Science Societies

Haggis, heathlands, and histosols

U.S. students triumph at the Olympics of soil judging

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The U.S. contingent to the Fourth International Soil-Judging Contest (l to r): Coach John Galbraith, Kennadi Griffis, Clare Tallamy, Ben Atkins, Isaac Nollen, Curtis Murphy, Brian Needelman, and Coach Jaclyn Fiola. Not pictured: Maxine Levin.

The rolling hills of Stirling, Scotland sit astride the River Forth where William Wallace and the Scots held off English invaders hundreds of years ago. The towers of the National Wallace Monument and Stirling Castle loomed above as soil scientists from around the world gathered at the University of Stirling. Teams from the U.S., Germany, Hungary, Korea, Italy, Spain, Mexico, Australia, and the United Kingdom were represented as well as volunteers from Ghana, Brazil, and other countries.

The International Soil-Judging Contest occurs every four years in conjunction with the World Congress of Soil Science. Contestants are students and early career professionals. In the U.S., students qualify to be on the team by placing as the top finishers at the National Collegiate Soils Contest sponsored by SSSA and ASA. The student representatives were Ben Atkins (Virginia Tech), Curtis Murphy (North Carolina State University), Isaac Nollen (University of Wisconsin–Platteville), Kennadi Griffis (University of Nebraska–Lincoln), and Clare Tallamy (Virginia Tech). Dr. John Galbraith and I were fortunate enough to serve as their coaches. The U.S. team, newly formed in April, studied soil classification and Scottish soils all summer. The first time we met in person was over a dinner of haggis, neeps, and tatties at the University of Stirling in late July.



Soils Team USA at work describing a Spodosol in Devilla Forest (l to r: Ben Atkins, Kennadi Griffis, Isaac Nollen, and Curtis Murphy).

Contest participants were treated to lessons from Scottish soil scientists and distinguished scientists from around the world, including Maxine Levin and Brian Needelman from the University of Maryland. Still, the bulk of our time was spent visiting soil profiles around the countryside. The Scots refer to Stirling as the "Gateway to the Highlands," and the carbon-rich soils reflected that. Glaciers carved through hard volcanic and sandstone rocks, leaving behind U-shaped valleys and glacially influenced soils. We saw rocky glacial outwash soils, colorful Spodosols, and mucky Histosols of peat preserved in Scotland's cool, wet climate. One site showcased the human effects on the native heathland; for generations, farmers removed or burned peat and drained soils to grow crops. That soil contrasted markedly with a Histosol cored from a nearby bog where heather and sphagnum moss still thrived (editor's note: for more on peatlands, see our feature story this issue on p. 16).

Bonded By Their Love of Soil

A highlight for Team USA was interacting with students and professionals on the other teams. The Italians taught us several words in their language. The Spanish team joined

us at trivia night at a local pub (none of us were much good at Scottish history trivia!). We bonded the most with Team Australia. Visa troubles had prevented their fourth member from getting to Scotland, and they had no coach available. The U.S. team offered Clare Tallamy (Team USA's alternate) to compete on behalf of Australia, and I volunteered to coach them. At many of the sites, we practiced as one large Australia–USA team. Clare expressed that establishing a working team dynamic with a new group of people from a different country was surprisingly easy; they found commonalities and bonded through their love of soil science.



Teams describing a soil profile. The Australia team (left) includes Clare Tallamy (U.S. student), Jay Ryan, Bhawana Kaudal, and Chloe Lai. The U.S. team (right) includes Ben Atkins, Curtis Murphy, Isaac Nollen, and Kennadi Griffis.

On the day of the contest, the teams fueled up on a traditional Scottish breakfast of blood pudding and baked beans before boarding the buses. They described four soil profiles—two on their own and two as a team. Even though they were from different universities and had only practiced together a few times, Team USA worked well together and brought different strengths to the team. Curtis carried around his copy of *Keys to Soil Taxonomy* to triple-check classification. Kennadi anchored the team with her texturing skills. Isaac and Ben are both quiet leaders who stayed calm and worked diligently to complete the soil descriptions.

And the Winners Are…

With their soil descriptions submitted, the students traveled to Glasgow for the awards ceremony. Soon after His Royal Highness the Duke of Gloucester spoke, all of the students and coaches were called up on stage. The top five individuals (based on their scores at two pits) were Clare Tallamy (U.S. for Australia), Edwardo Vasquez-

Garcia (Spain), Ben Atkins (U.S.), Isaac Nollen (U.S.), and Woosek Jang (Korea). Team USA won the group judging event (based on the two soils they described together). Finally, we waited anxiously for the overall scores, which were based on a combination of the individual and team descriptions. We knew that any mistake could sink a team. Finally, the contest organizer announced the results, and Team USA won! The students raised the trophy and celebrated with the World Congress audience. Australia, with its adopted U.S. coach and team member, placed second, followed by Spain, Korea, and Italy.

In addition to their outstanding scores during the competition, the students were exemplary ambassadors for their country. This was the first time traveling internationally for several students–Kennadi had to have her passport expedited to receive it in time! They all expressed how fulfilling it was to interact with soil scientists from all over the world. We made friends and professional connections that will last a lifetime; plus all five U.S. students hold the distinction of being the best soil judgers in the world for the next four years! Thank you to everyone who made this contest possible, including the contest organizers and volunteers, the British Society of Soil Science, and the Agronomic Science Foundation for sponsoring us.

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