paths possible to students after completing their research under the fellowship (Fig. 4)—over 60% are working outside of academia in a variety of non-profit, private, and public positions. A smaller subset of fellows currently work for UN programs and international financial institutions.

The changing nature of employment among those working to address problems in conservation and management is highlighted by the shift in sectors employing alumni. Students who graduated after 2004 are more likely to be working in the non-profit sector, and less likely to be working in the private, public, and academic sectors. This may point to the growing role that the non-profit sector plays in the kind of work that TRI alumni do.

The top employers of TRI alumni are Yale F&ES itself, followed by the World Bank (n = 9), the Nature Conservancy (8), the US Forest Service (8), USAID (7), WWF (6), and UNDP (5). While consultants and executive directors were two top job titles outside of academia, the most frequent job titles among our fellows occur within academia: Doctoral candidate is the most common (n = 55); other alumni in academia are working as post-doctoral researchers and faculty.

Academia

Of the 200 fellows in academia, the majority are still doctoral students (n = 55), while others now have post-doctoral (14), research fellow (21), or tenure-track (47) or tenured faculty (17) positions, non-tenure track (22) or are otherwise employed in university administration (20), or other activities (4).

After completing their education at Yale F&ES, 20% of TRI Fellows, went on to attain an additional degree (n = 106)\(^2\), which likely prepared them for further research and studies. Within the two research-focused degrees in F&ES, almost half continued in this field: 45 of the 109 TRI fellows from the MFS program and 90 of the 229 from the MESc program currently list a job in academia.

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\(^2\)This number is lower than might be expected given the number of fellows in academia; however, many students were fellows during their PhD program at Yale F&ES.
The employing academic institutions range across the globe, from Columbia University (US), the London School of Economics (UK), Universidad de los Andes (Colombia), and University of Chittagong (Bangladesh), to the Melbourne Law School (Australia), and the Tokyo Institute of Technology (Japan). Columbia, Duke, UC Berkeley and UC Davis, and the University of Hawaii are top academic destinations for our fellows. Many Fellows remain at F&ES in various roles (n = 26).

Non-profit

The non-profit sector is the second-largest employer of TRI alumni (n = 121), and includes a wide variety of organizations ranging from the African Wildlife Foundation (Kenya) to La Suiza Co-op Coffee Growers (Guatemala). The top five employers are The World Wildlife Fund (6), The Nature Conservancy (8), Gordon and Betty Moore Foundation (3), and the Wildlife Conservation Society (2) and Pew Charitable Trust (2). Within this sector, alumni of TRI show their leadership as founders, executive directors and directors, senior managers and program officers. Further, alumni in this sector are the most likely of all TRI alumni to be working on international issues – over half work for an organization or program specifically focused outside of the US.

Public and private sectors

TRI alumni in the private sector (n = 82) work primarily in energy (especially solar), consulting, communications, and natural resource investment companies. In addition, this sector also showed the most variation in employment, with work ranging from nutrition and wellness to engineering, mining, and tourism. Several of these enterprising alumni are CEOs, owners, partners, or principals of the business where they work (23).

In the public sector (n = 72), fellows provide their services primarily in the areas of forestry (20), international development (6), climate change (5) and energy (4). Other areas of work are conservation, regulation, and social science research. These alumni work at the local, state, and national level in 16 countries, although mostly in the United States.
Top agencies include the US Forest Service (8), US Agency for International Development (7), US Environmental Protection Agency (4), US Department of Agriculture (4), and US Fish and Wildlife Service (3).

**Fig. 4.** Employment sector of TRI fellows.

**Why is research with TRI important?**

The increasing number of fellows, gender equity, and shift in employment sector reflect the expansion of the program and the international scope of work carried out by TRI fellows. The greater emphasis on direct impact via work in non-profits, as well as the traditional academic route, suggest that TRI alumni are making a difference more than ever before.

In the future, we expect to provide greater support to more fellows, with an increasing focus on interdisciplinary approaches to solving environmental problems. Because TRI fellows study closely with F&ES faculty, we expect fellows’ research to better reflect recent and forthcoming hires in the School, as well as to take advantage of expertise from F&ES partner organisation within Yale and further afield. Furthermore, we anticipate that alumni will have increasingly multi-faceted careers, working in several sectors for a variety of employers, either sequentially throughout their career or explicitly in multiple sectors from the beginning.

Why is it important to have people with research experience working in all of these fields? Whether in academia, policy, or practice, TRI alumni bring the deeper practical and academic knowledge of their research site to their careers in explicit and implicit ways. Giving students the chance to put an investigative lens on a complex resource issue allows them as professionals to consider problems and proposed solutions more critically, with a better appreciation for the ecological and societal relationships of the place. The environmental challenges of our time require building from previous knowledge, and the process of academic inquiry helps us to understand not only the root of these challenges but also creative solutions.

Addressing challenges cannot be done in isolation, and this review reveals the strength and opportunities across the TRI network. Past fellows working across many sectors means that our fellows take their research experience with them to universities, businesses, public policy, and social needs in the US and around the world. Our growing network is a testament to this population’s underlying curiosity about the way the world works, across the tropics, and across disciplines. Our next step at TRI is to foster even better research and understanding of tropical resources among F&ES students, and build long-term research relationships that leverage the knowledge embedded across this diverse network of previous fellows. The skills of independent critical thinking, research design and execution, data analysis and writing that the TRI fellowships provide together create a firm foundation on which to build new leadership and knowledge to sustain and restore the long-term health of the biosphere and the well-being of its people.