**2. PROJECT SUMMARY (Fastlane separate boxes)** addresses the **research area and theme, the training plan,and the research-education integration.** The project **overview** must include the **expected number of NRT trainees** who will receive anNRT stipend, the number of additional NRT trainees **who will not** receive an NRT stipend, and the **grand total**; also specify whether the program **will serve** master’s students, doctoral students, or both. **Each NSF merit review criterion (Intellectual Merit and Broader Impacts) must be addressed in a separate statement (see Chapter II.C.2 of the GPG for additional instructions**).

Many graduate scientific programs in liberal arts colleges train Masters and PhD students primarily for careers in academia; even if there is some attention paid to “alternative” tracks the de facto system still provides little effective training for this. Programs in agriculture colleges do have more of an applied focus, but lack \_\_\_\_\_\_\_something polite to say broad question-based training? Training in areas X, Y, Z?\_\_\_\_\_\_\_. Yet, the US faces a key need for next generation biodiversity researchers to work outside of academia. For understanding emerging infectious diseases, detecting and stopping invasive species, managing natural resources, and understanding how to conserve biodiversity in the face of anthropogenic change, we need biologists trained in a wide array of skills (Tewksbury et al. 2014). **Our research area and theme** is interdisciplinary training of biologists for careers outside academia with technological, biological, and leadership skills required for success. Our team merges faculty from three departments and both a liberal arts college and a college of agriculture. We will train **15** **Masters and PhD students** directly as funded trainees, **30-100** **other unfunded trainees** through field courses or skills workshops developed as part of the program (**a grand total of** **45-115 students**), and **numerous external participants** through field courses and skills workshops. **Long term sustainability** of the program locally comes from repackaging existing courses for a new kind of audience, persistent connections between departments, and for the novel courses and workshops, through offering them at a sustainable fee for external participants. More generally, the lessons learned, including both successes and failures, will be communicated through peer-reviewed publications led by our external assessment team so that others may build on them.

The **training plan** covers four modular areas. The first three include **1)** core biology training: areas such as ecology, evolution, genetics, and especially natural history; **2)** technological training: remote sensing, genomics, GIS; **3)** leadership and management training. The core biology training builds on existing courses but will also feature two-week intense field courses. The technological training will largely be delivered in workshops. Our faculty already offer a few workshops that can draw interest from hundreds of applicants; by streaming these online, we can reach many more trainees than the core set of students supported by the program. In modular area **4)**, trainees will participate in at least one internship with our partners, which will help build their professional networks and expose them to the management of concrete issues. Throughout the life of the grant, integration with our external partners will help us tailor training to meet key needs they identify. This is an aspect of **research-education integration** within the grant, as is the assessment, and of course the individual research projects performed by the trainees.

**Intellectual Merit**: Sponsored student research projects will span a variety of biodiversity questions, likely ranging from alpha taxonomy to modeling population movement with climate change to studies of urban ecology.

**Broader impacts:** It is increasingly recognized that graduate programs in sciences should not focus on just churning out future faculty (Nature Editorial Board 2014), but few are configured for broader career outcomes. This project builds connections between graduate students and professionals outside academia while training students for a wide variety of positions focused on biodiversity. The addition of necessary practical skills such as project management and assessment will position graduates to be strongly competitive and ultimately more successful in industry or academia. The open nature of the training also pushes scientific knowledge out into the public domain where professionals can learn from it, fulfilling a classic role of land grant institutions.